

# Ministry of Forests and Range

## Review of the 2009 Fire Season

Prepared by the Wildfire Management Branch  
March 2010



Ministry of  
Forests and Range



## Executive Summary

The 2009 fire season was an exceptional challenge with 3,049 fires (138% above average), 213 of which were interface fires. The extent and duration of the wildfire activity tested the Province of British Columbia's response in a way that had not been seen since the devastating fire season of 2003.

Despite the severity of the fire season, only seven structures were lost. As reported in government's third quarter financial review, direct fire expenditures are estimated to reach a record \$403 million. One pilot lost his life in an accident near Lillooet during bucketing operations and notwithstanding this tragedy, there were few other significant injuries or time loss accidents throughout season which considering the level of activity and risks involved is an incredibly good result.

The 2009 fire season review process was completed within the Wildfire Management Branch with input from other branches of the Ministry of Forests and Range (MFR), provincial and federal ministries, local governments, partners, clients and the public. Other emergency response agencies may have conducted their own internal reviews and we have linkages to those but their findings are not included in this document. This review process did not identify any one major issue of inordinate concern but a wide range of items as opportunities for continuous improvement. The review helped verify that the current strategic direction for the Wildfire Management Branch is on the right track and the processes in place contributed to an exceptionally successful outcome this season.

Opportunities for improvement identified during the 2009 fire season review include:

- Implement the provincial wildfire coordination centre (PWCC) move to Kamloops and strengthen the Incident Command Structure (ICS),
- Continue work with local governments and stakeholders to advance community wildfire planning and treatments,
- Review and reinforce the Wildfire Response Priority process,
- Develop a more comprehensive quality assurance program for all levels of operations,
- Complete the Dispatch Services Review,
- Review and implement a new policy framework for fire restrictions, specifically campfire restrictions, to enhance simplicity, clarity, and risk reduction,
- Emphasize the importance of provincial fire management plan completion,
- Expand Compliance and Enforcement's role in fire investigations and patrols,
- Renew contingency/expanded resource guidelines and procedures including those for contractors, government staff, Emergency Fire Fighters, and statutory hires,
- Review and implement efficiencies of contract management practices,

- Continue with aviation strategic plan initiatives that improve cost effectiveness,
- Streamline information tracking needs, and
- Work with WorkSafe BC to address issues noted in the 2009 season.

The 2009 wildfire review also noted many positive results from past continuous improvement efforts undertaken over a series of years including:

- Clearer roles and responsibilities in cross jurisdictional unified command,
- Acquisition and management of Structure Protection Units (SPUs) across the province,
- Improved local government capacity to respond to emergency circumstances,
- Improved information flow between the fire command structure and the public,
- Effective allocation of resources through a priority setting process and allowing fire to play a more natural role through a focused risk management strategy (modified response),
- Implementation of a comprehensive fuel management program that reduces risk to communities and assets, and
- Greatly improved partnerships and working relationships amongst all the key players.

The following report identifies the events of the season that contributed to both the challenges and successes of 2009. The report also includes an overview of the review process and key findings, many of which are already well underway and will help the Wildfire Management Branch to achieve further excellence in wildfire management in the upcoming 2010 fire season.

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## **Role of Wildfire Management Branch and Strategic Context**

The Ministry of Forests and Range has responded to wildfires since the British Columbia Forest Service was formed in 1912. The Ministry's Wildfire Management Branch (WMB) is internationally recognized as a leader in wildfire management and is known for its highly trained and committed personnel, uncompromising safety attitude and innovative use of technology.

B.C.'s forests and wildlands cover over 94 million hectares (nearly a million square kilometers) and are the most diverse in Canada. Confronted by an average of 1,915 wildfires each year, highly trained fire crews are successful in containing 92 per cent of all wildfires in B.C. within the first 24 hours of discovery.

The WMB is tasked with managing wildfires on both Crown and private lands outside of organized areas such as municipalities or regional districts. While the WMB is mandated to protect life and assets, particularly forests and grass lands, it gives high priority to fires in interface areas where communities and forests come together. In these situations, effective interagency co-ordination is critical. When wildfires threaten communities, the WMB's role is to focus on the wildfire control operations. Local governments are responsible for community evacuations and the care of displaced individuals. In support of these functions, local governments rely heavily on co-operation and support from other government agencies, countless volunteers, and B.C.'s Provincial Emergency Program (PEP).

### **Mandate**

Provide wildfire management and emergency response support to protect life and assets, particularly forest and grass lands, as provided for under legislation, government plans and cost-sharing agreements.

### **Vision**

Global excellence in wildfire management and response services.

### **Mission**

To deliver global excellence in wildfire management and response services, our team will:

- Provide for the safety of responders and the public;
- Protect British Columbia forest land, grass land, natural resources and other assets from unwanted wildfire;
- Develop, deliver and promote innovative and effective wildfire management practices to clients; and
- Support emergency response for the people of British Columbia, Canada and the world.

## The 2009 Fire Season

### Global Situation

In a July 29, 2009 press release, the Food and Agriculture Organization of the United Nations (FAO) reported that:

*Every year fires affect an estimated 350 million hectares of land, with damage to property, livelihoods and frequently loss of life. Uncontrolled vegetation fires also contribute to global warming, air pollution, desertification and loss of biodiversity. Fire prevention is one of the most effective counter measures, and efficient fire monitoring can help in early warning, intervention decision-making and measuring impacts.*

*Developing countries are often the most susceptible to the damaging impacts of fire which causes loss of human lives and property and destruction of natural resources.*

*In Ethiopia and South Sudan, fires destroy millions of hectares of land each year. Between 2000 and 2008, over 200,000 fires were reported in Sudan. In Ethiopia, the number of fires registered was over 400,000 in the same period.*

*In early 2009 forest fires caused millions of dollars worth of damage in California and in the Australian state of Victoria. The bush fire that swept through Victoria in February 2009 killed 173 people, left 7,500 people homeless, destroyed about 2,000 houses, blackened 450,000 hectares of land and the total insurance costs for the fires could amount to \$1.5 billion.*

Following the report, countries in the northern hemisphere continued to see escalated fire activity that reached historic severity in some areas while southern counterparts prepared for the onset of their own busy seasons.

