
For British Columbia and Beyond

Climate Change and Fire Management Research Strategy Forum

Victoria Marriot Inner Harbour
728 Humbolt Street, Victoria BC

February 17-19
2009

Purpose of the session:

To prepare a research and communication strategy that defines needs and approaches related to climate change impacts on integrated forest and wildland fire management.

Day 1: February 17, 2009: 1:00pm-5:00pm

- | | |
|---------|---|
| 10:00am | Registration Desk Opens and Poster Set Up |
| 12:00pm | Lunch (on own) |
| 1:00pm | Welcome, Introductions and Review of Agenda |
| 1:30pm | Presentation Topic: Weather and Climate
Mike Flannigan, Research Scientist with Canadian Forest Service,
Great Lakes Forestry Centre |
| 2:30pm | Presentation Topic: Canadian Wildland Fire Strategy
Gordon E. Miller, Director General with Canadian Forest Service,
Northern Forestry Centre |
| 3:30pm | Break - Poster Review |
| 3:50pm | Presentation Topic: British Columbia's Wildland Fire Strategy
Judi Beck, Manager Fire Management, Ministry of Forests & Range |
| 4:50pm | Review of agenda for Day 2 |
| 5:00pm | Adjourn - Poster Take Down |
-
- 6:00-8:00pm Social Event at the Royal BC Museum: Natural History Museum
Beverages and appetizers will be available
Guest speaker: Richard Hebda "Ancient Fire - Climate Regimes"
Sponsored by Forest Technology Systems Ltd.



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Expectations

- Ensure an understanding of climate change is based on scientific / quantitative measures.
- Similar studies being done? Need to share ideas re: research agendas.
- Learn new things!
- Saskatchewan strategy: Timely to link with procedures from this conference.
- Understand big picture / context to help ensure our products meet those needs.
- Where are we at with integration of knowledge? Where can we learn?
- Networking.
- Get better understanding of issues related to climate change.
- Come up with priorities for research.
- Ensure we are not dealing in silos.
- Learn and understand the link between climate change and how forest management will adapt.
- Hear what research is out there and how can we apply it – from specialists and participants.
- How can we apply it in a practical manner: programs to implement.
- Social agenda is addressed.
- Take information home to districts and licensees.
- Hydrological issues associated with climate change and fire management.
- General state of research and gaps.
- How will climate change affect the number and intensity of fires and when will we start to see it happen?
- Identify research gaps: guild efficient structure to move this forward.
- Find out more about current understanding of fire and climate change.
- More about climate change impacts.
- Increase networking and understanding.
- Work towards standards.

Feedback from Presentations

Canadian Wildland Fire Strategy – Gordon E. Miller

- Definition: Fire State Community
- What is the vision for an empowered public?
- Our political capital is in an informed and knowledgeable public – is this considered part of empowerment?
- What is the relationship between CWFS and climate change policy (federal, provincial)? Linking actors?
- Consider research on building materials for the purpose of Fire Smart construction/structure viability.
- Concerns re: lack of implementation of the CWFS – need to sell it – what needs to be implemented + why is it urgent?
- Where is the CCFM Climate Change Task Team today? (Why are they not here?)
- Will the National Wildland Research Plan include how to better link FP Innovations?
- We have: thousands of unemployed loggers; a huge area of interface risks; a knowledge of fire changes as a result of climate change. Why aren't there loggers being employed reducing wildfire risks?
- Is it realistic we will get funding "federally" in a time of global economic restraint? (For wildfire strategy)
- Health protection included in fire management strategy (smoke).
- Socio-economic impacts of wildfire/lost business, homes, insurance, health impacts, disruption...)
- How are fire prevention, response & recovery, total GDP and social economics apt/going to change in light of climate change.

Social, Economic, Ecological Impacts of Climate Change: Mountain Pine Beetle – A Case Study – Ray Schultz

- MPB – How sustainable is the funding (federal/provincial) for the Action Plan or MPB? What about other pests lurking in a time of climate change? (Spruce budworm, etc.
- How are you including teleconnectors in MPB?
- MPB – Climate change learnings – What would we collectively do differently knowing what we know now? Then...do we need to adjust our short term strategy?
- MPB – Climate change – how accurate is our current modelling for short-medium term? What has been the accuracy to date up to 2008-2009?
- How to improve flow of climate change information to economic analysis?
- MPB is one of many forest health agents. Others are becoming v. destructive, and so more research needed on assessing resilience and vulnerability of tree spp. for future healthy ecosystems.
- Continued research needed on risk of boreal forest to MPB – epidemic
- Is it time to consider some different approaches to allocate tenure to forest resources and determination of wood supply in consideration of future uncertainties with climate change?
- What are we doing to use unemployed forest workers to reduce hazard fuels in urban interface areas?

British Columbia's Wildland Fire Strategy – Judi Beck

- Fire monitoring for “low risk” fires means that risk analysis will become critical. What plans for this?
- Climate change – How do we convince land managers that fire management planning is important?
- Performance measures
- BC Wildland fire strategy “climate change” – many complexities, with good forward thinking. However, in a period of global funding restraint how can we best move this forward, with political and public support?
- Modelling and decision rules – Need statistical/process/quantitative models to help assess benefits and risks with prescribed fire to help assess when and where these are helpful. These models should have levels of uncertainty and precision attached to estimates.
- Need – Fire management model plans to help communities to integrate fire management into planning.
- Need analysis regarding liability costs and requirements to better develop risk constraints. Reasonable and achievable.
- The workshop needs to define objectives or values that CC – fire research is to address
- How will you engage aboriginal peoples in the BC wildland fire strategy?
- Prescribe fire issues
- Research into ecosystem restoration may lead us to the development of key performance indicators for fuels management.
- We will need to engage the Ministry of Attorney General around the decision to let burn. Litigation is a reality we have to accept and compensate for.
- How can we identify “natural” levels of fire when historical information is no longer valid and there is a moving target?

Weather and Climate – Mike Flannigan

- Limits of airtanker aviation resources can be improved/enhanced.
- Through research into: hybrid chemical dev, electronic command and control systems.
- Need for a synthesis paper explaining the science of CC to fire managers and generalists.

Open Space Responses by Category

Group	Topic	No	Description
1	Managing for Forest and Rangeland Fuels	4	Develop risk assessment for looking at wildfire and interface fire risk in community watersheds and subregional airsheds.
		11	Understand the effectiveness of fuel treatments to reduce fire risk in the WUI.
		21	Develop new and improve existing techniques for quantifying fire risk.
		53	Develop tools that work at different scales that looks at risk acceptance, balance between risk, fuels / management, suppression, and subsequent ecological affects from an economic perspective. (Model)
		59	Investigate the values accruing from ecosystem restoration treatments that reduce wildfire risk while enhancing ecological, social, economic and cultural goods and services from the forest.
		65	Research ways to maximize wood waste for bioenergy.
		66	Seek additional alternatives and innovations to open burning to deal with logging and land clearing debris.
		73	Research into harvest methods to remove the standing dead trees / fuel and preserve the emerging understory.
		80	Not lose the value of coarse woody debris (CWD)
		87	Look at landscape fuel management
2	Carbon Flux	3	Resolve the debate regarding prescribed fire being a carbon emitter or sequester.
		31	Understand greenhouse gas emissions from wildland fire and prescribed fire - what are the carbon gains from fire suppression efforts.
		32	Determine the production and carbon sequestration within plant communities (with succession) of various plant communities following fire, including soil carbon and non-timber vegetation.
		44	Develop and assess potential mechanisms to minimize C emissions from a combination of slash burning and avoided wildfire.
		81	Quantify the GHG / carbon release differences between wildfire and prescribed fire.
		108	How CC will impact on carbon release.
3	Fire Weather Monitoring and Forecasting	6	Better understand the triggers / conditions under which hydrological / geological post-wildfire events occur.
		20	Improved medium range fire weather forecasts (2-10 days).
		28	Work on developing a better predictability in fire weather indices and ecological effects.
		30	With regards to weather forecasting models that we develop decision making tools - ways to display the risks and the probabilities to assist in resource allocations.
		60	Gap analysis of where we go with data (climate change affect on Fire Management) specific to fire weather.
		64	Provincial integrated weather network that meets our collective needs of research and operations.
		94	Wind models that adequately represent wind in complex terrain.
4	Climate Change, Ecosystem Health and Fire	15	Understand how changing species and natural distribution types across the landscape as a result of climate change will impact fire return interval and intensity.

		34	Need to develop long term observation program that will generate linked data information and knowledge about forest fires considering climate, hydrology and climate change - monitoring.
		37	Couple mid and large scale fire occurrence scenarios over future decades with vegetation succession and regen models so we gain better understanding of feedback effects and controls between burned areas, fire occurrence and veg regen.
		39	Establish a system of benchmark sites in areas of protected lands to monitor the environmental effects of unmanaged fires.
		52	Analyse existing databases to determine if there have been any influences of climate change in the 1900s on fire occurrence behaviour and extent.
		58	Determine when natural disturbance types are shifting (NDT3 to NDT4) and then the impacts on fire management that result.
		89	Look at how fire under climate change may impact vegetation and ecosystem composition and distribution.
5	Understanding the effects of Climate Change on Fire Behaviour	2	Establish red book table entries specific to beetle killed wood as a fuel type.
		6	Understand how fires arrive over time and space.
		12	Pay attention to our "inventories": how we capture accurate and current data.
		14	Develop and validate models for fire arrival and spread under various CC scenarios.
		16	Develop a new fire behaviour prediction system.
		24	Changing fuel condition as a result of Forest Health factors will affect fire intensity and behaviour.
		33	Understand if regional fire predictors are robust at the landscape scale (i.e., extremes of drought indices).
		40	Improve risk management techniques to support integrated planning.
		56	Improve our local and long term (5-15 days) consideration of the complex terrain to aid in decision making.
5	Understanding the effects of Climate Change on Fire Behaviour - Safety	68	Identify dangerous landscapes and responder safety concerns in light of climate change.
		75	Evaluate the effects of increased CO2 concentrations on fuels and resultant fire behaviour and smoke generation.
		78	Further investigate wildfire spread rates and risk over time in MPB attacked stands as they age through grey-attack to fallen stands.
		85	Refine operating guidelines particularly in regards to safety for responders, given implications of climate change on fire behaviours / fire management.
		92	Ensure that any new fire behaviour models are developed with and for Fire Behaviour Specialists.
		99	Improve our fuel types to reflect change in stand densities.

