MINISTRY OF FORESTS REPORT TO THE

2003 FIRESTORM PROVINCIAL REVIEW

Submitted by the

Forest Protection Program

January, 2004

2003 Fire Season

2,465 - fires

375.4 - cost of fires (in $millions)

266,000 - hectares burned

7,600 - highest daily number of personnel deployed on fires

50,000 - people evacuated

239 - aircraft attacking fires

62,617 - flying hours by water bombers / helicopters

Ministry of Forests Report to the Premier's Review of the 2003 Fire Season

EXECUTIVE SUMMARY

The 2003 fire season was the most catastrophic in British Columbia's recorded history. Tragically, three air tanker crew members lost their lives and one person was seriously injured.

Homes were destroyed, tourism was down and the forest harvests were affected. By any standards the damage done by the fires was catastrophic, yet in the midst of the smoke and destruction caused by the fires there were bright rays. No residents of fire-affected areas lost their lives or were seriously injured. In the midst of tragedy British Columbians showing their true spirit helped the nearly 50,000 people affected by the fires. Fire-fighters and support personnel bravely fought back the fires to save lives, homes, communities, businesses, and equipment.

The extended drought in the southern half of the province created conditions never seen before in all of Canada. This record-breaking dry spell, along with high temperatures and successful fire suppression in previous years created a situation where thousands of square miles of forest were a tinder box, waiting to be ignited.

And then it began. Lightning strikes, human carelessness, and arson all contributed to igniting in excess of 2,500 fires involving more some 10,000 firefighters and support personnel and burning more than 265,000 hectares at a cost of $375 million. The extreme volatility of the dry forests compounded by the province's difficult terrain created unprecedented fire behaviours, all made fire suppression almost impossible. The ongoing fires put extreme pressure on human and other resources, and the daily outbreak of new fires (218 on one day alone) added an even greater burden on suppression teams.

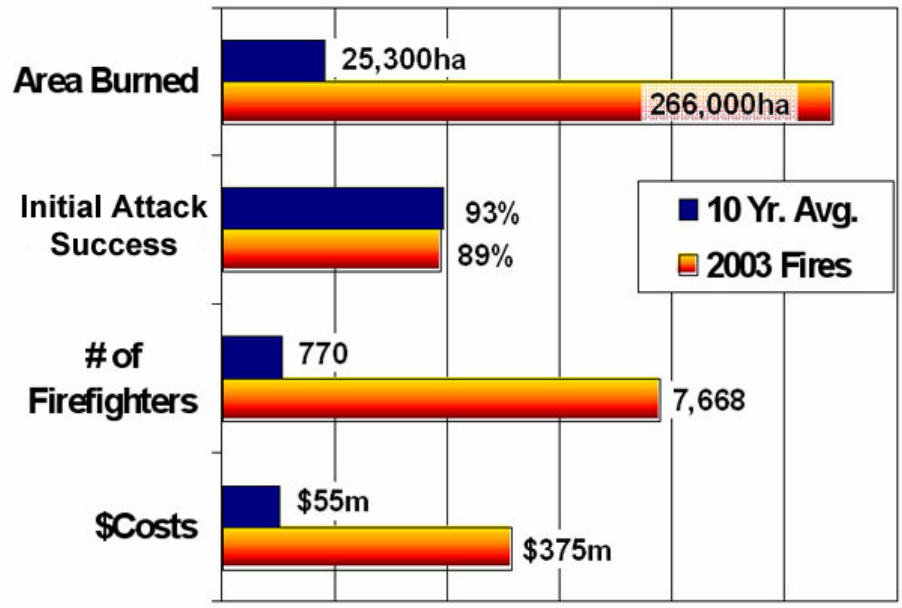
Despite the multi-million dollar expenditure and the concentrated efforts of knowledgeable and dedicated people, in some cases the forces of nature were simply stronger, costing human lives and the loss of private and public property and forest land. Nonetheless, the losses in all areas could have been considerably worse.

Considering the massive scale of fire suppression crews fighting uncontrolled fires on numerous fronts that at times travelled at more than seven km/hr, and leapt several kilometres over highways, waterways and fire breaks, human safety remained a priority and not a single firefighter was lost on the fireline. Nor was there any loss of civilian lives, or any looting or civil unrest associated with the largest evacuation in B.C. history.

Furthermore, while the media naturally focused on the worst fires, the fact remains that the forest service managed an 89 per cent success rate in containing new fires to four hectares or less (2,240 fires out of 2,517). This initial containment, which was down only slightly from the 10 year average of 93 per cent, is all the more remarkable given the record-breaking drought and the sheer volume of new fires that stretched human and equipment resources to the limit.

These successes notwithstanding, a *post mortem* of the fires of 2003 points to areas where improvements can be made. While extreme forest fire conditions and the resulting wildfires are products of nature and human activity, how the Province, communities, homeowners and the public prepare for the coming fire season, and respond to outbreaks of wildfires is within the control of government and its agencies.

By examining this past summer's experiences, the province can focus on ways to improve prevention and existing practices, and develop new tools and strategies to prepare for future threats that appear to becoming more serious with a changing climate that includes global warming.



2003 Fires Season compared to 10-year average

(Note the success rate of new fire containment despite extreme conditions and stretched resources)