### Canadian Situation

On average, 8,600 fires burn 2.5 million hectares each year across the country. Even with Canada's globally recognized fire suppression capabilities, the annual cost of putting these fires out ranges between \$400 million and \$1 billion. In addition to these direct firefighting costs, wildfires impact the economy, threaten public health, safety and infrastructure, and are responsible for significant air quality impacts. Canada experiences significant annual fluctuations in the severity and location of wildfire activity.

The Canadian Interagency Fire Fighting Centre (CIFFC) reports that Canada recorded 7,159 fires and a total area consumed of 782,154.60 hectares in 2009. Modified response fires accounted for only nine per cent of the total fires but 60 per cent of the total area consumed.

In 2009, the vast majority of Canada's significant wildfire activity occurred in B.C.; other jurisdictions experienced relatively few wildfire problems. In the business of wildfire control, no single agency can afford sufficient resources during times of elevated levels of activity such as we experienced in 2009. As such, these agencies rely on each other to share resources. These exchanges occur through pre-established mutual aid agreements, supported by nationally agreed-upon standards on training and certification for crews and staff, equipment and aviation resources. The agreements identify rates of compensation and operate on full cost recovery to the lending agencies.

In 1982, all Canadian territories and provinces created the Canadian Interagency Forest Fire Center which acts as a resource broker to fill requests for Canadian agencies in need of assistance. International mutual aid agreements have been developed between Canada and the USA, New Zealand and Australia. There are also mutual aid agreements and 'quick strike' border arrangements between B.C. and neighboring Canadian provinces and U.S. federal and state agencies.

These agreements allowed for a smooth process that brought in trained wildfire staff, suppression equipment and aircraft from other provinces and international sources, which were viewed as a major factor in the successful outcome of fire season 2009. If other parts of the country had experienced equally challenging wildfire activity, the opportunities to import resources would have been more limited.

### **B.C. Situation**

The 2009 fire season was one of the worst in B.C.'s history, with a record number of fires and the total hectares burned well above average. Another record was set in the cost of direct firefighting for the season, currently projected in the 2009/10 Third Quarterly Report at \$403 million, surpassing not only the ten-year average of \$109 million, but also the previous most expensive season, which was \$371 million in 2003.

There were more than 100 significant fires during this fire season with at least 39 of them causing evacuation orders or evacuation alerts.

#### ***Some of the more notable 2009 fires were:***

##### *Cariboo Fire Centre:*

- 1,000-hectare fire at 70 Mile House.
- 15-hectare fire at Buffalo Creek, northeast of 100 Mile House.

- 6,618-hectare Kluskus fire, west of Quesnel.
- 66,719-hectare fire at Lava Canyon, in the Chilcotin; largest fire of the season, and led to evacuation orders and alerts.
- 20,925-hectare fire at Kelly Creek, in Edgehills Provincial Park, 20 kilometres southwest of Clinton.

*Coastal Fire Centre:*

- 30-hectare Blackcomb Mountain fire; caused an evacuation of the mountain.
- 850- and 823-hectare Pemberton Meadow complex fires; led to evacuation orders and area closures.
- 368-hectare fire at Nuxalk Mountain; evacuated the community and surrounding area of Bella Coola.

*Kamloops Fire Centre:*

- 400-hectare fire at Glenrosa, West Kelowna.
- 200-hectare fire Rose Valley Dam, West Kelowna; led to multiple evacuations.
- 9,277-hectare fire, Terrace Mountain, west of Fintry; multiple communities evacuated.
- 8,045-hectare Tyaughton Lake fire, north of Goldbridge; multiple communities evacuated.
- 3,696-hectare Mount McLean fire, west of Lillooet; led to evacuations and local state of emergency.
- 1,597-hectare fire at Intlpam, between Lytton and Lillooet.
- 2,042-hectare Hell Creek fire, in the Yalakom Valley; led to evacuation orders.
- 3,025-hectare fire at Brookmere, 42 kilometres south of Merritt; led to evacuation order for community of Brookmere.
- 1,753-hectare Seton Portage fire, southwest of Lillooet.
- 7,014-hectare Big Dog Mountain fire, Yalakom Valley.
- 6,045-hectare Little Dog Mountain fire, Yalakom Valley.
- 625-hectare Scottie Creek fire, 20 kilometres north of Cache Creek; led to evacuation.

*Northwest Fire Centre:*

- Total of 13 fires west-southwest of Houston resulted in evacuation order for rural residents, recreationalists and workers accessing Morice Forest Service Road.
- Largest fires were 692 hectares and 515 hectares respectively.

*Prince George Fire Centre:*

- 23,182-hectare fire at the junction of Smith and Liard River; second largest fire of the season, which closed the Alaska Highway and caused the evacuation of three small communities.

*Southeast Fire Centre:*

- 2,000-hectare Galena Bay fire caused evacuation alerts.
- 20-hectare fire in St. Mary's Reserve.
- 2-hectare fire in Ayes Campground on Kookanusa Lake led to the tactical evacuation of approximately 200 people.
- 25 fires greater than 10 hectares that burned a total of 4,150 hectares.