		103	Develop tools to quantify fire behaviour in treated areas and around communities (fuel treatment and Fire Smart).
		106	Study fire behaviour on steep terrain.
		107	How cc will impact on burn severity.
6	Communications and Technology Transfer	9	Identify some markers to ensure that we are monitoring occurrence and impacts.
		29	Find ways to determine best ways to communicate climate change, fire management strategies (determine risk acceptance and how to communicate / educate the public).
		36	Enhance the number of young scientists and researchers entering fire / climate as a profession in Canada and staying in Canada.
		46	Who are the decision makers and what are the obstacles to good decision making. i.e., lack of info? Lack of extension? Or some other barrier?
		50	The fire community has to engage climate change task force at a CCFM level (Can Council of Forest Ministers).
		51	Important to engage in research to better understand how individuals and communities perceive risk to engage in mitigation.
		69	Improve engagement with academic researchers, including communication of research practices and sharing data.
		71	Position the province to shift from a position of fire suppression to fire management. Need industry, government, public to provide understanding and support.
		72	Influence funding agencies to address operational wildfire management research needs.
		77	Need to develop a common message to public, local governments, agencies, responders around climate change and what realities are - educate, train, prepare
		83	Develop an ability to provide CC impact assessments tailored to individual communities / regions.
		98	Integrated, efficient cooperation in research and development.
7	Influence of Wildfire on the Public and Where We Live	8	Develop mitigation / adaptation processes / training for community water suppliers and local/ regional government.
		10	Support and empower interdisciplinary research (climate science, ecology, social policy) to create a new vision for how communities can survive and thrive in future scenarios.
		17	Develop and validate models for smoke spread and health impacts of smoke.
		19	Determine what building materials would be optimal for structure viability during wildfire.
		22	Critical to exploit existing technologies in remote sensing and GIS for the transfer of near real time info on fire activity and fire potential to first responders and interface communities.
		35	Need to determine which factors would allow for sheltering in place safely.
		38	Generate knowledge about fire in forest ecosystems and their impact on livelihood and sustainability of communities an foster use of knowledge to influence decision and practices that impact risks.
		48	Understand wildfire case history and litigation environment and develop policy and regulation to minimize organizational risk and first responder liability.

		49	Make sure that research addresses local government interests in the urban / rural interface (community protection plans and fuels mgt) and that the info is presented in a manner they can easily use in their decision-making.
		57	Better designs for the WUI (Wildland urban interface)
		61	Include the health impacts due to more smoke on the landscape in economic valuation.
		74	Consider First Nations needs
		79	Determine what a fire safe community looks like.
		86	We need to stop fires being set by humans.
		88	Consider potential change in demographics (population shifts) and impact on values at risk and perception of fire management.
		91	Responder and community safety.
		104	Look at impacts of change in fire regimes on health issues (water quality, smoke concerns).
8	Fire Response Resource Capacity: Intellectual Capacity - Research Program	1	Have a coordinated inter-disciplinary approach to research with dedicated funds to implement research and extension.
		7	Maintain a critical mass of expertise / intellectual thought in one place as a "centre of excellence for climate change to move this agenda forward. Could be from a number of agencies, countries, disciplines, etc.
		23	Encourage, understand and learn to apply next generation aerially applied enhancer, suppressants and retardants.
		25	Develop and apply a climate change timeline and identify impacts on suppression techniques and resource levels.
		26	Ensure timely flow of updated cc info to support internally consistent analyses of fire mgt strategies.
		27	Clearly define the objectives and values of the research program i.e. define objectives and values we need to address with research.
		41	Identify and get over existing barriers which are limiting ability to move forward around climate change, areas such as: social aspect / affect, legal liability, research gaps, knowledge transfer, decision tools (risk, forecast,...), monitoring tools (moisture, seasonal trends), extreme weather events.
		45	Look for new ways to partner and include industry in setting research priorities and plan implementation.
		54	Quantify forecast suppression capacities.
		55	Understand valuation and return on investment.
		62	Determine the projected changes in fire suppression resources required to address the effects of climate change in the future. Require 10 years to acquire resources to address an increase.
		67	Establish inter-connected approach with other senior government, local / regional quasi-government and NGOs efforts in climate change (3P initiatives)
		70	Study economic outputs in relation to climate action and include scenarios of not changing or continuing down the present course of action.
		76	Quantify the net cost impacts of increased fire intensity and starts over time.
		93	From knowns around climate change, develop practical "must do's" that can be implemented quickly within current realities (budgets, research gaps, succession issues).

		97	Funding and research and development capacity.
		100	Understand true implications of fire under climate change on forest management practices and planning.
		102	Define and model our present and future human capital (demographics) and incorporate into wildfire management plans.
9	Carbon Flux	43	Understand the influence and interactions of fuel types, fuel loading and weather to guide best practices for minimizing carbon emissions from prescribed burning.
		82	Find ways to reduce total net emissions from wildfire management.
n/a	Parking Lot Items	84	We have a climate action toolkit
		90	Consider the possibility of "adaptive management" and how it can be considered in legislation / regulation, etc (flexibility).
		105	Understand social / economic impacts

Research Area – Carbon

Research Topic: #1 What is the impact of fire and fire management on carbon emissions and sequestration? At various time scales?	
Research Topic Description	
<ul style="list-style-type: none"> • This project would involve the quantification of the net carbon balance of various fire-related activities such as: wildfire, slashburning, prescribed burning and thinning • The influence of specific conditions on the carbon balance would also be studied • These conditions would include: the fire weather index, fuel types, timber types, fuel loading and fire intensity. • The overall goal of this project will be to develop a decision tool to evaluate different management alternatives and climate change impacts on the carbon budget of our forests 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Research Branch – Wildfire Management Branch • Canadian Forest Service • Ministry of Environment (BC) • Environment Canada 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Forest Investment Account 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 5-7 years, with a 5-10 member team 	<ul style="list-style-type: none"> • All fire management agencies in BC • Canadian Forest Service • BC Ministry of Environment • The Cabinet Committee on Climate Action
Additional comments	
<ul style="list-style-type: none"> • Longer timelines, 5+ years? • Use suppression to gain carbon credit • Annual increase and decrease of Carbon, but management objectives depend on time frame (i.e. 10 yrs, 100 yrs...) • Peat vs. other ecosystem types, role of peatlands was described by Mike F. but seems to be missing? • How would you capture variability at standard level? Landscape level? • How does climate change affect fire management, rather than how does fire management affect climate change? Prioritize issue – fossil fuels • Integrate this project with other natural resources carbon projects – forest, water, etc. • Not just carbon – type of fire will affect how much carbon stays in the atmosphere – hot fires blow carbon higher, also smouldering fires burn more carbon • Define “net carbon balance” i.e. over what time period? Define sequestration. • Look at this research in terms of scales within Canada 	
Contact information	Votes:
Names: Team Carbonators! Email Address:	32

Research Topic: #2 How do we balance the need for fire on the landscape with provincial objectives to reduce emissions	
Research Topic Description	
<ul style="list-style-type: none"> Evaluate the trade-offs between different forest and fire management alternatives and in consideration of competing values such as carbon/budget/sequestration, fire prone landscapes, healthy ecosystems, biodiversity, economics, social expectations, recreational values, cultural values, and habitat. Consider ways to value non-monetary benefits and distribution of benefits (to whom), costs and risks Communicate results to public, land managers, fire management agencies, etc. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> University Ministry of Forests and Range: Research Branch, Wildfire Management Branch Union of BC Municipalities First Nations 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> FFESC (Future Forest Ecosystems Scientific Council) 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 2 years 	<ul style="list-style-type: none"> Provincial Policy Makers Land managers Planners Elected officials
Additional comments	
<ul style="list-style-type: none"> Consider this in carbon budget terms Adaptive management in the SPT (sp?) cycle Provide clarity on what is meant by management? (i.e. full range of forest management vs. use of prescribed fire only) This may be a communications strategy versus a research project 	
Contact information	Votes:
Names: Caren Dymond, Kathy Hopkins, Lyle Gawalko (sp?), Ed Korpela, Tim Ewert, Dereck Van Der Kemp, Christine Cohr Email Address:	14

Research Topic: #3 What are the fossil fuels emissions from fire management and how do we reduce it while maintaining efficiency and effectiveness (costs included)?	
Research Topic Description Fossil Fuel Sources: <ul style="list-style-type: none"> • Fire response • Fire suppression • Pickups • Initial attack crews • Slash burning • Aerial monitoring • Aerial attack Mitigative Actions: <ul style="list-style-type: none"> • Technology • Action decisions • Response/non-response *Considering also avoided emissions	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • MFR Protection Program • Corporate Services (Robert Millard) • Government Policy 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Corporate Services Division / FP Innovations 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 1 year 	<ul style="list-style-type: none"> • Protection Program • CSD • CCCA
Additional comments	
<ul style="list-style-type: none"> • Revise Question: what amount of fossil fuels are used to carry out fire management and what is the cost compared to the benefits in terms of carbon reductions? • Fossil fuel uses to support these activities • Different/more use of local resources/crews to <u>fight fires</u> • Include government policy makers around climate change • Change in basic business practices to reduce carbon footprint – trucks, tactical aircraft • Is it worth \$1 million to save \$100 thousand worth of trees? Express in carbon terms 	
Contact information Names: Team Carbonators! Email Address:	Votes: 4