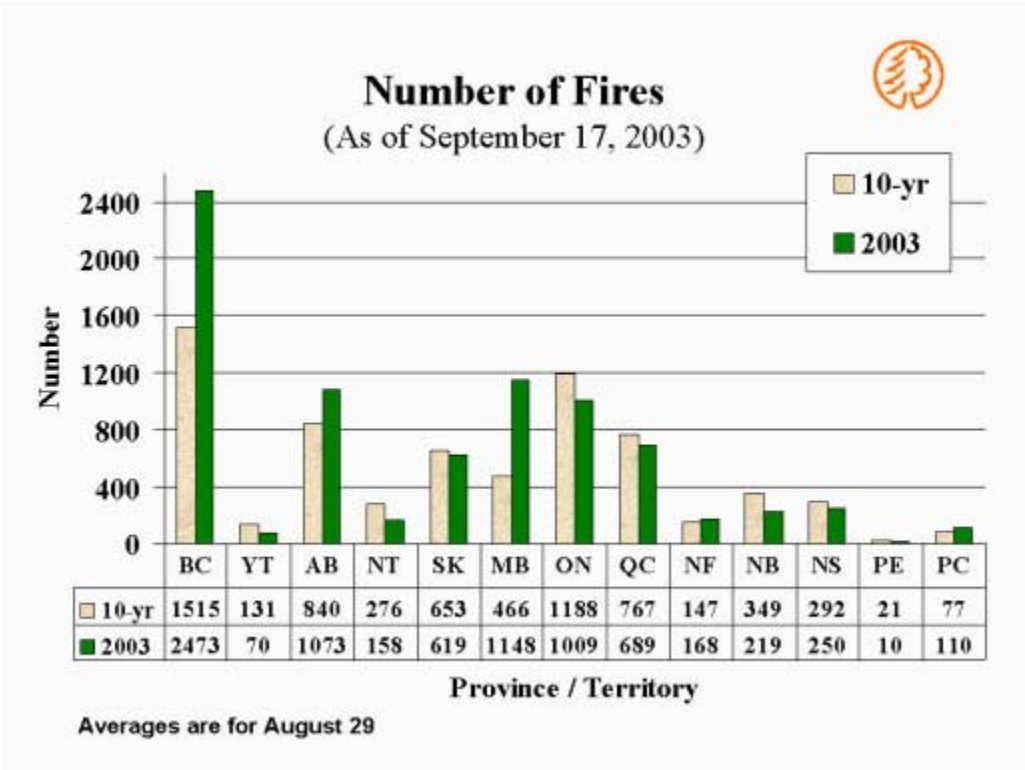
PUTTING THE 2003 FIRES INTO CONTEXT

Global situation

According to the Food and Agriculture Organization of the United Nations, the 2003 fire season was one of the worst in recent history in terms of loss of human life and damage to forests, homes and property, and infrastructure such as roads, bridges and telecommunications installations.

As difficult as the situation was in B.C., similar and worse conditions were experienced elsewhere in the world. Australia, Portugal, France and Russia suffered unusually higher losses from wildfires, while fires in the U.S. burned more than 300,000 hectares destroying some 3,500 homes in California alone. Despite the best efforts of the fire fighting agencies, in some cases the conditions created by nature exceeded the capacity of human intervention.

British Columbia was fortunate in that evacuation decisions, and the cooperation of the overwhelming majority of residents, prevented the loss of any civilian lives. Other jurisdictions, such as Portugal and California were not so fortunate. Although the loss of homes and businesses is tragic, the province's first priority – the protection of human lives — was largely met.



	BC	YT	AB	NT	SK	MB	ON	QC	NF	NB	NS	PE	PC
10-yr	1515	131	840	276	653	466	1188	767	147	349	292	21	77
2003	2473	70	1073	158	619	1148	1009	689	168	219	250	10	110

B.C. situation

Nonetheless, British Columbians suffered economic losses in several areas:

Wildfires had a significant negative impact on the $9 billion per year tourism industry in southern B.C. through the main tourist season of July, August and early September.

The forest industry, which accounts for more than $15 billion per year, was shut down in much of the province due to industrial closures and the need to direct equipment and staff to the fire fighting effort.

Cost to the provincial treasury, which had budgeted $55 million for direct forest fire suppression, exceeded $375 million.

An additional $100 million was spent by federal and other agencies.

In all likelihood, these same issues and costs will continue to put pressure on British Columbia in future fire seasons if, as seems increasingly likely, we are entering a long-term period of global warming.

WILDLAND/URBAN INTERFACE

As well as extreme weather conditions, another contributor to the seriousness of the fires of 2003 was the fact that more and more residential developments are pushing into the wild forest lands in many parts of the province.

This wildland/urban interface fire potential is not new to British Columbia. Rapid population growth and urban expansion in close proximity to forest lands has been a concern that the Ministry of Forests first identified back in the 1980s. In a number of areas throughout the province public awareness campaigns and mitigation projects were initiated by teams that brought together provincial agencies, utilities, First Nations and local governments. These "interface committees" made efforts to promote awareness among local and regional governments, the public, and other agencies with land management jurisdictions, of the risks associated with urban/forest juxtaposition.

The Ministry of Forests has continued to lead a variety of awareness, planning, cross-training, hazard identification, and "fuel management" projects such as thinning, pruning and controlled burns over the past fifteen years.

Unfortunately, public response often has been less than enthusiastic. In fact in many cases local governments and developers were reluctant to embrace suggestions to implement "FireSafe" subdivision and building guideline proposals, or to implement fire prevention and other "fuel management" measures. Proposals to deal with potentially dangerous fuel conditions through controlled burns and limited action wildfires were regularly met with public resistance due to smoke and visual impact concerns.

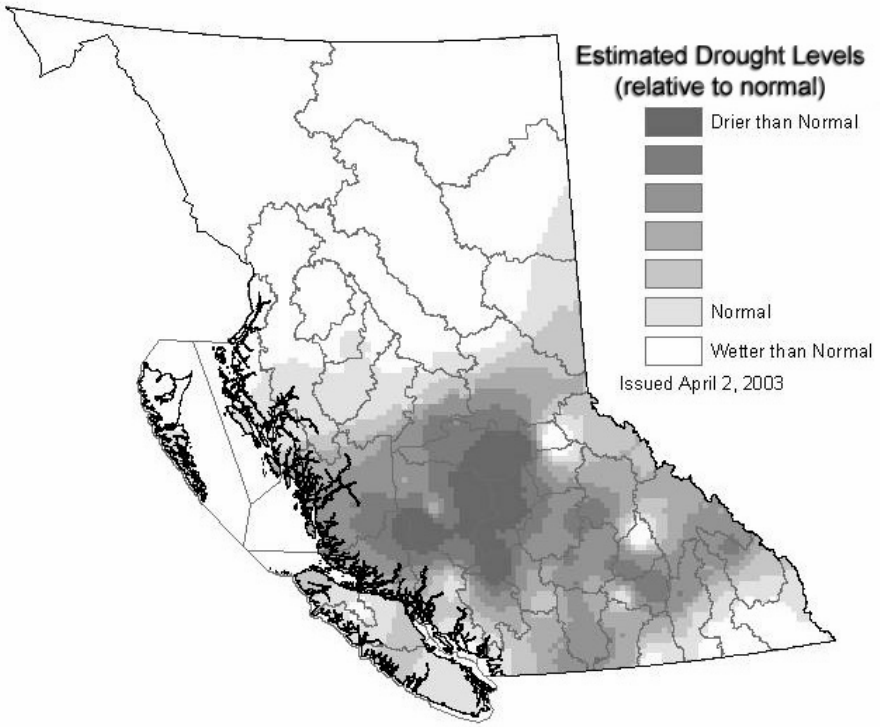
While the interface situation has been an ongoing concern and focus for the Ministry of Forests, the number of interface wildfires that occurred during 2003 was dramatically higher and more devastating than ever experienced before.