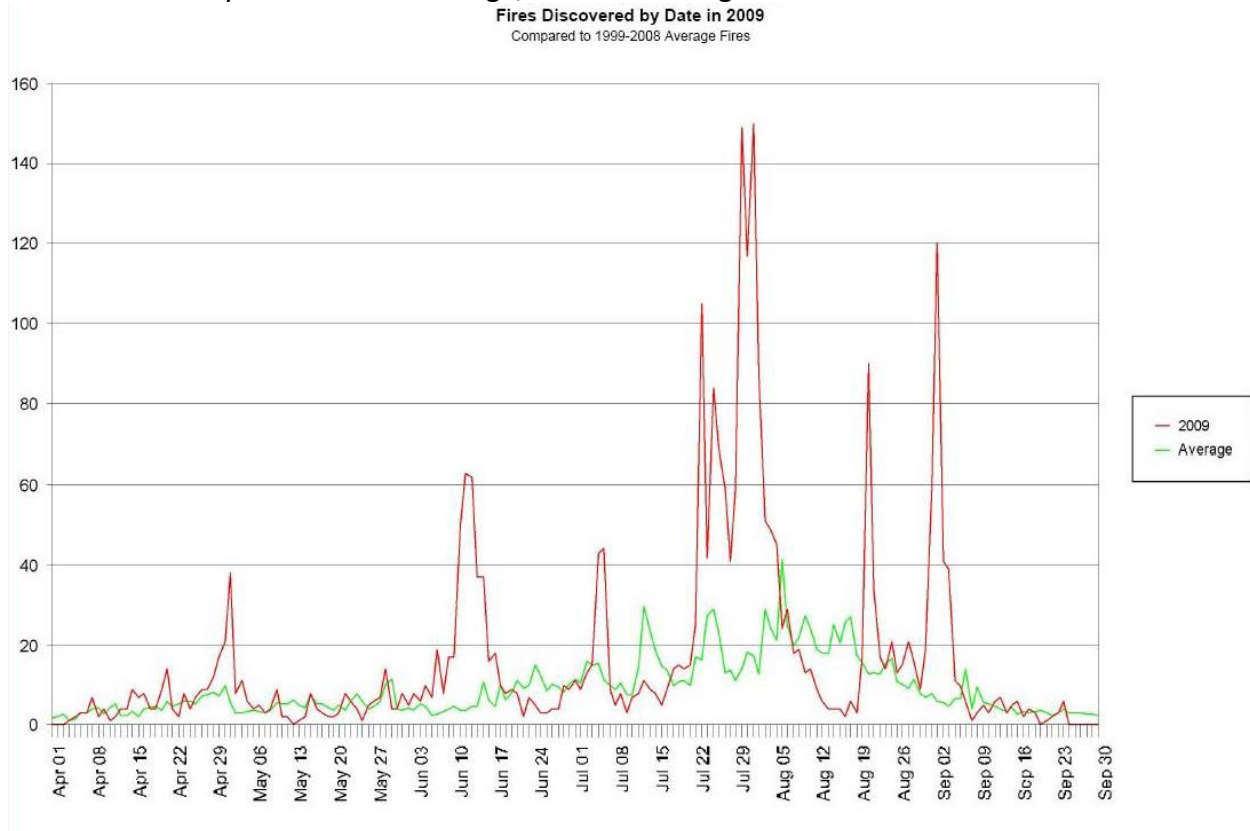
Table 1 – Fire Numbers

	<b>2009</b>	<b>2003</b>	<b>10-Year Average (1999 – 2008)</b>
Fires	3,049 (23 per cent person-caused)	2,473 (39 per cent person-caused)	1,784 (44 per cent person-caused)
Hectares	242,170	265,053	74,957
Costs (direct fire)	\$403 million (revised expenditure forecast)	\$371 million	\$109 million
Extreme Activity	mid-May until late-September	July 16 until mid-September	
Structures Lost	7 homes, other cabins and outbuildings	334 homes; 10 businesses; 12 wooden Myra Canyon trestles	
People Evacuated	20,000	50,000	
Injuries/fatalities	1 pilot killed; no significant injuries to responders or public	3 pilots killed; 1 serious injury to responder; no significant injuries to public	

Table 2 – Ministry of Forests and Range, Wildfire Management Branch 2009 Peak Activity Numbers

<b>Peak Period of Provincial Wildfire Activity: July 23 - August 17, 2009</b>		
Most New Fires/Starts in a Single Day	154 (August 1)	
Fires Burning in a Single Day	792	
Total Volume Retardant Flown	19.6 million litres (new record)	
<b>Highest Single-Day Totals:</b>		
Helicopters	251	August 7
Fire Camps	7	August 7
Structure Protection Units	13	August 7
Air Tankers	42 (8 groups, 65 targets)	August 8
Highest Daily Cost	\$13.3 million	August 8
WMB Personnel	1,319	August 7
Out-of-Province Personnel	1,321	August 9
Contract Crew Personnel	1,294	August 10
Statutory Hires and EFFs	772	August 12
Contingency Staff	205	August 13
Total Personnel	4,343	August 11

Chart 1 – Ministry of Forests and Range, Wildfire Management Branch Peak Numbers



## Resources

The 2009 fire season utilized a wide range of resources. These included WMB resources, ministry and other provincial government support (via the Partnership and TEAMS programs), contract fire fighters, and newly trained emergency fire fighters.

In total, 2,464 B.C. government employees, over 1000 contractors and 750 local emergency firefighters and statutory hires were used in fire control efforts. There was also 2,512 highly trained Type 1 resource personnel brought in from out of province to support the B.C. suppression requirements. Resources were brought in from Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, New Brunswick, Newfoundland, Northwest Territories, Yukon Territories, and the United States. Equipment including fire camps, power saws and water pumps were also brought in. For the first time, 25 fire specialists from the State of Victoria in Australia and six personnel from New Zealand were brought in to aid fire suppression efforts. Early in the season, B.C. also sent fire crews to Yukon and Alaska.

In aviation, the total fixed-wing fleet (planes and air tankers) peaked at 42 while rotary-wing (helicopter) deployment hit a record high of 251 machines. Flying time (fixed- and rotary-wing) exceeded 53,500 hours and delivered a record 19.6 million litres of mixed

retardant (including record-breaking, single-day volumes). Assistance from Ontario, Saskatchewan, Alberta, and Yukon contributed to 6,506 total hours flown.