Research Topic: #4 Development of new outputs for fire behaviour prediction	
Research Topic Description	
<ul style="list-style-type: none"> Development of forecast tool for medium-long range spotting, convection vs. wind driven fires, fire whirls, long range fire behaviour modelling 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> CES (sp?) / Universities, with collaboration from fire management agencies 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> CWFG Federal government Fire management agencies 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> Permanent 	<ul style="list-style-type: none"> Fire management agencies Research community
Additional comments	
<ul style="list-style-type: none"> None 	
Contact information	Votes:
Names: Nathalie Lavoie Email Address: Nathalie.Lavoie@mrnf.gouv.qc.ca	0

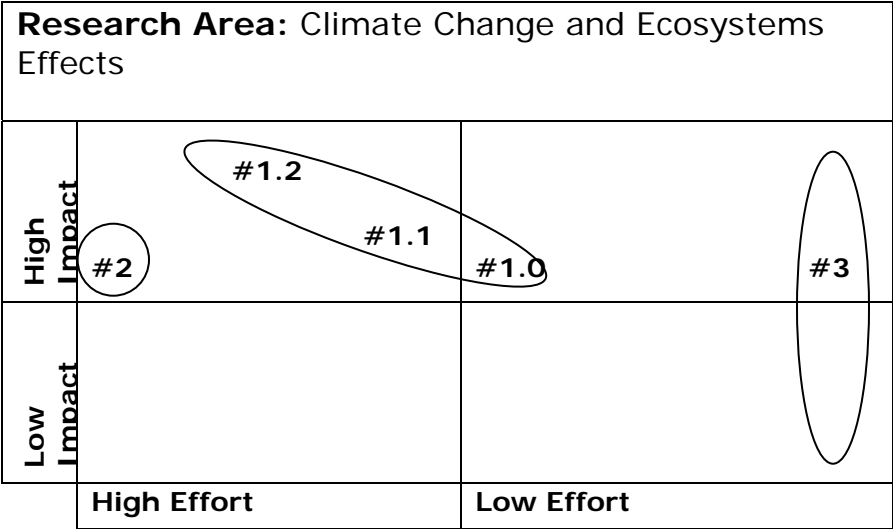
Research Area: Carbon		
High Impact	#2, #1	#3
Low Impact		
	High Effort	Low Effort

Research Area – Climate Change and Ecosystems

Research Topic: #1 Resilience and resistance to climate change of BC's ecosystems	
Research Topic Description	
<ul style="list-style-type: none"> • What is the spatial distribution and range of ecosystem resilience and resistance? • Map at provincial level of BEC (zones → variants) to management needs / policy needs • Develop models that predict changes in resilience and resistance to changes in climate for different BEC variants with respect to fire • How much change in susceptibility to fire at a scale relevant to ecosystem community management and policy – this will provide a tool useable at provincial scale of policy and at landscape level by managers and scientists 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • BC MFR Research Branch • ILMB 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • BC MFR • FFT • FIA 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • < 1 fiscal year to version 1.0 – refine and revise with use 	<ul style="list-style-type: none"> • Any agency dealing with predicting ecosystem change in BC (at least) • Parks • Forestry • Community Development • Environment • Economic Development • SARA • First Nations • Policy makers
Additional comments	
<ul style="list-style-type: none"> • Sensitivity to changes in fire regime • Is this research? • What is the link to fire? • Will rely greatly on accurate GMCs 	
Contact information	Votes:
Names: Paul Whitfield, Dan Perrakis, John Parminter, Craig Wickland, Tony Stevens, Rob Walker, Andrew Pentel (? – Range in Nelson MFR) Email Address:	16

Research Topic: #2 Fire regime change impacts to hydrology and vegetation	
Research Topic Description	
<ul style="list-style-type: none"> • What are the implications of large scale, high severity fires to a selection of regional ecosystems? • Focus on hydrology and dominant plant species • Coast, S. Interior, and C. Interior • Modelling and case studies 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Lead – MoF Research Branch • Co-op – Academia, CFS 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • FIA Forest Science Program 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 2-3 years 	<ul style="list-style-type: none"> • Policy makers • Municipalities • Industry • Parks • ENGOS • First Nations
Additional comments	
<ul style="list-style-type: none"> • Large fires could be result of CC or policy changes • Need an example to provide clarity, e.g. H₂O or species • Fire regime includes more than size/severity season frequency source • Useful to do a case study? • 90% is being under FFEI • Very good research question! Will link well to fire risk assessments 	
Contact information	Votes:
Names: Paul Email Address:	23

Research Topic: #3 Facilitated Migration of Trees	
Research Topic Description	
<ul style="list-style-type: none"> • Can we successfully use facilitated migration to create resilient ecosystems? • Focus on 3 least (?) resilient (keystone SPP (?)) • Cedar in ICH, whitebark pine, western larch • Trials to determine success in transplanting SPP (?) to potential future habitat under CC scenarios • Sites selected based on results of predictive modelling for 30-50 years in future CC scenarios 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Lead – MoF Research Branch • UBC (CFGC) • CWS • EC 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Industry • NSGR • FIA • SARA 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 20 years plus permanent plots 	<ul style="list-style-type: none"> • Industry (TSR) • ENGOS • OGDs • ILMB • Policy makers • First Nations
Additional comments	
<ul style="list-style-type: none"> • Link to fire? • MFR currently working on this • “Facilitated migration” – not clear what it refers to • How is “success” measured if climate continually and quickly changes in the next 20, 30, 50, 100 years? 	
Contact information	Votes:
Names: Craig W. Email Address:	9



Research Area – Wildland / Urban Interface

Research Topic: #2 Community Planning – FireSmart Research (*links to Communications)	
Research Topic Description	
<ul style="list-style-type: none"> • Support FireSmart/FireWise recommendations with proper scientific foundation – prioritize by cost • Address building schemes and covenants • Kelowna rebuilding as example • Community planning 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • FERRIC • Industrial Builders • Office of Fire Commissioner • Housing and Social Development (building code) • Community Development 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Province • DINA • CWFS • CIFFC • PIP • Insurance • Federal Infrastructure 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 3 years 	<ul style="list-style-type: none"> • Local authorities for bylaws • Local building bylaws • Indian affairs • PEP
Additional comments	
<ul style="list-style-type: none"> • Determine key infrastructure (power-lines, roads, bridges, water treatment plants, etc.) protection priorities • Identify key community watersheds and determine fire management planning and treatment to maintain community water supplies • Risk of wood roofs for example in urban interface or risk of no brush clearing (?) around homes • What are the climate change research questions? • What is the research question? • Science needed to support FireSmart, caution that science be balanced with practical use • Critical research required for fuel treatments effectiveness, link to fuel effectiveness project re: testing and modelling effects • Need to elaborate what FireSmart/FireWise recommendations are? While science based recommendations are great, the driving force for FireSmart/FireWise needs to the public – need more support for public information programs • FireSmart and FireWise – links to Communications 	
Contact information	Votes:
Names: Laura Johnson, Cathy Leblanc, Brent Frye, Ton Brach (sp?), Harry Spahan (sp?) Email Address:	25

Research Topic: #3 Public Education / Information	
Research Topic Description	
<ul style="list-style-type: none"> • Identify the social, health, and economic impacts of <u>smoke</u>. • Compile existing research into an indexed volume to be used by decision makers. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Province – Ministries of Health, Forests... 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Province 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 1 year – ongoing 	<ul style="list-style-type: none"> • Management involved with any fire decisions • Health authorities • Ministries • UBCM • PEP • Communities
Additional comments	
<ul style="list-style-type: none"> • Could we index the smoke impact to the AAC? I.e. harvesting and subsequent treatment level contribution to participate • What data do we have on smoke sheds? • What/where is the climate change link? • Add public knowledge awareness, prevention, etc – our relation to <u>fire</u> not only smoke • Synthesize research into smoke impacts on social, health, and economics • Changing Risk Perception Research – social side of acceptance of FireSmart “way of life” • Need to research how risk perception can be changed among community members • Is it research or information and data analysis? Research of existing material and compiling/indexing for use. 	
Contact information	Votes:
Names: Email Address:	6

Research Area: Wildland / Urban Interface		
High Impact	#2	#3 #1
Low Impact		
	High Effort	Low Effort

Research Area – Managing Forest and Rangeland Fuels

Research Topic: #1 Landscape fuel management	
Research Topic Description	
<ul style="list-style-type: none"> Integration of natural disturbances and land use activities to create and maintain strategic landscape fuel breaks. (To prevent large scale fire across landscape.) 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> Multi agency – MFR (fire and fuel folks), ILMB (land use planners), research conducted by MFR research branch, NRCAN, universities 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> Govt and industry 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> up to 5 years 	<ul style="list-style-type: none"> Resource planners Land and resource managers Land use planners Local and provincial govt response agencies
Additional comments	
<ul style="list-style-type: none"> This definitely a research topic but the way it is described here sounds like field application instead. What is the research question? How do we integrate multiple values into a landscape level fuel management plan. Specifically relate to MPB? Research problem: How do we implement LS level fuel management? Fire behaviour has to work with managing fuels Needs clear link to climate change. How will climate change affect the supply of fuel? How will we adapt to these changes? What are the opportunities and barriers to coordinating natural resources agencies and communities to create strategic landscape fuel breaks? Fire behaviour needs to work with fuels because the two groups are collecting different parameters for their research. Good critical mass. Re-write to reduce terms or define clearly the research questions and projects [?] for politicians. 	
Contact information	Votes:
Names: Brad Hawkes, Greg Anderson, Walt Klenner, Paul Maczek, Dave Milne, Julie Fortin, Kirk Hughes Email Address: None	14