These experiences can be used to assist local governments to make the mitigation of interface fire risks a priority, and to gain more knowledge and experience, not only in assessing risks, but also in responding to public concerns.

No amount of preparation would have prevented all of 2003's interface fires. But clearly greater efforts on community planning, homeowner responsibility, fuel management, along with better public understanding and more coordination between levels of government on prevention could have reduced the risk and possibly mitigated some damage.

Early warnings

Extended drought conditions for the past several years in the southern interior and some coastal areas foreshadowed a challenging fire season in B.C. The low over-winter snowpack in southern part of the province during the past winter was a continuation of that drought. Concerns within the Ministry of Forests led to the following drought analysis in early April.



The growing concern about the impending situation prompted several important undertakings by the Ministry of Forests early in 2003. First, steps were taken to ensure a full complement of resources was available, and in some cases deployed earlier than normal in targeted areas of the province. The decision was also made to continue with the two additional 20-person unit crews that were implemented in 2001 in recognition of fire risks associated with the beetle kill.

In May and June presentations were made to local governments outlining the potential for volatile fires, the likelihood of prolonged forest closures and the need for fire suppression resources.

Fire Action in July

During the first week of July, more than 300 provincial fire personnel who had been assisting Manitoba and Ontario with their wildfires returned to B.C., so all provincial resources were in place.

By July 7, more than 100 fires were already burning, 48 of them in the southern interior.

A press release was issued on July 10 asking the public for assistance in reporting suspicious activities related to recent deliberately set fires in the southern Okanagan.

By July 16, the number of fires had grown to 157 of which 103 were in the southern half of the province, and extreme or high fire danger warnings were posted across 27 per cent of the province. Anarchist mountain fire forced the evacuation of 50 homes

Worsening conditions prompted the Minister of Forests to issue an appeal to the public to report wildfires and to exercise extreme caution in order to prevent fires.

As fire activity began increasing, an air tanker accident on July 17 took the lives of two pilots and reduced the air tanker fleet capacity to 13 aircraft.

Four fires threatening British Columbia from the U.S. and Alberta compounded the situation.

July 18 – the Tatla Lake fire grows from 200ha to 2,400ha overnight, hydro power was lost and Highway 20 briefly closed.

The Chilko Lake fire has grown to 3,500ha by July 22. Evacuations for ranches, lodges and first nations were initiated. Fire was labelled "extreme and unpredictable."

By July 23, fully 60 per cent of the province was under extreme or high fire danger alert and campfire bans were implemented in the Kamloops, Cariboo, Southeast and Coastal fire regions.

The McClure fire was discovered on July 31 (it will grow to 26,420 ha by containment on Sept 29th), and 30 homes evacuated.

In recognition of the difficult conditions, the Provincial Fire Control Office requested additional ground crews and equipment through the Canadian Interagency Forest Fire Centre. A total of 260 personnel from other provinces responded to the request. All available outside resources were being utilized by July 31.

By the end of July, 94 per cent of the province was in extreme or high fire danger conditions. Some 230 fires continued to burn, covering an area that already exceeded the 10-year annual average by nearly 20,000 hectares.

With no relief from the weather, which was expected to remain hot and dry in southern B.C., the situation was destined to get worse.

Escalation in August

August brought a rapid escalation in fire activity and increasing threats to communities, prompting a State of Emergency to be declared on August 1 for the Thompson-Nicola region. The Cedar Hills fire was discovered, (it will grow to 1,620ha by before being contained August 15.) Strawberry Hill fire also discovered.

Fires force the evacuation of 2,500 residents of Barriere and 4,000 residents of Rayleigh and the Paul Lake area just north of Kamloops on August 1.

Also on August 1, forest roads were closed to the public in selected high-risk areas.

Worsening conditions overnight prompted a full province-wide State of Emergency to be declared August 2.

In the Thompson watershed, the McLure fire grew to enormous size with a perimeter measuring in the hundreds of kilometers, and ultimately devastated the community of Louis Creek as well as parts of Barriere. The Tolko sawmill in Barriere was completely destroyed.

The Strawberry Hill fire just to the south devastated much of the Kamloops Indian Reserve, and threatened homes on the Reserve and in nearby Kamloops suburbs.

On August 6th the Bonaparte Lake fire is discovered (will consume 1,500 ha by September 10), and the next day, Lamb Creek fire is discovered (will grow to almost 11,000 ha by September 16).

On August 15, the McGillivary Lake fire started and threatened the community of Chase before advancing north to threaten the Sun Peaks Resort and village.

In the southern Okanagan, drought conditions approached a crisis level with relentlessly high temperatures and exceedingly low humidity.

Despite strong objections from some sectors, a voluntary travel restriction was issued on August 20.

By August 27th the McClure fire had 1,079 firefighters, 147 pieces of heavy equipment and 12 helicopters fighting the blaze.

August 29th - 30,000 Kelowna residents were evacuated, and all forestry activity was halted in the province. (A great deal of consideration went into the decision to implement this Forest Use Restriction. There was intense pressure by communities starting in early August to close the forests due to the extreme threat. The decision was made to test a "Voluntary Travel Restriction" as an interim measure with the hopes that conditions would improve. In the end, however, the full measures were deemed necessary for public safety.)