### **Weather**

The 2009 fire season started early due to above normal temperatures and below normal precipitation. In early May, fire crews were battling multiple fires of note, some of which threatened communities. The typical June rains arrived weeks later than usual with below seasonal average precipitation. On July 18, fires broke out in the Glenrosa and Rose Valley communities of West Kelowna, marking the start of what became a long and volatile summer. From July through August, lightning storms occurred throughout the province, leading to 40 per cent above average lightning-caused fires. Temperatures continued to break record highs with little precipitation in most areas. As September began, all personnel continued to work hard to contain fires across the province. At a time when the fire season is normally wrapping up, six fires still had people under evacuation alert and the largest wildfire, the Lava Canyon fire, was nearly 55,000 hectares and growing.

### **Interface Fires**

The record number of 200 wildland-urban interface fires in 2009 resulted in numerous community and public evacuations in every fire centre across the province. The entire communities of Lillooet, Brookmere, Kluskus, Alexis Creek, Seton Portage, Fireside, Shalalth and Hihume Lake had to be evacuated and an estimated 20,000 people were displaced because of interface fires.

### **Fuel Management**

B.C. is one of the few jurisdictions that has a co-ordinated Fuel Management program. Fuel management does not eliminate wildfires but can help reduce fire intensity when they occur. Interface wildfire mitigation requires ongoing effort and investment in assessment, planning and treatment by all levels of government and the public. All communities should embrace fuel management as an ongoing activity.

As of January of 2010, 178 Community Wildfire Protection Plans (CWPPs) have been completed or are underway in municipalities, regional districts and First Nations communities and 129 operational projects are underway. In 2009, the CWPP program was accelerated to encourage wider community participation in protection planning and fuel reduction.

### **Person-Caused Fires**

All person-caused fires are preventable and divert valuable resources away from unwanted, naturally occurring (lightning-caused) fires. Person-caused fires can originate from sources such as campfires, cigarettes, industrial activities, brush or range burns, construction, recreational vehicles and arson.

In an attempt to reduce the number of person-caused fires, the WMB has an extensive fire prevention program which targets the public, industries, communities, property owners and other stakeholders.

More than 850, or 23 per cent, of fires in 2009 are believed to have been person-caused. In light of the severe fire conditions, the Province of British Columbia increased patrol activities to ensure campfire bans were respected.

## **Learning from Fire Season 2009: Successes**

The 2009 review process noted several successes that were the result of past continuous improvement initiatives pursued over a number of years. Key successes are outlined in the sections below.

### **Unified Command and Multi-Agency Response**

Working with local governments and agencies proved to be a positive experience for staff, largely because people understood their roles and responsibilities better than ever before. Relationship maintenance between provincial and local governments and agencies during cross-training and protocol development has been a catalyst for improved communication, understanding and teamwork. The people placed in emergency positions at operations centres, the RCMP and fire departments were capable and flexible. Letters of appreciation from regional districts, municipalities and the private sector cite increased knowledge and mutual respect as factors in the successful cross-jurisdictional management of the interface fires.

Pre-organization and proactive engagement of cross-government teams, along with timely briefings at all levels (from operations site to senior government officials), ensured all aspects of wildfire management, including those that affected local governments and communities, were successfully planned, understood and implemented.

Examples include: wildland and structure fire officials sharing joint leadership responsibility and using one another's skill sets during high priority interface situations; PEP/Provincial Regional Emergency Operations Centre (PREOC) conference calls kept all agencies informed and unified; refined initial attack/aviation tactics; and the use of SPUs, which local governments credited with saving hundreds of structures this season. It is expected the experience gained with the deployment and use of SPUs will be applied to good effect in future fire seasons.

## **Fire Information**

Improved information flow from the site level to internal and external users, along with accurate, timely and positive reporting by the media, helped generate good public understanding of the issues and strong public support.

The co-ordinated and collaborative management of public communications with other ministries, local governments and media (including supporting Premier and Minister's media conference briefings, development of a communications plan and materials to facilitate area closure restrictions and open fire bans, timely administration and communication of post-wildfire risk assessments and maintenance of phone, web and other communications tools) helped deliver important emergency information to threatened or concerned citizens, their families and friends.

Joint community and stakeholder meetings provided important forums for wildfire situation updates from all agencies involved in the incident and to receive public concerns. The meetings afforded impacted residents an opportunity to be briefed on situational details and pose questions to officials from Emergency Operation Centres, Incident Commanders and WMB staff. The meetings were valuable to both informing and reassuring concerned residents.

## **Resources**

The use of out-of-province and contingency resources was an indispensable element in meeting the demands of escalated activity by allowing for the redistribution of fire managers to specialized, supervisory and initial attack roles, response to additional incidents and management of fatigue. The import of resources was facilitated through existing, pre-arranged cost-recovery agreements between B.C. and national and international wildland fire fighting agencies.

Support from the forest industry, First Nations and hundreds of volunteer groups was invaluable to the provincial wildfire response. The variety of skills and backgrounds from certified professional foresters to people with local knowledge of the affected areas played a critical role in ensuring an efficient wildfire response.

Despite extreme levels of activity (including times when there were active targets in all six fire centres), net fire growth on initial attack was below average, indicative of a well co-ordinated aggressive aerial attack and good ground follow-up. Facility upgrades in Southeast, Prince George and Kamloops fire centres (Provincial Air Tanker Centre and Headquarters) were completed amid a busy spring start to fire activity. The use of mobile communications and wildfire management infrastructure, administered through the Ministry's Information Management/Information Technology group and Provincial Equipment Depots, was also extremely valuable for operational support throughout the

season. Infrared mapping, used to identify fire boundaries and hot spots, assisted planning and suppression activities and was also of use to local governments and PEP.

The 2009 fire season also supported the WMB succession planning and knowledge transfer by providing opportunities for staff to work in a wide variety of leadership roles.