Research Topic: #2 Managing forest and rangeland fuels	
Research Topic Description	
<ul style="list-style-type: none"> • What is an affective fuel treatment under current <u>and</u> climate change scenarios? 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • MRF/FP innovations/CFS Fire and fuel folks 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • GVT – provincial and local 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 1 to 10 years 	<ul style="list-style-type: none"> • Resource mgrs • Planners and users • Local/prov govt • Response agencies
Additional comments	
<ul style="list-style-type: none"> • Link to fire behaviour project via new fuel type (MPB), spaced forests, future climate – does the treatment still work. • What's the link to climate change? • Fuel treatment options/alternatives • Research will refine operational protocols and existing documented assumptions that have been around for a while • Length of time needs to be broken up into phases to get it kick started • <u>Model</u> effectiveness? • Treatment objectives linked to testing effectiveness. • Can you extrapolate results with changing climate? • One performance indicator should be the public – some kind of feedback. • This is a fire behaviour project and included in one of the fire behaviour group projects. • The forest species will not change in 20-30 years but the 95th percentile weather conditions may change. So are the fuel treatments still effective. 	
Contact information	Votes:
Names: None Email Address: None	14

Research Topic: #3 Fuel treatment effectiveness and maintenance	
Research Topic Description	
<ul style="list-style-type: none"> Assessment of the effectiveness of fuel mgt <u>treatments</u> on fire behaviour, over time, at the stand and landscape level. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> MFR/FP Innovations/CFS Fire and fuels folks 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> Govt – provincial and local 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 5 to 10 years (?) Could be immediate 	<ul style="list-style-type: none"> Resource mgrs Planners and users Local/prov. govt Response agencies
Additional comments	
<ul style="list-style-type: none"> OK, but hasn't there been lots of work on this already? Assess current fuel reduction techniques. What is the research question? Link to climate change better. 	
Contact information	Votes:
Names: None Email Address: None	0

Research Area: Managing Forest and Rangeland Fuels		
High Impact	Field testing – 1 & 2 7 9	Modelling - #1 and 2 11
Low Impact		
	High Effort	Low Effort

Research Area - Fire Response

Research Topic: #1 Develop the model/process that will continuously quantify the impact of climate change on fire suppression	
Research Topic Description	
<ul style="list-style-type: none"> Quantify the change in "Fire Suppression Workload" as a result of climate change – nationally, provincially Use input data (atmospheric CO₂, mean temp., lightning patterns, etc.) to predict % change in days where BUI > 120, % change in length of fire season, spatial and temporal variations in ignition potential to provide parameters for output and help assess "workload". 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> Canadian Forest Service, Interagency 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> CCFM – Canadian Wildfire Strategy 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> Need a draft in 2-3 years and a system to ensure continuous validation and update 	<ul style="list-style-type: none"> All Canadian agencies
Additional comments	
None	
Contact information	Votes:
Name: Mike Winder, Ray Ault, Dennis Brown, Jeff Berry, Kenny Brewer, Rob Keen Email Address: None	37

Research Topic: #2 Develop a cost/benefit model to quantify the impact of response capacity in relation to climate change	
Research Topic Description <ul style="list-style-type: none"> Adapts to regional variation Test theoretical fire suppression capability vs. climate change impacts on resource composition and configurations 	
Who is most likely to be able to carry out this research project (lead/co-op)? <p>Requires a national initiative</p> <ul style="list-style-type: none"> Price Waterhouse Cooper/KPMG 	
Who would most likely be interested in funding this project? <ul style="list-style-type: none"> Treasury Board 	
Estimated Length of the Project? <ul style="list-style-type: none"> 2 years 	End Users? <ul style="list-style-type: none"> Fire management agencies across Canada
Additional comments <ul style="list-style-type: none"> Need a question to answer. What are the impacts of limited suppression resources given the increase in fire activity (#2, intensity, etc.) anticipated as a result of climate change Economic focus – suppression \$, timber \$, home \$, equipment Link to projects proposed by Carbon Flux grp. Should this integrate into fire mgmt. plans? T/B end user? Cost/benefit analysis should include value of fuel breaks etc. to reduce costs Needs to appropriately balance ecosystem services with \$ 	
Contact information Name: Mike Winder, Ray Ault, Dennis Brown, Jeff Berry, Kenny Brewer, Rob Keen Email Address: None	Votes: 17

Research Topic: #3 How does the wildfire response community have to evolve to adapt to the predicted increase in workload?	
Research Topic Description	
<ul style="list-style-type: none"> A series of Open Space facilitated workshops at the regional, provincial, and national levels aimed at the development of response enhancement options, and prevention initiatives to mitigate the impact of workload change as a result of climate change 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> Wildfire Management Branch Fire Management Experts CIFFC, PEP Nationally reviewed/internationally distributed 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> All participating fire incident management agencies Industry 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 6 months (upon review of workload and cost/benefit analysis recommendations) 	<ul style="list-style-type: none"> Wildfire Management Agencies
Additional comments	
<ul style="list-style-type: none"> [?] for H.R. planning Missing innovation, new paradigm, it's a new game → language too traditional All ideas on the table Reads strategic, not research. Is this research? V. relevant, but not really research, more operational, strategic. 	
Contact information	Votes:
Name: Mike Winder, Ray Ault, Dennis Brown, Jeff Berry, Kenny Brewer, Rob Keen Email Address: None	0

Research Area: Fire Response		
High Impact	1,2	3
Low Impact		
	High Effort	Low Effort

Research Area – Fire Weather

Research Topic: Future fire weather in a changing climate	
Research Topic Description	
<ul style="list-style-type: none"> • Develop plausible scenarios of future fire weather that incorporate variability in global climate models, emissions scenarios, and regional climate variation. (ENSO/PDO) • Analogs of future → present Victoria 2050 = San Diego 2009? 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • NRCAN • Environment Canada • PCIC • Universities 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Forest industry assoc • Insurance companies • Provincial/federal gov • Energy producers/transmitters 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 2 years 	<ul style="list-style-type: none"> • Anyone whose business is affected by weather, i.e. ice salesmen
Additional comments	
<ul style="list-style-type: none"> • Include extreme event modelling? • Timing and frequency of precipitation needs to be considered • Create a scenario of the future (* complete), virtual reality to step into – then make plans • Plausible scenarios are V.I.P – need them to prepare a) resources b) policy - I.e. 5 more aircraft in 10 years – will require 8 years lead time • Link a specific location to 20 years back and 20 years forward to help us understand what will be needed or change? • A view of the past 20 years could help us understand how much it will change for fire protection in the next 20 years. • And tell us which regional climate model to use. • Need to include analysis of the amount of solar radiation in winter (i.e. sun angle.) • PCIC is doing regional forecasts. • Scale of resolution needs to be incorporated. 	
Contact information	Votes:
Names: Steve Taylor (NRCAN) Email Address:	15

Research Topic: Forecasting: Improved weather forecasting of elements specifically important to Wx (i.e. RH low jets level)	
Research Topic Description	
<ul style="list-style-type: none"> • Short, medium, and long term forecast • Emphasis on BC topography • Emphasis on special wind impact • Precipitation patterns and amounts • Emphasis on fire growth and wind potential • Risk potential • Worldwide and local data collection and methods • Model testing and evaluation and improvements 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • FP Innovations • CIFFC • NRCAN • Environment Canada • Universities e.g. UBC 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • BC Hydro • Forest companies • Environment Canada • BC Gov • Insurance Companies • Traders/Brokers • Federal gov • Military 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • Ongoing • Depends on how much improvement is desired. 	<ul style="list-style-type: none"> • Operations centre managers • Local gov't • Fire behavioural analyst • Zones and ICs
Additional comments	
<ul style="list-style-type: none"> • Increased monitoring will be required. • More local weather stations to feed info into climate models • More monitoring Wx observations over Pacific • ↑ need for upstream data, including upper air • Spatial interpolation of rain – tricky! • What tools can you provide? e.g. IR? • A research project to determine if the existing network is adequate for monitoring change • Need to emphasize why this is more important given CC. How is this part of mitigation and adaptation? 	
Contact information Names: Steve Sakayami Email Address:	Votes: 30

Research Topic: Tools to facilitate the use of weather data and forecasting into fire decision making	
Research Topic Description	
<ul style="list-style-type: none"> • Translate and link weather data and forecast model output into products that are needed for operational fire management, including: <ul style="list-style-type: none"> • relevant summaries • Visualization of key parameters • 3D winds indexes/spatial mapping, data layer display • Time variations • Ensemble forecast model • Communication of uncertainty • Link to resource value and multiple stakeholders • Many stakeholders, including local government – determine what is needed? 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Universities – MBA programs • Private Industry • Provincial and federal public safety and health agencies • NRCAN 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Fire organizations • Provincial and Federal Public safety and health agencies • PSCAN • Military 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • First draft produced 2 years 	<ul style="list-style-type: none"> • BCFS – Fire control • OPS Centre managers • Adapted to other emergency response organizations • Health and medical communities • Energy producers • Local fire departments • Local gov'ts
Additional comments	
<ul style="list-style-type: none"> • Missing local govts could use this tool • Data quality standards needed • Link forecast with intelligence from the fire behaviour specialist on the ground • Integrate all data sources (SHARE) linked between different agencies available (real time available) • How will the decision makers – make the choices when faced with uncertainty 	
Contact information Names: Anne McCarthy Email Address:	Votes: 7

Research Area: Fire Weather		
High Impact	Improved weather forecasting	Future fire weather in a changing climate Tools to facilitate the use of weather data.
Low Impact		
	High Effort	Low Effort