Containment in September

On September 3, more than 3,000 Kelowna residents were evacuated, some for the second time, when a flare-up caused re-evacuation

Weather conditions in September eventually brought relief to the beleaguered suppression crews, but not before another couple of weeks of challenging hardship and loss.

Eventually 343 homes were destroyed, one major sawmill and countless pieces of logging equipment.

The following chart depicts some of the firefighting resources still in service as late as September 8:

Kuskanook Creek	160 firefighters, numerous pieces of heavy equipment and 7 helicopters
McGillivray	825 firefighters, 123 pieces of heavy equipment and 10 helicopters
Okanagan Mountain Park	650 firefighters, 200 pieces of heavy equipment and 20 helicopters
Venables	330 firefighters, 40 pieces of heavy equipment and 8 helicopters
Kwoiek (Pyramid Mountain)	32 firefighters, 8 pieces of heavy equipment and 3 helicopters
Lamb Creek	500 forest firefighters, 171 structural firefighters, 70 pieces of heavy equipment, 17 helicopters & 2 boats
McLure	860 firefighters, 88 pieces of heavy equipment and 8 helicopters

Special challenges

Throughout the wildfire season of 2003, each new outbreak had to be attacked with more than the usual resources due to extreme conditions that allowed fires to accelerate more quickly. In this environment, the window of opportunity for successful initial attack was much smaller. The team operating British Columbia's advanced dispatch and coordination system had to pinpoint targets and deploy aircraft, personnel and equipment in an area covering 25 million hectares – an area roughly the size of New Zealand – in increasingly quicker response times to be effective.

As if the extremely dry forest wasn't enough of a challenge for fire crews on the ground, afternoon winds produced fire intensities that often made fire suppression efforts futile and highly dangerous. Combined with the intense heat, these winds fanned the spread of fires at a rate exceeding 10 metres/minute almost every afternoon on the large fires, despite sustained air support. This dangerous mix pushed crew safety and working conditions to the limit, and frequently forced crews to retreat from the fire front for their safety. It is conditions like these that cause about 80 per cent of the wildland fire deaths across North America.

Additional Resources

In total, more than 3,300 additional personnel, crews, contractors and other human resources were brought into B.C. from every Canadian province and territory, as well as from Alaska, Oregon and Idaho.

The military support for B.C.'s fire suppression efforts in 2003 proved to be the largest military operation of year, involving 2,700 military personnel, including 920 firefighters, and four helicopters.

Contract companies, the forest industry and First Nations all contributed to the complement of firefighters. Crews were quickly trained and provided to Incident Command Teams, and became part of the approximately 10,000 people involved in firefighting duties in 2003. However, while the newly trained crews were an important contribution to ongoing mop-up operations, they could not safely be deployed to active wildfires.

Additional air tankers were provided by TimberWest and Conair, as well as by Ontario, Quebec, Yukon and New Brunswick. Up to 220 helicopters were brought on line as available, including many costly medium and heavy helicopters. Protection staff were constantly scouring the world market for available resources, and contracting them as soon as they became available.

As the fire activity escalated, every available and qualified resource was utilized on the fire line, or to provide some relief for others who had been on the lines and needed rest. This escalation started in early July and, before the end of the month, all agencies in Canada had provided all available resources. Following the McClure Fire advance on Louis Creek and Barriere, many agencies in Canada re-evaluated their resources and agreed to release more firefighters and equipment.

Prevention Measures

In addition to increased fire suppression resources and fire fighting efforts, the Ministry of Forests also increased fire prevention measures to limit the number of fires caused by humans. Prescribed burning and access to forested areas were restricted in much of the province. As well, ground patrols including the presence of Ministry of Forests, Ministry of Water, Land and Air Protection and RCMP staff were significantly increased.

The following table lists some of the specific restrictions implemented:

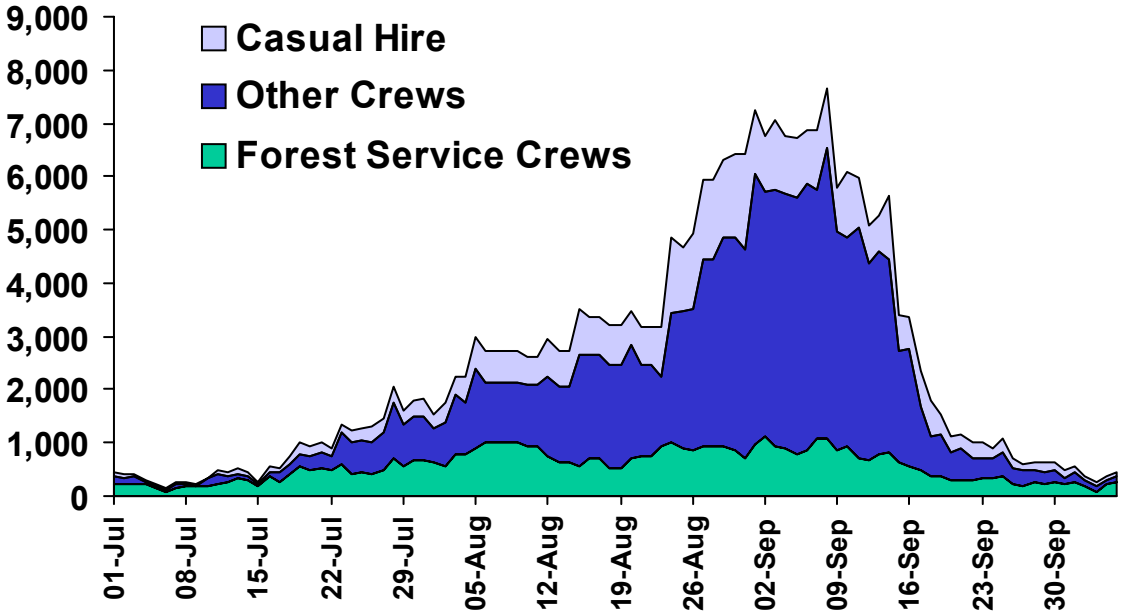
Type of Restriction	Date Implemented
Open Burning Restrictions	June 6
Camp fire bans	July 23
State of Emergency Declared	August 1
Forest Road Closures	August 1
Voluntary Travel Restriction	August 20
Forest Use Restriction	August 29