### **Fuel Management**

The 2009 fire season demonstrated the value of fuel management. Two major interface fires occurred in fuel treated areas: one in the Glenrosa area near Kelowna and the other near Alexis Creek. Fuel treatment was credited with reducing fire intensity, thus helping to reduce fire losses, allowing for safer evacuations and supporting safer and more effective suppression actions.

### **Safety**

Safety was at the forefront of all operations, serious accidents and injuries were limited to a single tragic helicopter pilot fatality. Despite more than 4,300 personnel employed daily for extended hours during peak activity, there were only 145 minor injuries over the entire season. This represents a remarkable success in safety.

### **Rehabilitation**

All fires that had heavy equipment use during fire suppression activities are assessed for the need for rehabilitation. As fires were contained, 165 post-wildfire rehabilitation projects to remove fire guards were conducted. To maximize operational effectiveness, rehabilitation planning and management activities were started as early as possible. In many cases while other areas of the fires were still in active suppression mode. The early availability and application of professional rehabilitation expertise allowed for expedited implementation and follow-up.

### **Review Process and Scope**

Provincial fire season reviews are an essential part of any fire season, particularly one as busy as 2009. Annual post-fire season reviews ensure each individual and section has a forum for input and opportunity to identify processes that worked well, new solutions and areas for improvement. The review process also ensures outcomes are prioritized in the context of existing workloads and resources. Following significant fire seasons such as 2009, additional efforts are made to compile the results of fire season reviews into a single, formal report.

The 2009 Review Work Plan involved four stages: information collection, analysis, focus group meeting and review/decision. The plan also identified the need for ongoing monitoring of action items. During the information collection stage, feedback on the fire season was sought and received through a variety of avenues including:

- Fire Season 2009 Feedback web portal;
- Fire centre and program area debriefs;
- Debriefs with out-of-province crews, Incident Management Teams (IMTs) and specialists and partnership staff discussions; and
- Input from clients, partner agencies and the public through written and verbal communications.

Focus groups for each major topic area were built from a cross-section of WMB staff. Representatives and focus group leads were chosen to align with existing provincial working groups wherever possible. They were tasked with completing the initial analysis including categorizing, prioritizing and considering cost/workload versus benefits for the issues and ideas brought forward during the information collection phase. A set of principles was developed to help guide the focus groups through this process:

- Identify all issues, especially those that cross different programs;
- Assess workload requirements;
- Identify quick wins that can be accomplished prior to March 2010;
- Focus on the issue versus the symptoms;
- Use the WMB strategic plan as a filter for priorities;
- Ensure best use of financial resources;
- Ensure best use of staff capacity and time available;
- Integrate new opportunities into existing workload priorities;
- Identify and resolve issues that may be common to different working groups;
- Do not limit the list of ideas despite other factors;
- Provide solutions;
- Encourage innovation; and
- Recommendations should be focused on ensuring maximum efficiency to address all levels of fire season activity.

The focus group leads met on November 24 and 25, 2009 to review and analyze priorities in relation to other program areas. A wide variety of items were identified. They were reviewed and categorized as potential quick wins, one-year or five-year projects, no action, or items already in progress/included in program or section workloads. A meeting between focus group leads and the Wildfire Leadership Team (WLT) took place on December 2 and 3 where results of the process were presented for final consideration and approval.

The review process did not identify any one major issue of inordinate concern but a wide variety of items representing opportunities for continuous improvement. The review verified that the current direction of the Wildfire Management Branch is on the right track and the processes in place contributed to a successful fire season response.

## **Learning from Fire Season 2009: Opportunities and Actions**

The review process identified a wide variety of items as opportunities for continuous improvement. They were grouped into categories and reviewed by 12 focus groups to assess how to best incorporate the items into WMB work plans.

Many of the review items will be completed by March 31, 2010. Some items are longer-term and may require a specific project focus that will be reviewed by senior WMB staff through an established project approval process.

### **Focus Groups**

#### **1. Aviation Management Section**

##### *Data Gathering and Analysis*

The Aviation focus group collected feedback from pilot debriefs, fire centres (via the Aviation Working Group), the Fire Season 2009 Feedback website and on-site and telephone consultation.

##### *Opportunities for Continuous Improvement*

#### **1.1 Regular Workload**

Aviation staff at fire centres and headquarters are engaged in provincial level activities as a normal course of their duties. Opportunities for improvement included updating and revising various manuals, briefing packages and training programs, as well as participating in the development of the CIFFC national aviation incidents reporting data base.

#### **1.2 Helicopter Co-coordinator (HELCO)**

A key role in helicopter management for fire operations during levels of heightened activity is the HELCO, formerly the Rotary Wing Bird Dog Officer (RWBDO). Opportunities for improvement included updating and developing various procedures manuals along with a review of the roles and responsibilities for the position. Longer-term opportunities include succession planning and career development through training and certification.

#### **1.3 Systems Enhancements**

A systems enhancement to the Aircraft Management System (AMS) was identified as an opportunity.

#### 1.4 Safety Management System (SMS)

SMS is being legislated by Transport Canada and other international aviation authorities for aviation companies to implement in their business practices. It is not a legal requirement for the WMB. However, it is seen as a potential support tool for the overall aviation safety program. It could also be used to support a regular audit process.

## **2. Command Section**

### *Data Gathering and Analysis*

The feedback used to identify command priorities came from the 2009 Fire Season Feedback website, Incident Management Teams (IMTs) individual fire debriefs and year-end debrief, Provincial Wildfire Control Officer (PWCO) debrief, fire centres and working groups and staff observations.

### *Opportunities for Continuous Improvement*

#### 2.1 Provincial Wildfire Co-ordination Centre (PWCC)

The PWCC move to Kamloops will require a review of roles and responsibilities in the PWCC as positions are filled in advance of the next fire year. The transfer of the PWCC to Kamloops provides the opportunity to explore efficiencies within the HQ fire control room at both the Incident Command System (ICS) and the PWCC level and provide an alignment with the fire centre's fire control room.