Research Area – Fire Behaviour

Research Topic Fire occurrence prediction system	
Research Topic Description <ul style="list-style-type: none"> Review existing products and develop an adaptable fire occurrence prediction system to determine how many fires are likely to occur spatially and temporally on the landscape as a function of lightning and human ignitions to incorporate the effects and consequences of climate change. 	
Who is most likely to be able to carry out this research project (lead/co-op)? <ul style="list-style-type: none"> CFS (lead) in partnership with universities and fire mgmt agencies. 	
Who would most likely be interested in funding this project? <ul style="list-style-type: none"> Federal gov't/fire management agencies/industry 	
Estimated Length of the Project? <ul style="list-style-type: none"> 3 – 5 years 	End Users? <ul style="list-style-type: none"> Fire mgmt agencies Research community
Additional comments <ul style="list-style-type: none"> None 	
Contact information Name: Nathalie Lavoie Email Address: nathalie.lavoie@mrnf.gouv.qc.ca	Votes: 12

Research Topic: Improved fire behaviour prediction system.	
Research Topic Description	
<ul style="list-style-type: none"> To develop an improved fire behaviour prediction system that will allow for more flexibility in the inputs needed. This approach will facilitate fire behaviour predictions in most fuel complexes, including those located in complex terrain (leading to fuel moisture issues) or resulting from disturbances (e.g., insect outbreak, fuel management, climate change, etc), and is expected to include fuel complex descriptions (such as stand density) versus the fuel types that are currently used. The new system will assist with operational and research work under climate change and will contribute to improved safety for responders and the public. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> CFS (Lead) in partnership with universities and agencies. 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> Federal gov't/fire mgmt agencies/industry/international (CFFDRS users!) 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 10-15 years but could be broken into modules with some deliverables available earlier. 	<ul style="list-style-type: none"> Fire Management agencies (globally) Industry Research community
Additional comments	
<ul style="list-style-type: none"> None 	
Contact information	Votes:
Name: Nathalie Lavoie Email Address: Nathalie.Lavoie@mrnf.gouv.qc.ca	29

Research Topic: Risk assessment under a changing climate regime	
Research Topic Description	
<ul style="list-style-type: none"> Adaptation and testing of existing tools and techniques to assess fire risk at various scales – i.e. community watersheds, to support decision making on fire response, fuels management, and ecosystem restoration 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> MFR – Fire mgt planner MOE – Water ILMB – Land use planners 	<ul style="list-style-type: none"> Research by: Research branch NRCAN Universities
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> Govt (provincial/local) Industry? 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> Up to 5 years 	<ul style="list-style-type: none"> MFR MOE ILMB Local govt Fire/emergency responders
Additional comments	
<ul style="list-style-type: none"> None 	
Contact information	Votes:
Name: Nathalie Lavoie Email Address: Nathalie.lavoie@mrnf.gouv.qc.ca	15

Research Topic: Develop a quantitative risk/threat assessment system	
Research Topic Description	
<ul style="list-style-type: none"> Review existing risk assessment systems and extract relevant components as a foundation to a quantitative national fire risk assessment system that will consider, among other things, fire behaviour potential, fire risk, values at risk, and suppression capability, and their fluctuation/change under climate change at various temporal and spatial scales. The system will be used to support decision making on fire response, fuel management and ecosystem restoration. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> Universities (lead) with collaboration from fire management agencies and land-use planners. 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> Canadian and BC wildland fire management strategies, fire mgmt agencies (industry), international fire mgmt agencies, industry 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 5 years 	<ul style="list-style-type: none"> Fire mgmt agencies; research community; industry; communities; insurance companies; land managers
Additional comments	
<ul style="list-style-type: none"> None 	
Contact information	Votes:
Names: Cordy Tymstra, Nathalie Lavoie, Brian McIntosh, Rob Templeman, Mike Flanagan Email Address: Nathalie.lavoie@mrfn.gouv.qc.ca	6

Research Area: Fire Behaviour		
High Impact	* Improved FBP system * Quantitative threat assessment system	* Fire occurrence prediction model
Low Impact		
	High Effort	Low Effort

Research Area – Communication and Tech Transfer

Research Topic: #1 Communications and marketing	
Research Topic Description	
<ul style="list-style-type: none"> • Conduct market research to determine: knowledge and perception of fire management; and meaning of value labels ("positive", "negative", "significant", etc) when used to describe fire risks and impacts • Develop a communication strategy to effectively transfer knowledge and information to a range of audiences: practitioners, policy makers, public, media, communities • Develop a marketing strategy to educate public, garner support and ultimately empower communities + public to help implement 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Social science & marketing researchers, universities/educational institutions • Provincial/territorial ministries 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Cdn Wildland Fire Strategy, Partners in Protection, NSERC, SSHRC, FFEI • Local communities/governments • Job opportunities program 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • Initial market research - ~ 1 year • Communications and marketing strategies – on-going 	<ul style="list-style-type: none"> • researchers in other areas • fire managers and prevention officers • fire centres, zone/district/regional offices • communications/public affairs/education officers • local governments, parks, private campground owners, OFC • public • Aboriginal population
Additional comments	
<ul style="list-style-type: none"> • Stress this as an important performance indicator of research project • Emphasize fire case study • Not research, needs to be done • BC or Canada or ? • Integrate with social services (umbrella) • How will the comm. strategy be developed? – By scientists? Or by politicians? • Add local govt (decision-makers) • Link with group? • Wildland-urban interface v3 • How does this connect to climate change? How will this help climate change mitigation/adaptation? • How and why would the job opportunity program fund this? What is the link to direct employment? 	
Contact information	Votes:
Names: Jim Gould, Kim Steinbart, Kris Johnson Email Address: none	21

Research Topic: #2 Building capacity in communities of practice	
Research Topic Description	
<ul style="list-style-type: none"> • Explore how forest fire practitioners can incorporate climate change information into 'best practice'. • Test scenarios using available fire management tools and protocols, for example, building on Ontario case studies; run case studies for different regions in (Canada) BC: <ul style="list-style-type: none"> ○ Climate change scenarios (global, global downscaled to regional) ○ Different antecedent conditions of forests (fuels, health, age, etc) ○ Different circumstances (interface, park, TFL, TSA) 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • CIFFC, Fire & Science Community of Practice 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • CIFFC, NSERC, SSHRC, Public Safety, Emergency Preparedness 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 2-3 years 	<ul style="list-style-type: none"> • Fire managers • Emergency planners • HR – succession planning
Additional comments	
<ul style="list-style-type: none"> • Is this research? If it is, description is too vague? • How does this go beyond fire smart • Must ensure this works with local govt. Add Min of Comm. Dev. • This is very, very broad. What scenarios will be tested? And how will they be tested. • Not research but needs to be done. • What is the question we are trying to answer? 	
Contact information	Votes:
Names: Kim Steinbart, Jim Gould, Kris Johnson Email Address: none	3

Research Topic: #3 Climate change virtual warehouse	
Research Topic Description Provide a definitive data set to expedite & coordinate scientific research.	
Phase 1:	
<ul style="list-style-type: none"> Identifying data (quantity and type) Secure data sharing agreements Peer review data Establish and implement framework 	
Phase 2:	
<ul style="list-style-type: none"> Populate database with completed, ongoing, proposed, and UN growth projects to promote collaboration 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> "has to be national" Champion CCFM – Canadian Wildland Fire Strategy Group – working with national forestry data base. Climate change task team & CIFFC to populate Lobby research grant providers for mandatory inclusion of research data. 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> CCFM – Through task teams & working groups & individual fire management agencies. CWFS – over 50% of commitments contribution agreements CIFFC NFDB (CCTF fire agencies) 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> Phase 1 & 2 short term implementation Long term maintenance 	<ul style="list-style-type: none"> Science community Academics Policy makers Fire managers Economists Resources managers Aboriginal peoples NGOs
Additional comments	
<ul style="list-style-type: none"> Is this a research project? Data management framework Meta data standards Does this replace or enhance traditional lit. review processes? PICS is building a database for web or CC researchers and projects of BC "Data" is wide. What are you referring to? Needs to focus on the knowledge. Cautious on "data" – need to deal with understanding Need to link to gap analysis as to what knowledge and research is missing? Does enough consensus exist between agencies on data gathering and monitoring products, or will this involve lengthy negotiation and stonewalling before consensus? 	
Contact information Names: Kris Johnson, Jim Gould, Kim Steinbart Email Address: none	Votes: 6

Research Topic: Spatial data sets (#1 from group 7: wildland/urban interface)	
Research Topic Description	
<ul style="list-style-type: none"> • Compile data such as demographics, watershed, airshed, etc. into spatial data sets so that managers (community, organizations) could use information for better decision making 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Province 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Federal govt 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 1 year 	<ul style="list-style-type: none"> • Non-govt organizations • Industry • Science • Community/organization managers • PEP
Additional comments	
<ul style="list-style-type: none"> • What is the research question? • Determine trends in regional growth into interface • Only data? Where is knowledge that adds value? • Is this research or is it data consolidation. It has value! But is it research? • Is this research or data management? → see group on info and tech transfer • What question are we trying to answer? Is this research? • Compile gap data – make into research question. • Identify areas of human residence and update it annually for management info. • Link spatial data set to existing and new smoke models (e.g. Blue Sky) to determine smoke sensitive communities. • More data collection and compilation than research. 	
Contact information	Votes:
Name: Laura Johnson Email Address: none	2

Research Area: Communications and Tech Transfer		
High Impact	1 3	2
Low Impact		
	High Effort	Low Effort

Comments

- Is the knowledge of mitigation/adaptation process in wildfire management expanding, remaining static or becoming more focused?
- Share info across the borders
- What decision making tools will help us balance multiple stakeholders' needs in an arena of decreased resources.
- How to communicate uncertainty to policymakers
- How to adapt public expectation with reality around climate change and what "government" is prepared to provide in regards to fire management
- Is the development of wildfire management/mitigation/adaptation moving to a multi-disciplinary approach to encompass other climate change disciplines/professionals
- Communication – outreach. Tech transfer network – communicate – process to enable feedback.
- Need to develop a coordinated climate change research agenda
- Nuts and bolts: how to link climate change information within fire management as climate information continues to change...enable learning by doing
- Does current practice in wildfire management enhance or detract from global adaption/mitigation processes by other agencies.
- Need to develop effective and meaningful public education tools. Output.
- Translate "results" for communities (residents, businesses, local govt...)
- Research req'd on human society and how it sees fire – can greatly influence any fire mgmt decision.
- What are the positive aspects of increasing temperatures &/or static or decreasing temperatures?
- A "find an expert" database on researchers in climate change, wildfires, ecology, hydrology, etc.
- Convincing society of the importance of fire smart homes and communities.
- Develop a sense of how seriously practitioners take climate forecasts, be it 2 weeks, seasonal or decadal.
- Work with other stakeholders to meet the new challenges
- Need information archive for climate change effects on various aspects of fire and fire mgmt.