OVERVIEW

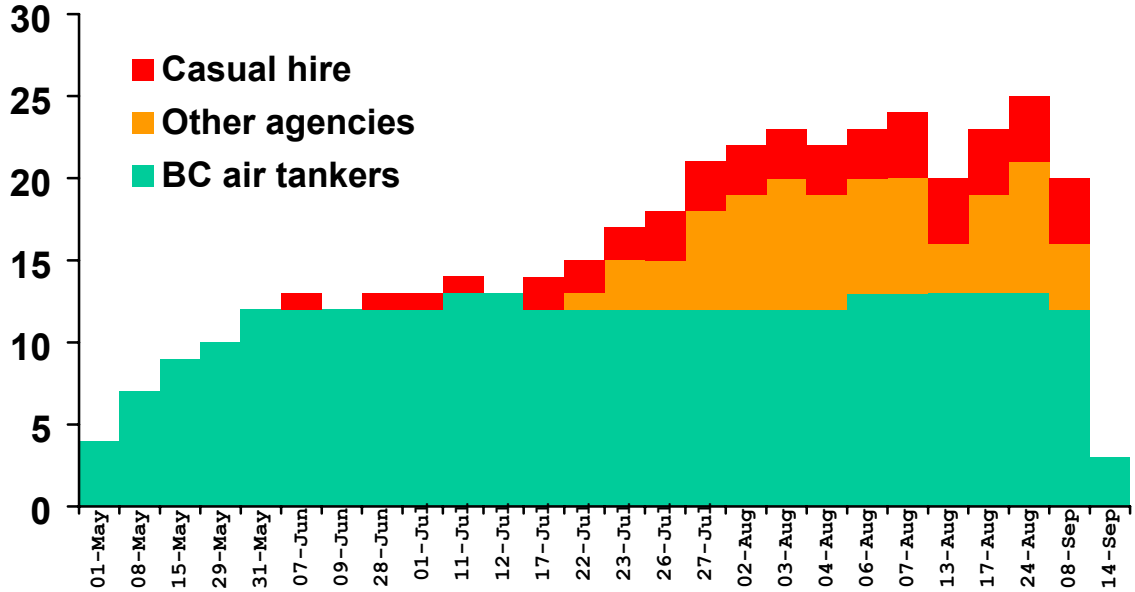
In the face of extreme burning conditions, the Ministry of Forests mounted a massive fire effort. While the ten most significant fires understandably garnered all the media attention, more than 2,500 other fires throughout the province were successfully contained, with some 89 per cent being held to less than four hectares. To accomplish this, the number of firefighters was increased tenfold over what is normally managed, and twice what has ever been marshaled before. The air tanker fleet was doubled, and number of helicopters was 50 times the normal complement. Daily expenditures reached a maximum of $9.0 million on August 26, compared with the previous maximum of $4.1 million in 1998. It was a tremendous undertaking to monitor and safely coordinate this level of resource allocation.

During the peak of fire suppression activity, the Ministry of Forests deployed 7,668 firefighters, 25 air tankers and 202 helicopters to battle 880 still-burning wildfires. Not until mid-September did weather conditions finally allow firefighters to get the upper hand on the major fires and to begin reducing the number of resources deployed.

Fire Crews Deployed



Air Tanker Fleet Size And Composition



The summary statistics for the 2003 fire season, with comparative records from recent years, are as follows:

	2003	**10 year average**	**Previous record**
Area Burned	266,0000 ha	25,300 ha	235,000 ha (1985)
# of Fires	2,517	2,002	4,088 (1994)
New fires in one day	218		450 (1994)
Initial Attack Success[1]	89%	93%	
Interface Fires	100+	8	15 (1998)
People Evacuated	50,000		7,000 (1998)
Homes Lost	334	4	18 (1998)
Suppression Costs	$375 million	$55 million	$153 million (1998)
Daily Costs (max)	$9 million		$4.1 million (1998)
Fire Fighters (max.)	7,668	770[2]	3,800 (1985)
Helicopters (max.)	220	6[2]	
Airtankers (total)	36	13[2]	

[1](Final Size less than 4 hectares), [2] Normal complement of crews & contracted resources

MINISTRY OF FORESTS REVIEW OF THE 2003 FIRE SEASON

In December 2003,The Ministry of Forests held a Fire Review meeting in Penticton to evaluate the Ministry's response to last summer's terrible fires. The two-day meeting included more than 200 staff from the Ministries of Forests, Water, Land and Air Protection, Sustainable Resource Management, the Provincial Emergency Program, Office of the Fire Commissioner, Ontario Ministry of Natural Resources, and the Department of National Defense. The review concentrated on ten of the most significant fires and examined all aspects of forest fire operations.

The process identified improvements to Ministry procedures that will begin to be implemented in 2004, and continue over the next three years. The review also concluded that a more strategic approach to the wildfire threat in British Columbia needs to be developed.

A summary of the conclusions that came forward from the review process is contained in Appendix I, and the detailed fire review reports make up Appendix II of this report. Each fire review report provides an overview of the circumstances locally and provincially at the time the fire started; a chronology of major events and challenges during the fire; and conclusions to help deal with similar challenges in future.

The common theme was the need for proper resources at critical times during the fires. The most frequent requests were for more Type I crews (meet Type I interagency training standards and requirements) and certified specialists, especially Fire Management Team members. The second most common theme was the need to improve the Danger Tree Assessment and Removal processes. This factor was identified most often as the cause of slowing access to the fire line by crews and equipment.

The main challenges can be broken down into four categories:

i. Unprecedented drought and fire behavior conditions
ii. Fuel conditions near communities and across the landscape
iii. Resources available to deal with fires.
iv. Coordination between agencies

DROUGHT AND FIRE BEHAVIOR CONDITIONS

The conditions of 2003 are an example to all Canadian forest fire agencies of how difficult wildfires can become. The forest fire index that measures drought conditions in Canada is called the "drought code". The drought code increases as forests become increasingly dryer, and is considered extreme in Canada when the index exceeds 425. The previous Canadian record for the drought code was measured in BC at 1179. During 2003 a new record drought code in the southern interior was set at 1404. The concern was not just with the extreme depth of the drought, but with how extensive it was across the southern half of the province. Record minimums for summer rainfall were set at Cranbrook, Kelowna, Kamloops, and Victoria.