#### 2.2 Critical Resource Allocation Protocol

A formal provincial protocol is used every fire season to ensure available resources are allocated to the highest priority fires. The protocol is modeled after the national process which allocates assets when there are multiple requests for limited or scarce resources. The provincial process was found to be a vital tool and shall continue in the future. Fire centers shared resources to address highest provincial priorities despite local requirements. A refinement of this protocol will support the PWCO and the Regional Wildfire Control Officer (RWCO) to make resource allocation decisions throughout the season.

#### 2.3 Incident Management Teams (IMTs)

The increased fire activity from last season required staff to fill multiple positions, both as single resources and on IMTs. Based on changing program demands and strategies, there may be benefits to reviewing IMT composition, size and recruitment and selection processes. Long-term succession planning and career development through training and certification would also be a benefit to ensure excellence in future IMTs.

As the demands and expectations of IMTs are steadily increasing, a review of roles and responsibilities for Type 1 and Type 2 teams may be required.

#### 2.4 IMT Apprenticeship Program

Development of an evaluation process with provincial criteria and guidelines for the selection of apprentices may assist the IMT selection committee when assigning apprentices and mentors to Type 1 or Type 2 teams.

#### 2.5 External Agencies

It was noted that review of 2009 interagency operations with the Office of the Fire Commissioner (OFC) and other partners in fire control activities on the line and in financial processes (i.e. unified command, ordering and payment of apparatuses, SPU's, fire departments, payment of flaggers, provincial versus federal highways procedures) is currently underway.

#### 2.6 Activating/Resourcing Ministry Zone Operations Centres (MZOCs)

MZOCs were activated in a couple of fire centres during the 2009 fire season. MZOCs can put a heavy demand for resources on the fire centres during periods of elevated fire activity. To help the PWCO provide the resources to support MZOCs provincial criteria for when MZOCs should be activated, along with guidelines on the scale and scope of MZOCs, will be completed.

### **3. Compliance and Enforcement**

#### *Data Gathering and Analysis*

The feedback used to identify compliance and enforcement priorities came from ongoing senior, Type 1 Wildfire Investigator communications, a staff survey conducted during FI-210 training, the WMB's Legislation/Policy Working Group, Compliance and Enforcement (C&E) Branch's operations managers and regional and district compliance leaders, ministry staff and WMB fire history data.

#### *Opportunities for Continuous Improvement*

##### 3.1 Wildfire Cause Investigations

High levels of fire activity can challenge B.C.'s wildfire investigation capacity due to a high number of fires needing to be investigated and the need to use trained wildfire investigators who also are continuing to perform other fire-related duties. Models continue to be explored regionally where C&E Branch staff handles the dispatch of investigators. An update to the WMB/C&E Branch Roles and Responsibilities will support assignment of staff to meet investigation requirements.

### 3.2 Training

Models that use a team to investigate large scale wildfires or a complex of fires (an area where multiple fires are burning and one IMT is dispatched) or that employ the skills of regional Special Investigation Unit (SIU) staff have worked well and reduce fire centre workload. There is a need to expand the mentorship program and recruit more staff (WMB or C&E) to fill Type 1 Wildfire Investigator positions. Type 1 training includes a wide variety of training courses as well as practical investigation experience.

### 3.3 Serial Arson

Serial arson files are complex, require resources and are likely to involve other law enforcement agencies. To help address the need to identify high-risk areas and strategic investigative actions, ongoing arson investigations are implemented and coordinate with WMB and a SIU. The development of an interagency response strategy (including the RCMP) may be helpful.

### 3.4 Systems

To support C&E employees carrying out wildfire investigations, direct access to all WMB computer systems (e.g. Fire Weather, Lightning Locator System, Dispatch, photographs, etc.) would be an advantage.

## **4. Finance and Administration**

### *Data Gathering and Analysis*

The feedback used to identify finance and administration priorities came from Corporate Wildfire Services Team, Type 1 Fire Management Teams, statutory hire personnel, 2009 Fire Season feedback website, ministry staff, out of province finance chiefs and contactors.

### *Opportunities for Continuous Improvement*

#### 4.1 Financial Documentation

Enhanced finance and administration documentation training for relevant work groups within the branch and meeting with these groups, pre-season, to determine their individual finance and administration needs to increase efficiency, improve submissions for ease of processing and support the implementation of best practices.

#### 4.2 Procurement Management

Efficiencies in standing offers, contracts and equipment rental agreements and the competitive bid process, along with increased financial staff capacity and expertise, would improve the procurement management process.

#### 4.3 Resource Management

The maintenance of equity for operational deployments (WMB partnership, contractors, equipment operators and emergency hire personnel) encourages involvement from all of these areas. The orientation provided for financial staff from outside the WMB could benefit from a review with updates where required. Leadership development and job shadowing should be encouraged to build even more effective levels of response while developing confidence and pride in our employees.

#### 4.4 Daily Situation Costing

There is opportunity for improvement in the system and framework for daily cost estimates to enhance the accuracy of the direct fire cost and the recording of the number of resources utilized for a given day.

### **5. Fire Information**

#### *Data Gathering and Analysis*

The feedback used to identify fire information priorities came from the Fire Season 2009 Feedback website, a questionnaire sent to internal, out-of-province and contracted information officers employed on the fire line during the 2009 season, a post-season face-to-face meeting with WMB information staff and public feedback and correspondence during the season.

#### *Opportunities for Continuous Improvement*

##### 5.1 Resource Management

As part of regular workload, fire season preparation may include reviewing and revising Information Team, Partnership and contingency staffing programs and information officer training, development, certification and deployment protocols. For the 2010 fire season, it also includes transferring the Provincial Fire Information Officer (PFIO) to the new headquarters location in Kamloops. Initial training for new recruits as well as re-training for returning members will ensure a high standard of resource management as well as build staff capacity. The roles, responsibilities, processes and protocols of who manages "I-team"/Contingency Information Officer Program should also be clarified.