Additional Information and Gaps

Comment:

- Is there emission data in BC in regard to CO₂ release related to wildfires (catastrophic) that certainly took place in the past and resulted in the stands or even aged mature timber we have now?

Additional (non-themed) Research Gaps:

- How can CWFS and pest management are linked within a climate change adaptation strategy?
- What and where is the “working forest”? – Ecosystem services
- Legal and regulatory tools to support wildfire planning and fuel management (tenures, stumpage, etc.)
- Secured funding and political/public support.

Research Gaps

Fire Weather:

- How to model or forecast precipitation amounts
- Enhanced medium range forecasting required
- How to model or forecast longer range forecast (i.e. 1 month, 3 months)
- Spatial wind impacts – due to climate change – predicting wind events
- Seasonal trends under CC scenarios including extreme events
- How will climate change affect the occurrence of downslope katabatic winds
- Better model of effects of topography
- Improve 5 day W_x forecast
- What about wind under climate change?
- How will uncertainty with respect to extreme weather events affect risk of extreme fire behaviour
- Better methods to downscale GCM/RCM output to local scale fire weather climate indices
- How do we handle the wide variability in GCM's predictions in temperature, precipitation, and timing to develop a realistic scenario for climate change fire
- Need climate change scenario assessment of fire weather, in terms of change in risk compared to current climate
- Determine available “reliable” data sources (weather) and develop methodology to consolidate to central data centre
- Modelling tool to determine operational risk in managing fire on the landscape or the medium-long term
- Data quantity and quality may/may not be adequate to assist with planning and operations
- How to communicate a range of possible outcomes or uncertainty
- How would the temperature versus area burn graph change if actual area burned prior to 1970 was available?
- Forecast in time and space the smoke impacts from wildfires
- How can we improve forecasting 500 mb blocking events (longer term warm dry weather) for 10-20 fire season forecasts? E.g. omega and 4 corner high breakdown
- Operational tools for decisions
- Short, medium, and long term W_x forecast products

Carbon:

Forest Carbon Management Alternatives:

- Carbon sequestration via salvage of MPB-killed wood and use to building products – should prioritize this over its use as biofuel
- What innovative fuel management techniques are available that are an alternative to vaporizing carbon?
- Biofuels: is it better to use “waste” wood as biofuel or leave on site as coarse woody debris - CO₂ emissions, or sequestration?
- Peat vs. deep organic forests, “coastal regime”, fire severity and carbon release
- Given Canada’s interest and findings of significant peat in the boreal forests, are BC Coastal forests and their fire regimes not even more valuable? Are they vulnerable?
- Ways to improve carbon storage during fire and ecosystem restoration activities

Ecosystem Carbon balance:

- Soil carbon dynamics as influenced by succession (following fire) in plant communities
- Soil organic carbon (SOC) associated with grasslands and open forest
- Carbon storage associated with succession, both directions
- What is the historical data in regards to area burned vs. combustion (carbon Tg/yr)? Is it changing? Equals supporting increased fire severity
- How do we adjust the fuel management program in BC to meet climate change challenges?

Climate Change and Ecosystems:

Water:

- Role of water on landscape (future) predictability
- Climate change, does it mean all of Canada is hot/dry with more fires, or will it vary? Will some areas be wetter?
- Hydrology – projections inconsistent with observations
- Given concerns affects of MDB (sp. MPB?) on hydrology we should be putting effort into research and development of upland water storage. One big concern is the sell off of lakeshore on reservoirs that we may need as a public resource – not just drinking water but for fire suppression

Ecosystem Resilience:

- Creating “resiliency” in our forests – how or do we assist with species migration or restoring historic species
- Identify fire resilient ecosystems and the range of resilience to fire intensity to determine when stands need fire management
- Assisted migration of tree species – we need better predictive models for the future forest: precipitation, frost, temperature
- Hasn’t the climate always been changing?
- Fire weather indices and ecological effects of modified response

Changing Disturbance Regimes:

- Consider answering the question “what proactive things do we do to influence the ecosystem
- We can’t protect known watersheds. Ecosystems haven’t even been identified

- Local government in both municipalities and regional districts – if you leave out RDs you miss the management (?) land area
- BC Conservation Data Centre has just finished a computerized system on species at risk
- Who is using what model?
- How will the “natural” role of fire evolve as climate changes and the health and existence of current vegetation types and ecosystems?

Reference Conditioning:

- Paleoecological reconstruction of past fire climate during analogous warm periods (MWP, 4000 years ago (?))
- What will managers try to emulate now that historical reference points are not as useful?
- The value of creating diversity in restoration of MPB killed forests – what does/should it look like?

Fire/Veg/Succession Modelling – different scales:

- Can we predict the effective of climate shift on natural disturbance regimes – AKA→ NDT’s shift? NDTI to NDTA
- Vegetation and fuel dynamics modelling under different climate model changes
- Study the response and effects of invasive species on post burn areas (PB and wildfire) and on fuel management areas
- It is critical that we... study and monitor how wildlife species adapt to rapidly changing climatic conditions (related to fire, more area burned, altered seasonality, severity, etc.)
- Composition, structure, production, and function of plant communities following fire
- A dynamic model of climate, vegetation, and disturbance
- Influence of fires on succession model
- Understand cumulative effects of fire on ecosystems – structure and composition
- What are the landscape level implications for biodiversity that must be considered by land/fire managers?
- What are the “right” current balances in disturbance rates (fire, harvesting, pests, disease) and how are these apt to change in light of climate change fire – too much, too little, wrong types of disturbance?
- How will changing the species across the landscape effect risk of fire?
- Need assessment of combined scenario of climate change effects on forest growth, age structure, pests, disease, water balance, to determine change in fire risk
- Understanding of forest species/types change through space and time due to climate change

Wildland / Urban Interface:

Public Education and Information:

- Smoke issues research
- Can social marketing be applied to better leverage the public interest in wildland fire management and fire prevention and use programs?
- Research on social impacts of wildfire management / climate change – behaviours, expectations
- Research into public awareness and opinion into benefits of fire in the ecosystem including smoke management

- Identify the practices, procedures, or culture that prevents or impedes technically credible solutions from being implemented
- Impact on First Nations cultural values from wildfire and smoke
- Is it possible or even desirable to encourage an attitude of acceptance of fire among the public (more ignitions and area burned, more smoke, blackened landscapes, etc.)?
- Social/institutional research to stop people from building flammable houses in the wildland urban interface
- How can science best be applied to strengthen FireSmart: what is the right fuel treatment zone, what are the best “roofing” materials for fire susceptible communities, what is the future “building code” for wildland fire?
- Long term healthy impacts of increased smoke exposure over the next 20 years
- How can smoke modelling be applied to mitigate the impact of increased fire on health?
- Quantitative model of fire emissions for BC – smoke effects

Community Planning:

- Linkage between first responder and community information needs and state-of-the-art technical decision support systems (RS, GIS, etc.)
- How to deal with uncertainty
- How can transportation corridors be better planned, designed, and engineered to withstand and provide safe transport during bad fire seasons?
- How is climate change apt to change demographics in BC and will this affect person caused fire starts?
- Community fire impacts and recovery – “best practices” for local governments
- Easy to access data/maps on WUI locations and values at risk
- Demographics – what will our society look like in 10+ years?
- Economics – what will be the basis of our provincial economy in 10+ years?
- A scenario (or several) of what that (above) future looks like - population, climate
- Definition and prioritization of areas of BC at risk from a fire climate change perspective
- Need to develop “likely” scenarios at 2030 and 2050 to help identify vulnerabilities and focus adaptation strategies – worst case scenario?

Fire Response:

- What is the best “value set” to apply to fire response and land management activities now and how are these apt to change with climate?
- What are the most safe, cost-effective ways to suppress peat fires?
- Quantifying value of fire prevention activities
- A sound fire risk analysis/mgmt. process that is quantifiable.
- Will it be cost-effective to fire and suppress the entire fire area (as opposed to perimeter management only – current norm) in the interest of carbon sequestration and air quality management
- What are the most cost-effective means of reducing wildfire spread and impacts?
- Needs climate change scenario assessment of fire management strategies, in terms of timber saved, carbon emitted and management cost, compared to current practices.
- From research perspective it is critical we: review existing case law as it pertains to wildland fire litigation and develop regs and legislation to protect the crown and 1st responders from litigation.