In forest fire terms, extremely dry conditions contribute in three very significant ways:

Fires will ignite much more easily, requiring increased vigilance in preventing fires, and in being alert to detecting and reporting them when they happen. For the most part, the public was extremely attentive to fire prevention and quick to report fires as they occurred.

Fires spread much more quickly under dry conditions – in some cases fire spread was measured at more than 7 kilometres per hour, and in one instance, jumped ahead 2.5 kilometres (one undocumented case reported a 5 km jump), putting fire organizations under extreme pressure to provide enough resources.

Under extreme drought, extinguishing fires becomes a challenge. Because of high fire intensity, it takes extra crews and resources to attack the fires, and often it is too dangerous to work close to the fire. As well, under these conditions, fire can burn deeply inside large dead material and go underground in dry root systems, making mop-up difficult and time consuming.

FOREST FUEL BUILDUP

Fuel loading, or the increase in combustibles in the forest, has been identified as a significant factor in the 2003 forest fires. It contributed to much of the difficult fire behavior, often making fires impossible to control, and exacerbating threats to homes and communities. This in turn made it almost impossible to provide advance warning to communities and local land managers about the risk factor of certain fires. Fuel management is an issue in local government areas as well as Crown forests. Assessing and treating the risks are time consuming and costly

In addition, the Mountain Pine Beetle infestation and other pests are having a profound effect on trees in forests in many parts of the province. Few of the most infected forests were burned in 2003, leaving a potentially significant fire hazard in the coming years.

Fuel management is not only a provincial government responsibility but also involves a wide variety of stakeholders including federal agencies, local governments, First Nations, private landowners, and the forest industry . It is critical that communities, and the Provincial and Regional Interface Committees work together to solve the fuel management problem. This is a key prevention measure which will help to avoid catastrophic fires in the future.

AVAILABLE RESOURCES

The Ministry of Forests is responsible for management and control of open fire on Crown Land outside of local government controlled areas. Two budgets are provided; a preparedness account to prepare facilities, crews, aircraft and staff, and a direct fire account to deal with expenses in responding to fires. The direct fire account is not subject to limits. This was the situation in 2003— the direct fire budget of $55 million did not restrict the necessary actions of the Ministry of Forests, and in the end, $375 million was expended to fight the forest fires.

The Protection Program preparedness budget of $49 million continues to be subject to significant pressures. In addition to costs offloaded to the program over the past several years, wage settlements have increased salary costs by over $1.5 million. As well, inflation increases under aircraft contracts increase costs by about $200,000 each year. These have resulted in impacts on preparedness funds for both fire fighting crews and Forest Protection staff. In light of the difficult season forecast in the spring of 2003, the Ministry of Forests implemented extraordinary internal measures to ensure full crew staffing that exceeded the preparedness budget through use of direct fire funding.

New workload associated with interface planning and preparation has arisen over the past decade. This includes dealing with new developments as well as improving the safety of existing community areas. While this role has been assumed informally, it should now be integrated into program priorities and funding. An additional area of increased workload is that the Ministry of Forests has assumed responsibility for initial attack and fire control in Provincial Parks without any additional resources.

Although the province recognized and prepared for a worse-than-normal fire season in 2003, by the height of the fire season the resources of the province were exhausted. It was fortunate that resources were available from the forest industry and other provinces due to quiet seasons across the country. Most of the major fire evaluations refer at some point to the need for key resources. Several strategies have been identified to increase or enhance the available fire fighting resources at minimal increases in cost to government.

A number of areas of improvement are being developed within the current budget structure of the Ministry of Forests. Although current budget funding pressures cannot be addressed, the partnership program in the Ministry is being expanded to increase the training and availability of all Ministry staff. Work will be done to improve media relations, which would be helped by additional resources. A more significant challenge will be providing increased Type I firefighters, especially given current budget pressures. Discussions will be held with the firefighting contractors and the forest industry to explore options for expanding the reserve firefighters and improving their deployments.

TRAINING AND AVAILABILITY OF FIRELINE SPECIALISTS

As identified in the fire debriefings, qualified and certified fireline specialists were in short supply. Ministry of Forests staff not normally involved in fire operations were made available as the fire season worsened but they lacked current training. In spite of that, and with only basic training, staff took on these complex and stressful positions. In 2004, as a result of this experience, the Ministry plans to expand its current training and certification process involving non-fire staff from two per office per year to six per District and Region office.

FIRE CREWS

A key issue identified in the fire debriefings was the availability of sufficient Type 1 crews – the most highly trained and effective crew category. As a result of budgeting decisions in the early 1990s, Type I unit crews were reduced from the original number of 27 crews of 20 persons each. In 2001, to cover Mountain Pine Beetle-killed areas, two Type 1 crews were added bringing the complement up to 22 crews.

CONTINGENCY RESOURCES

The extensive and valuable assistance in 2003 from the contract firefighting and forest industry highlighted their importance during extreme events. The Ministry of Forests needs to work more closely with these industries to resolve challenges around rosters, training, communications, etc.

AERIAL FIREFIGHTING

Three major lessons on air attack were learned this year.

i. Many air tanker bases are less than ideal for operating multiple air tankers during heightened activity. This resulted in aircraft being diverted to more distant bases for reload resulting in longer turn-around times to fires. It has been determined that most of these bases can be upgraded *at a limited cost*.

ii. Extensive air support was provided through aircraft loaned from other provinces and private companies that fortunately were not needed elsewhere. It is important to note that the aircraft made available in 2003 will not necessarily be available in future years.

iii. Larger and faster aircraft are definitely more cost-effective during these extreme events. Adding several larger air tankers to the BC fleet to replace smaller less efficient air tankers will be more cost-effective.

FOREST USE RESTRICTION PROCEDURES

In light of experience in 2003, improved guidelines are needed for imposition and implementation of forest use restrictions with the use of extensive closures. The Ministry of Forests will standardize protocols for ordering, posting and lifting restrictions under the proposed *Wildfire Act* in consultation with Provincial Parks.