##### 5.2 Issues Management Through Public Education

Key issues that arise in the public forum can significantly increase workloads in many different program areas during periods of high fire activity. A variety of initiatives, including planning for short and long-term public information requirements, a videographer role and website upgrades, would support public information during times of high workload.

## **6. Liaison**

### *Data Gathering and Analysis*

The feedback used to identify liaison priorities came from IMT and agency representative debriefs, phone interviews with about 25 per cent of the agency representatives engaged during the 2009 fire season and review process. Comments and suggestions were also gathered from the 2009 Fire Season Feedback website and discussions with partner agencies, such as PEP, OFC and Department of National Defence (DND). The analysis of the information was used to identify key areas for improvement for next fire season and to develop a longer-term strategy to better communicate information to assisting provincial, national and international agencies.

### *Opportunities for Continuous Improvement*

#### **6.1 Briefings**

As incoming resources may be dispatched anywhere in the province during their deployment, clear and consistent briefings between provincial, fire centre, zone and site levels would contribute to success. The development of a general briefing package for the PWCC that covers the basic fire line information supplemented by information specific to a fire center would be helpful.

#### **6.2 Terminology**

Clarification and interpretation of different fire fighting terms (e.g. contained, controlled, interface, intermix) used by various national and international agencies through an updated glossary of terms would promote uniform understanding as well as ensure consistent messaging for external agencies.

#### **6.3 Headquarter Contact for Agency Representatives**

More than 60 agency representatives were involved in the 2009 fire season and the need for a central source to ensure consistency when relaying details on WMB standards, policies and procedures became apparent. To ensure consistency is maintained, a liaison role could be assigned in the PWCC along with criteria for the PWCO to assign an individual to the role.

## **7. Management**

### *Data Gathering and Analysis*

The feedback used to identify management priorities came from the Fire Season 2009 Feedback website, staff debriefs, working group conference calls and solicited feedback.

### *Opportunities for Continuous Improvement*

#### **7.1 Operational Safe Work Directive (OSWD) Number 2**

A clarification of the directive to address fire line fatigue will be conducted.

## 7.2 Information Officer (IOs)

Greater clarity is needed on how IOs not attached to IMTs are “rostered” and deployed and their roles, responsibilities, processes and protocols should be clarified.

## 7.3 Enhance Resource Capacity within Fire Operations

Potential capacity additions for key ICS functions were identified throughout operations. These functions include dispatchers, HELCOs, information officers, division supervisors, Danger Tree Assessors (DTAs) and Danger Tree Fallers (DTFs). Alternatives such as relying on partnership and industry staff to increase capacity could be explored along with a gap analysis to help determine the number of personnel available to meet these functions and potential resource targets.

## 7.4 Communications Plan for Operations Section’s Move to Kamloops

The PWCC is moving from Victoria to Kamloops and is planned to be operational after April 1, 2010. This has been planned since January 2008 and is now nearing completion. The majority of staff, clients and partners are aware of this change as it has been discussed for the past two years. An opening ceremony, with invited media, will be held to reiterate this message to the public. However, it may be helpful to send notification letters out to clients, partners and the media to advise them of the new address and contact information.

## 7.5 Systems Governance Issues

Continuous improvements to fire operation software applications through a collaborative development strategy with other national fire agencies could provide operational benefits by having national fire agencies utilizing the same or similar computer systems.

## 7.6 Management to Promote Fire Management Planning

The benefits of fire management plans should be communicated and appreciated throughout the ministry. A MOU could be developed with other agencies, such as the Integrated Land Management Bureau, that have responsibilities for land management to ensure Fire Management Plans are kept current through information transfer protocols.

## 7.7 Quality Assurance

To support ongoing continuous improvement, a formalized quality assurance process could be implemented to monitor best practices and ensure programs are being delivered as effectively as possible at multiple levels within the fire suppression operations.

## **8. Operations**

### *Data Gathering and Analysis*

The feedback used to identify operations priorities came from the Fire Season 2009 Feedback website and IMT, dispatch, supervisor, fire season and end-of-season debriefs.

### *Opportunities for Continuous Improvement*

#### **8.1 Dispatch Operation Centres**

Fire centre dispatch personnel and radio networks can be taxed by high levels of activity resulting in more workload for dispatch staff. A review of the dispatch functions, combined with opportunities to reduce radio traffic and other systems, and equipment upgrades would be helpful.

#### **8.2 Burn Out, Backfiring and Burn Off Operations**

The use of burn out, backfiring and burn off operations can be effectively used to reduce demand on limited provincial resources. Staff and equipment operator training and mentoring will support expertise in this field.

#### **8.3 Fire Analysis**

Fire Analysis Strategies (FAS) guide the fire management or fire suppression decision making process to balance the values at risk, the ecological contribution of fire at the landscape level and suppression expenditure. Fire analysis can provide objectives and strategies for specific fires or guide resource allocations in multiple fire situations.

If local staff are unable to complete FAS, provincial teams can be assembled to assist and meet shortfalls.

## **9. Planning**

### *Data Gathering and Analysis*

The feedback used to identify planning priorities came from the Fire Season 2009 Feedback website, IMT, provincial, national and international debriefs, regional, provincial and out-of-province wildfire control centre staff, Plans, Fire Prioritization and Geomatics Working Groups' conference calls and solicited feedback.

### *Opportunities for Continuous Improvement*

#### **9.1 Review Roles, Responsibilities, Policies and Procedures**

Improved clarity in the roles of the regional and provincial wildfire control centres and how they interrelate through the continued use of the ICS structure as a foundation from which to develop operation centre positions will be completed.

### 9.2 Staffing Pool/Capacity

Increasing the amount of staff familiar with all functions in the provincial and regional wildfire control centres supports consistency, promotes diversity and allows for sections to expand as workload demands.