- Inter-agency/Interdisciplinary focus.
- Lines of communication between climate science and suppression requirements.
- Gap in research around impact of climate change in relation to current suppression methods in order to develop new tactics.
- Risk management discussion tool.
- What proportion of area burned in action versus no-action zones occur in deep peat? If deep peat is a large concern to increasing GHG, would this be used to increase fire suppression in northern Canada?
- Create virtual training environments to prepare firefighters for increased psychological challenges.
- From a research perspective it is critical we: encourage the development, testing, and operational integration of aerially applied enhancers, supp. and retardants currently not in use.
- How will carbon sequestration projects expect to be serviced?
- Can we predict relationships between demographics, fuel build-up and catastrophic fire events and how can this be applied to better manage wildland fire?
- Forecast fire control resource requirements based on predicted ignition-fire behaviour caused by changing climate.
- Resource optimization under 2xCO₂ (3xCO₂) scenarios
- How will the demand for fire response change and where do org. limits exist.
- Study preparedness planning models in relation to % success in initial attack under similar fuel moisture
- Need to know where we are on Mike Flannigan's "coping range" chart.
- Will the positive feedback of more fire under a climate change scenario mean that there will be pressure to suppress fires in remote areas of the northern boreal where they now burn under a "natural regime"?
- Impacts of resource requirements in MPB affected areas after fine fuels standing timber is degraded and on the ground (+ water table issues, etc.)
- How will a change fire regimes impact fire suppression effectiveness?
- How will climate change affect the availability of water for fire suppression?
- From a research perspective it is critical we: provide critical cost benefit analysis to support resource and capacity changes driven by climate change.
- National suppression resourcing model for optimization in allocation of resources.
- How can research needs be better linked and coordinated nationally and internationally?

Participant Post-Session Survey Results

Overview

The Post Session Survey was administered to the participants at the end of the session. The purpose of this survey is to provide feedback and information to incorporate into planning activities for future sessions and meetings. Information gathered fall into the following categories:

- Overall Response and Score Out Of 10
- Graphed Responses
 - Results
 - Preparation
 - Agenda
 - Delivery
- Written Responses.

Overall Response and Score Out Of 10

The total number of responses was 34.

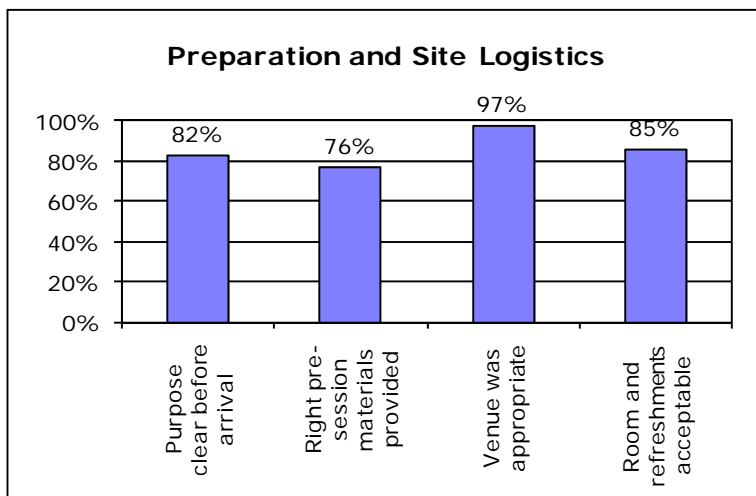
The average overall score out of 10 was 8.6 or 86%.

The range of scores was 6.5 out of 10 (lowest) to 10 out of 10 (highest).

The most frequent score (mode) was 9 out of 10 (8 respondents provided this score).

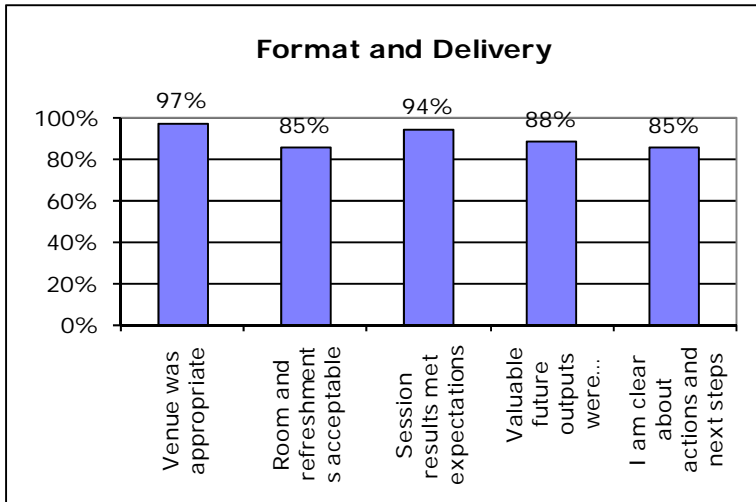
Graphed Responses

The graphed results report the percentage of respondents that agree (scoring either 4 or 5), to a series of statements related to their perception of how they viewed the session. Any scores where less than 80% agree are generally noted for future action.



Most scores here were above 80%, with the venue and refreshments scoring very well.

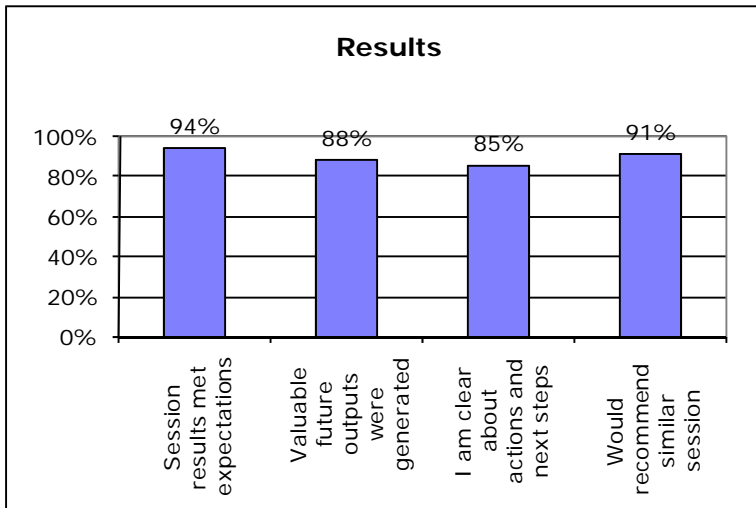
Nearly a quarter of respondents felt that the distribution of pre-session materials could have been improved.



All scores were generally high in this area.

Some participants commented that they would have appreciated more (healthy) food at the breaks.

A small percentage (8.8%) of participants raised concerns in their comments about the science-fair approach – possibly leaving gaps.



All scores were high in this area.

Participant comments mirrored these results.

Written Comments

One thing I liked about this session was:

- The system used allowed input to all projects but also facilitated our contribution with our expertise.
- Creative process that engaged participation.
- It did not involve continual sitting.
- Dynamic approach and quick turning around.
- Group feedback, new contacts.
- Open forum.
- Busy, creative session where we interacted with numerous individuals.
- As someone who is not a researcher, I was able to contribute and provide the “social science” side.
- Very well organized.
- Interaction with others.
- Networking.
- Good way to get participation from all members.
- Opportunity to meet other like-minded souls.
- The dynamics of interactions in a diverse group.
- Opportunity to meet with fire practitioner.
- The ability of each participant to be heard repeatedly.
- Brought together some of the best minds in forest, fire and climate science.
- Networking opportunities and open shared dialogue in particular the agenda building session.
- Quite a good format for allowing and facilitating discussion between diverse members of a large group.
- The rapid flow and movement.
- The mix of agencies.
- Cross linkages between ideas.
- Open process.
- Solid end product.
- Great facilitator.
- Participants, discussion, learning, new contacts.
- Discussions at the science tables.
- Interaction/networking.
- The interactive component.
- The right people were here. Good discussions and ideas.
- The format used to identify issues and solutions in a systematic and refining approach.

One thing I did not like about the session was:

- Noisy doors during presentation.
- A little squeeze in time. Some discussions could have gone on in the “evening session”.
- Construction noise.
- Science fair approach.
- As above, I felt a little left out a couple times but I think this is the nature of the situation.
- Nada.
- The process went better than expected but it’s an expensive way to do business.
- Some of the info/ideas may have been lost through the Science Fair (through the synthesis process).

- Questions of unknown where this all goes from here if not funded.
- Lack of appropriate balance. Both in presentations and participants. There was a heavy lack of climate change knowledge. - skipped the bureaucratic [some were] great – but others didn't add, [and] actually misinformed the audience.
- The way the broad topics were chosen – too ad hoc. We could have made the Jim Gould combination at the beginning and made the ecosystem part more broad.
- I was a little uneasy about the lack of specificity for research required. Statements too general.
- Having to say goodbye to Judi.
- No muffins for breaky/limited options in area.
- So much writing on paper that will all have to be typed in.
- Not enough background provided on carbon accounting.
- No healthy snacks and coffee break – but this is a minor – overall excellent.

One thing I would have changed about the session was:

- Add time to more fully flesh out the proposed projects.
- Needed to include more operational people.
- The 2nd stage where the themes were teased out. Think this may have better been done by organizing board.
- A little more time for the science fair. This was a very valuable component of the session.
- More awareness that this was a workshop not a forum.
- Have the Minister of MOE/MFR speak/attend.
- An additional social session on Day 2.
- Go digital with laptops and projectors.
- Carbon training 101 with fire focus.
- Nil.
- Situate in a room with natural light.
- A great “meeting of the minds” – in an informal session.