Coordination between agencies

Effective interface fire action requires the cooperation, coordination and contributions of a wide range of agencies on lands with multiple jurisdictions. The challenges are not just to suppress the fires, but to also handle the needs of evacuees, to manage the significant infrastructure disruptions and to tackle the communication requirements and to share information in a timely manner.

PUBLIC INFORMATION

Communications with the public and communities as well as availability and coordination of information to the public on specific fire actions was a major concern raised during the reviews and debriefings. It was apparent that the public was not provided with enough information on the significant challenges, efforts and successes by forest fire fighters. As well, the public had not been sufficiently engaged to this point in understanding the importance of homeowner and community FireSmart planning and treatments. Strategies for improving coordination of timely information need to be developed.

MINISTRY OF FORESTS ROLE IN INTERFACE PLANNING

The Ministry of Forests has become increasingly involved in protecting property and lives from wildland fire. The current Ministry Service Plan shows the mandate of the Protection Program is to "protect forest and range resources and investments in and adjacent to the forest and wildlands of B.C. by minimizing losses and mitigating future risks from wildfire".

A major portion of fire fighting expenses in 2003 was dedicated to protecting homes and other property. This required a redirection of many of the province's forest fire crews and equipment to protecting communities rather than protecting forest resources.

The level of community planning for interface areas is just beginning to improve, aided in part with the release of the FireSmart manual. The FireSmart program, supported by the Ministry of Forests, has been a direct result of efforts starting in 1987 to develop the "Beware and Prepare", "Firesafe inside and out" and "Community Planner" programs that have been widely promoted. These programs emphasized community and homeowner prevention responsibilities. The Ministry of Forests will expand the FireSmart program to communities and homeowners in an active campaign prior to the 2004 fire season.

One major gap in dealing with the interface is in unorganized areas where limited efforts have been devoted by local governments in supporting interface planning or mitigation. By default, therefore, the expectation is that the Ministry of Forests has the responsibilities in these areas, despite the fact that it is not part of the ministry's mandate, nor are funds currently budgeted for this workload.

In 2001, the Auditor General recommended that the Ministry of Forests provide hazard mapping of all unorganized areas, and this project is continuing. Other functions such as fuel treatment, wildfire awareness, etc. have not been addressed. Further resources to support the provincial and regional interface committees may be required.

B.C. Emergency Response Management Structure (BCERMS)

BCERMS is a comprehensive management system based upon the Incident Command System (ICS) that ensures a coordinated and organized response and recovery to all emergency incidents and disasters. It provides the framework for a standardized emergency response in British Columbia.

Incident Commanders and their teams must make difficult decisions quickly and often with limited information. It is during these situations that the BCERMS system is most needed and the functional responsibilities and contributions of each agency must be clearly understood. The 2003 fires were a unique event and therefore it is understandable that many agency staff have not been involved in large scale evacuations or fires. However familiarity with BCERMS procedures can help them understand their role and functions in this new context.

In our view, all agencies should adopt the BCERMS system to improve the current interface fire response coordination system.

Based on the varying levels of coordination experienced this summer, it was apparent that, although unified command worked well in most instances, there were significant challenges. The provision of interface training (S215 – Fire Operations in the Wildland/Urban Interface - OFC/MoF) and incident command training (Justice Institute) to fire departments as well as local governments' Emergency Operations Centre (EOC) staff was not extensive enough. There are functionally different roles – fire response command is at the site level, while EOC is responsible for related support functions such as evacuations. Effective multi-agency response requires clarity on which is the lead agency and the roles and responsibilities of supporting agencies. This clarity provides for the most effective use of responder expertise, while drawing on the knowledge and resources of local governments to care for the affected public's needs. Additionally, roles regarding public communications were not always clear. Not all local governments are equipped to use BCERMS to ensure an effective and coordinated response to emergencies.

OPERATIONAL GUIDELINES ON EVACUATIONS

In some cases the operational role of the Ministry of Forests relative to EOC managers and the OFC was unclear, especially where no emergency planning had occurred. The Ministry of Forests is willing to participate with PEP, OFC, RCMP, other ministries, Regional Districts and other local governments in refining BCERMs operational guidelines on evacuations and re-entry.

STRUCTURAL SPRINKLER TECHNOLOGY

Several provinces supplied structural sprinkler systems to B.C. during 2003. For the most part, these systems were provided to the OFC and local fire departments for their deployment. This approach worked well and could be extended. A review of the B.C. fires by Ontario Ministry of Natural Resources staff indicated that 30 to 40 structures may have been saved from fires in the southeast part of the province. Several options have been discussed including development of design and deployment standards to integrate with wildland fire efforts and to facilitate sharing between communities.

Individual homeowner systems have also been designed and could be made available commercially. For more than 10 years, the Ministry has urged homeowners in the interface to take steps to protect their homes. The 2003 fire season reinforces the need for individual homeowner responsibility, including considering installation of a sprinkler system.

Other challenges

REHABILITATION

Public expectations related to rehabilitation for damage due to wildfire and fire control actions was a challenge. Improved guidelines and public information are needed for rehabilitation and compensation. Clarification is needed as to the extent of Protection Program's rehabilitation responsibilities and requirements under the *Forest Practices Code* (FPC), *Forest and Range Practices Act* (FRPA) and proposed Wildfire Act.

INSURANCE

It is clear that many British Columbians do not or cannot currently buy insurance to cover their homes and/or businesses for wildfires. This problem is very serious given the increasing number of homes at risk. Discussions with the Insurance Bureau of Canada could be carried out to seek improvements to insurance options in rural areas.

MAPPING

Improved mapping capabilities were identified as a need by many agencies involved in 2003. The Ministry of Forests, the Ministry of Sustainable Resource Management (MSRM), PEP and OFC need to work together to improve both the mapping database and capacity to process and produce appropriate maps.

SAFETY

Notwithstanding the tragic deaths of three pilots and the serious fireline injuries to one firefighter, the province had an outstanding safety record, especially given the fire season conditions, extensive evacuations, and more than 3 miliion person hours on the fire line. A number of factors contributed to this record including the use of highly trained personnel, emphasis on safety with all personnel, and detailed safety protocols. One important facet is the issue of "Danger Trees" -- a potential source for major injury. A major concern raised during the fire debriefings was the delays caused by the Danger Tree Assessment process, which should be reviewed.