### 9.3 Situation Unit

Development of a standardized situation resource tracking sheet would assist PWCC efficiency. Computerized platform could be developed in the long term.

### 9.4 Resource Unit

A standardized resource unit tracking sheet would be helpful. In the long term, a computerized platform could be developed.

### 9.5 Demobilization Unit

Clarification of the demobilization process through a Standard Operating Procedure would be helpful. In the long term, a computerized platform could be developed.

### 9.6 GIS Utilization

Clarification of the mapping standards and process for data collection and representation for contingency GIS staff and other GIS staff working on incidents and in co-ordination centres would be helpful. A single roster for GIS availability to IMTs could also be considered.

### 9.7 Fire Behaviour Analyst and Long-term Fire Growth Projection Utilization in Regional Wildfire Co-ordination Centres

Due to the high level of wildfire activity, additional requests for long-term fire growth and behaviour predictions were placed on the IMTs' Fire Behaviour Analyst in the field. Opportunities to reduce the timeframes for getting accurate long-term growth projections should be explored.

### 9.8 Rehabilitation

Improving rehabilitation timelines through a process in the Plans section to monitor and provide guidance and support as well as increasing the staff capacity within contingency staff may reduce risk and costs.

### 9.9 Strategic Planning

Strategic planning directly linked to fire behaviour is important for fire control initiatives on fires. Clarification of the WMB Advanced Planner position duties and development of checklists would support consistent application of this role along with an improved long-term growth prediction platform.

## **10. Prevention**

### *Data Gathering and Analysis*

The feedback used to identify prevention priorities came from the Fire Season 2009 Feedback website, ongoing staff, public and stakeholder feedback and prevention working group conference calls.

### *Opportunities for Continuous Improvement*

#### 10.1 Bans, Restrictions and Closures

The application and communication of restrictions under the *Wildfire Act and Wildfire Regulation* could be improved through the use of consistent messaging, definitions, thresholds and templates.

## **11. Safety and Training**

### *Data Gathering and Analysis*

The feedback used to identify safety and training priorities came from the Fire Season 2009 Feedback website, fire centre debriefs, safety and training working group solicitation, IMT debriefs, safety officer solicitation and WorkSafeBC inspections.

### *Opportunities for Continuous Improvement*

#### 11.1 WorkSafeBC Findings

WorkSafeBC inspections on multiple WMB fire control sites focussed on heavy equipment operations, chainsaw operations/falling, Danger Tree Assessment (DTA), command/control and supervision (as a prime contractor) and first aid services. These inspections will be reviewed for improvements and will include addressing requirements for incoming out-of-province fire staff or crews.

#### 11.2 WMB Safety Program

Reviews of the WMB safety program based upon the BC Timber Sales' model as a good framework for development could support a higher level of consistency and incorporate new ideas. A long-term review would include prime contractor and multiple employer workplace considerations.

#### 11.3 Training

Training program upgrades are already identified and underway via the provincial training working group.

## **12. Systems**

### *Data Gathering and Analysis*

The feedback used to identify systems priorities came from the Fire Season 2009 Feedback website, systems working group conference calls and ongoing IM/IT back-log.

### *Opportunities for Continuous Improvement*

Fire operation systems will continue to move forward on multiple topics within established priorities utilizing increased collaboration and nationally built systems whenever possible. Short-term activities will focus on addressing operational efficiencies while long-term activities will focus on systems and/or policy developments.

### **Follow-up/Monitoring**

Opportunities for improvement will be implemented through a variety of task teams that are responsible for delivery of the suggested improvements.

The appropriate manager in line with the task teams will monitor the implementation improvements as they are completed.

For more information on the Wildfire Management Branch, please visit [www.bcwildfire.ca](http://www.bcwildfire.ca)

## Appendix

### Glossary of Acronyms

ADM:	Assistant Deputy Minister
AMS:	Aircraft Management System
BCTS:	British Columbia Timber Sales
C&E:	Compliance and Enforcement
CFS:	Canadian Forest Service
CIFFC:	Canadian Interagency Fire Fighting Centre
CWPP:	Community Wildfire Protection Plan
DND:	Department of National Defence
DTA:	Danger Tree Assessor
DTF:	Danger Tree Faller
EFF:	Emergency Fire Fighter
EOC:	Emergency Operations Centre
FAO:	Food and Agriculture Organization of the United Nations
FBAN:	Fire Behaviour Specialist
GIS:	Geographic Information System
HELCO:	Helicopter Co-ordinator
HQ:	Headquarters
IC:	Incident Commander
ICS:	Incident Command System
ILMB:	Integrated Land Management Bureau
IM:	Information Management
IMRS:	Information Management Reporting System
IMT:	Incident Management Team
IO:	Information Officer
IT:	Information Technology
MFR:	Ministry of Forests and Range
MOU:	Memorandum of Understanding
MZOC:	Ministry Zone Operations Centre
OFC:	Office of the Fire Commissioner
OSWD:	Operation Safe Work Directive
PATC:	Provincial Air Tanker Centre
PEP:	Provincial Emergency Program
PFIO:	Provincial Fire Information Officer
PID:	Project in Development
PREOC:	Provincial Regional Emergency Operations Centre
PRT:	Personnel Resource Tracking
PWCC:	Provincial Wildfire Coordination Centre

PWCO:	Provincial Wildfire Control Officer
RCMP:	Royal Canadian Mounted Police
RWBDO:	Rotary Wing Bird Dog Officer
RWCC:	Regional Wildfire Coordination Centre
RWCO:	Regional Wildfire Control Officer
SIU:	Special Investigation Unit
SMS:	Safety Management System
SOG:	Standard Operating Guideline
SOP:	Standard Operating Procedure
TEAMS:	Temporary Emergency Assignment Management System
WLT:	Wildfire Leadership Team
WMB:	Wildfire Management Branch