Additional comments:

- This was the best research strategy session I have been at. No shopping list! Yes! Linkage of project very important.
- I was sorry that not all people continued to the end session.
- A Parks Canada presentation on their forest management approach will it be interesting.
- I am more comfortable with a JAD type exercise, but admit this worked well.
- Very impressed overall.
- Another excellent forum by Shelly Berlin. Fantastic acknowledgement of Judi!
- Perhaps more time generating ideas.
- I am not quite sure that we have enough detail to move ahead or got in to the nitty gritty of some of the topics.
- A very good process – may have used the initial presentations to a better effect to set the stage.
- I'm not sure the outputs equalled the abilities of the people involved.
- Liked the science fair session. Museum event was appreciated. Good cross section of invitees.
- Found it frustrating that the exercise did not link climate – forest – fires and research questions! Lots of good ideas but not necessarily an agenda.
- Great job. Can't wait to use this format in a meeting of my own!
- This was a worthwhile forum. Thanks!
- The one big problem with the “Science Fair” format was the rapid and flippant organizing of the project topics. I feel that the sum result is a series of potentially

very interesting projects that nonetheless may not have hit some very important areas of research (e.g. Wednesday's talk about MPB and economics – no discussion of timber supply/economics issues at all in the Science Fair; minimal treatment of fire effects, wildlife, etc.).

- Thanks for all the hard work!! This will be of great value moving forward.
- Well done.
- Good mix of practitioners and researchers.
- Great session.
- Well executed!
- Really good technique to general coherent ideas. Could have used a bit more time to better-frame research questions.
- Thank you.

* * *

Berlin, Eaton & Associates Ltd.
February 20, 2009

Appendix 1: Additional Research Projects Not Showcased at Science Fair

Research Area: Carbon

Research Topic: What is the Impact of Fire & Fire MGT Alternatives on Carbon Emissions & Sinks/Sequestration at Multiple Scales, Quantify the Amount of Carbon either Released or Sequestered by Various Fire Related Activities in Various Conditions?	
Research Topic Description	
<ul style="list-style-type: none"> • Activities such as: wildfire, slash burning, prescribed burning, thinning. • Conditions such as fire weather index, BC fuel types, timber types, fuel loading, fire intensity. • To create a decision tool to evaluate different management alternatives and climate change impacts on carbon. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Research Branch • Wildfire Management Branch • CFS • MoE • Environment Canada 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 3-5 years • Team! 	<ul style="list-style-type: none"> • All Fire or land agencies in BC • CCCA • Cabinet Committee On Climate Action • CFS • MoE • Gordon Campbell
Additional comments	
<ul style="list-style-type: none"> • 	
Contact information	Votes:
Name: Caren Dymond, Kathy Hopkins Email Address: Caren.Dymond@gov.bc.ca Kathy.Hopkins@gov.bc.ca	

Research Area – Wildland / Urban Interface

Research Topic: Data Collection	
Research Topic Description <ul style="list-style-type: none"> • Attempt to predict: parameters, spatial variation, temporal variation, % increase in "Fire Season" • Attempt to use data collection to predict changers in: ignition potential <p>Translate</p> <ul style="list-style-type: none"> • % change in days BUI > 120 (130?) • % change in length of "Fire Season" • Spatial and temporal variation in ignition potential 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
•	
Who would most likely be interested in funding this project?	
•	
Estimated Length of the Project?	End Users?
•	•
Additional comments	
•	
Contact information Name: Email Address:	Votes:

Research Topic: Group Data - Additional	
Research Topic Description	
<ul style="list-style-type: none"> • Research into identification and delivery of spatial fire data (location, direction of movement, fire potential) to wildland interface communities. • Web-based (i.e. Google-based possibly) system with daily visual (map-based) data 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • PEP 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Federal • Community based funding 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 2-5 years 	<ul style="list-style-type: none"> • Communities • First Nations
Additional comments	
<ul style="list-style-type: none"> • 	
Contact information	Votes:
Name: Laura Johnson Email Address: ljohnson_uvic@hotmail.com	

Research Area – Managing Forest and Rangeland Fuels

Research Topic: Refinement of ER & Fuels Mgmt Treatment Prescriptions	
Research Topic Description	
<ul style="list-style-type: none"> Assess harvest & mechanical treatments undertaken for ER and Fuels Management which remove standing dead trees/fuel (in particular MPB affected stands) with a view to preserving and/or enhancing understory vegetation. What is the understory? Is it the right forest condition in light of climate change – is there a use for the fibre? 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> Silviculture branch FFEI FIA 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> Government & industry 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 1-2 years 	<ul style="list-style-type: none"> Forest resource managers Industry foresters
Additional comments	
<ul style="list-style-type: none"> 	
Contact information	Votes:
Name: Kirk Hughes Email Address: Kirk.Hughes@gov.bc.ca	

Research Topic: Post Harvest Fire Hazard Assessment	
Research Topic Description	
<ul style="list-style-type: none"> Post harvest fire hazard assessments at this time are not consistent. We need a science based approach to better assess the potential fire behaviour and threat to other resource values from fire in the harvested areas. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> The same folks looking at fire behaviour 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> COFI? FP Innovation Government 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> 2 years (guesstimate) 	<ul style="list-style-type: none"> Industry & government foresters Environmental law enforcement agencies
Additional comments	
<ul style="list-style-type: none"> 	
Contact information	Votes:
Name: Kirk Hughes Email Address: Kirk.Hughes@gov.bc.ca	

Research Topic: Enhancement of Non-Timber Forest Reserves	
Research Topic Description	
<ul style="list-style-type: none"> • Research the options within ecosystem restoration and fuel management treatments to enhance the value (quantity & quality) of non-timber forest products as goods & services generated within the forest. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Forest inventory branch • Research branch 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • FFEI • FIA 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 2-5 years? 	<ul style="list-style-type: none"> • First Nations • Ministry • Forest & Rangeland Mgrs
Additional comments	
<ul style="list-style-type: none"> • 	
Contact information	Votes:
Name: Kirk Hughes Email Address: Kirk.Hughes@gov.bc.ca	

Research Area – Communications and Tech Transfer

Research Topic: The Application of Value Labels	
Research Topic Description <ul style="list-style-type: none"> • In communicating fire risk. • Explore the meaning of value labels ('positive', 'negative', 'significant', etc.) when used to describe future fire risks/impacts within scenarios of climate change. 	
Who is most likely to be able to carry out this research project (lead/co-op)? <ul style="list-style-type: none"> • Sociology • Psychology • Marketing > academic 	
Who would most likely be interested in funding this project? <ul style="list-style-type: none"> • SSHRC • CIFFC 	
Estimated Length of the Project? <ul style="list-style-type: none"> • 1 year 	End Users? <ul style="list-style-type: none"> • Provincial • Federal agencies
Additional comments <ul style="list-style-type: none"> • 	
Contact information Name: Jim Gould Email Address: Jim.Gould@NRCan-RNCan.gc.ca	Votes:

Research Topic: Better Techniques for Communicating Scientific Knowledge	
Research Topic Description <ul style="list-style-type: none"> Develop guidelines to effectively communicate and transfer science knowledge to a range of community groups: practitioners, policy makers, media, first nation community, general public. 	
Who is most likely to be able to carry out this research project (lead/co-op)? <ul style="list-style-type: none"> Social science researchers: Education Media Communication Human behaviour scientists. 	
Who would most likely be interested in funding this project? <ul style="list-style-type: none"> NSERC SSHRC 	
Estimated Length of the Project? <ul style="list-style-type: none"> 2-3 years Federal government research budgets for NSERC and SSHRC 	End Users? <ul style="list-style-type: none"> Fire management agencies Policy makers Media outlets
Additional comments <ul style="list-style-type: none"> 	
Contact information Name: Jim Gould Email Address: Jim.Gould@NRCan-RNCan.gc.ca	Votes:

Research Topic: Marketing/Branding Strategy	
Research Topic Description	
<ul style="list-style-type: none"> Based on results of sociological research, research & develop strategy/strategies to market climate change initiatives to public in order to highlight positive aspects & develop support. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> Marketing consultants. Provincial ministries & Territorial 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> On-going 	<ul style="list-style-type: none"> Communications officers Public affairs officers, fire managers & prevention officer Media Local governments Public Fire centres & zone offices
Additional comments	
<ul style="list-style-type: none"> 	
Contact information	Votes:
Name: Kim Steinbart, Wildfire Management Branch Email Address: Kim.Steinbart@gov.bc.ca 250.356.5249	

Research Topic: Sociological Research – Public Perception of Future Fire Risk	
Research Topic Description	
<ul style="list-style-type: none"> • Research public/society's knowledge & perception of climate change & fire management in order to develop effective and meaningful public education & marketing tools. 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • Market researchers • Universities 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • Partners in Protection (manages FireSmart in Alberta) • Canadian Wildlife Strategy • SSHRC 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • 6 months – 1 year? 	<ul style="list-style-type: none"> • Marketing strategists/consultants • Researchers in other areas • Communications officers • Public affairs officers • Media
Additional comments	
<ul style="list-style-type: none"> • 	
Contact information	Votes:
Name: Kim Steinbart, Wildfire Management Branch Email Address: Kim.Steinbart@gov.bc.ca 250.356.5249	

Research Topic: Social Sciences: Attachment Theory & Its Application to Risk Management	
Research Topic Description	
<ul style="list-style-type: none"> • “We need to know who we are talking to before we try to change them”. • Employ existing Social Sciences Framework to explore people’s relation to space & change. • Information FEEDS BACK TO NATURAL MARKETING STRATEGY (Topic #2) 	
Who is most likely to be able to carry out this research project (lead/co-op)?	
<ul style="list-style-type: none"> • CFS • Universities 	
Who would most likely be interested in funding this project?	
<ul style="list-style-type: none"> • CWFS • NSERC • CCFM • Canadian Wildland Fire Strategy 	
Estimated Length of the Project?	End Users?
<ul style="list-style-type: none"> • Short term 	<ul style="list-style-type: none"> • Communities • Agencies • Policy
Additional comments	
<ul style="list-style-type: none"> • 	
Contact information	Votes:
Name: Kris Johnson Email Address: Kris_Johnson@gov.nt.ca	