CONCLUSION

Despite the multi-million dollar expenditure and the concentrated efforts of knowledgeable and dedicated people, in some cases the forces of nature were simply stronger. Seasoned firefighters who were on the line and out-of-province specialists all described conditions as the most volatile ever experienced in Canada. An Air Attack Officer with over 20 years of experience described hitting spot fires across the fire line with nine loads from water bombers – normally enough to dampen a fire for three or more hours – only to see it flare up again in under an hour.

Perhaps the most remarkable and significant outcome to many who spent their summer on the fire lines in B.C. is that there were no public or firefigher fatalities. This was despite having over 50,000 people evacuated and three million person-hours worked on the fire line in some of the most severe conditions in Canadian history. That is not to say there were not significant accidents or injuries as crews pushed themselves and their personal safety to the limit combating these fires.

Fire conditions experienced in 2003 exceeded any previous fire season recorded in Canada. Countless records were broken including measures of drought, fire danger levels, threats to communities, and the scale of firefighting response. Against the background of increased growth in the wildland/urban interface, particularly in the interior dry belt, coupled with predictions for long- term climatic warming, the Ministry of Forests recognizes the inherent risks that the province faces in the future.

Difficult decisions lay ahead on the appropriate preparations in the face of this climate change and predictions for a continuation of warmer and dryer than normal weather patterns including the seasonal forecast for 2004.

Steps that can be taken immediately include ensuring sufficient human resources are trained and ready to respond to another difficult fire season. As well, communities, businesses and homeowners should be encouraged to do what they can in the short-term including acquiring sprinkler systems. For the longer term, recognition and remediation of interface risks need to be part of community planning and home construction and maintenance. A strategy to deal with fuel management at the provincial and local levels should be developed and implemented. The Ministry of Forests is committed to doing its part in meeting the challenges that lay ahead.

LIST OF APPENDICES

Appendix I – Summary of Fire Report Conclusions

Appendix II – Detailed Fire Review Reports

- Burton
- Chilko Lake
- Kuskanook
- Lamb Creek and Plumbob
- McGillivray
- McLure
- Osoyoos (Chap/Anarchist Mountain)
- Okanagan Mountain
- Vasseux

APPENDIX I - SUMMARY OF FIRE REPORT CONCLUSIONS

Summary of Fire Report Conclusions	C50214 Chilko	K50195 Osoyoos	K20272 McClure	K20627 McGillivray	K50628 Okanagan	K50661 Vaseaux	N1470/694 Lamb Cr	N50451 Burton	N70870 Kuskanook
Increase the availability of Type I Unit Crews, qualified /certified personnel to fulfill a variety of ICS positions.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Danger Tree Procedures: Revise the Danger Tree procedures and come up with a more manageable balance between risk and workload. Increase access to Certified Fallers. Review Danger Tree Falling on private land/or within city limits.	✓		✓	✓	✓		✓	✓	
Designate a community contact to assist in coordinating activities during project fires. Guidelines, procedures and training must be provided for rural volunteer groups.	✓	✓	✓	✓		✓			
Assign a specialist position to large fires early to enable identification and inventory of rehab and salvage requirements and early communication and planning with other agencies who may be involved.		✓		✓	✓		✓		✓
Improve fireline communications including radio network coverage and/or alternatives such as SAT phones.		✓			✓		✓	✓	✓
Revisit the size and numbers of fire management teams. Additional ICS positions to be included and increased training	✓	✓				✓	✓		
Improve consistent and reliable mapping services. This includes data availability and trained GIS resources and equipment.		✓					✓		✓
Clarify operational responsibility during unified command and coordinated response with other agencies.		✓	✓		✓		✓		
Assign BC Liaison Officer to work with out of province FMTeams			✓	✓			✓		

Summary of Fire Report Conclusions	C50214 Chilko	K50195 Osoyoos	K20272 McClure	K20627 McGillivray	K50628 Okanagan	K50661 Vaseaux	N1470/694 Lamb Cr	N50451 Burton	N70870 Kuskanook
Mandate OFC to implement ICS in practice through the adoption of BCERMS. This should include training personnel, and a better understanding of their role(s).					✓		✓		
Recommend use of Type 3 crews only in a mop up capacity due to the lack of training and experience and they should be coming complete with safety equipment.						✓			✓
Address public concerns directly with information meetings; having IC's trained and available for these sessions along with Information Officers		✓			✓				
Improve staff training and certification under the Partnership Agreement between Protection Branch and Field Services.			✓			✓			
Review Unified Command, the use of local fire departments and the rotation of structural I/C's every 4 days all need to be discussed, clarified and improved through the OFC			✓		✓				
Refine procedures for individuals refusing to evacuate.				✓	✓				
Increase availability of trained finance staff.				✓	✓				
Increase the transition period between fire management teams to allow a comprehensive turn over.			✓						
On a national level, qualifications with regard to fire line positions and crew capabilities should be standardized. A briefing package outlining these qualifications should accompany each out of province team.			✓						
Improve briefings for out of province FMTeams to improve operational efficiency.		✓		✓					
Improve communication between day and night crew				✓					

Summary of Fire Report Conclusions	C50214 Chilko	K50195 Osoyoos	K20272 McClure	K20627 McGillivray	K50628 Okanagan	K50661 Vaseaux	N1470/694 Lamb Cr	N50451 Burton	N70870 Kuskanook
shifts to establish objectives and coordinate operational activities									
Formalize reporting process/procedures between local zones, fire centre and FMTeams, including operational details, specific information on types of Protection crews, contract crews and local issues. Use the Fire Centre or Zone office as a staging area for incoming crews to pass on local perspective.		✓		✓			✓		
Review and develop policy and procedures for compensation for damages to fences, water and septic systems, and bridges on private land also needs to be reviewed and addressed.					✓				
Provide training to Forest Service (possibly in Type 1 Teams kit) on the military command structure to improve integration between the two agencies. Recommend military undertake ICS-200 training.						✓			