BRITISH COLUMBIA

Achieving Global Excellence in Fire Management

WILDLAND FIRE MANAGEMENT STRATEGY

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CONTENTS

FOREWORD 3

EXECUTIVE SUMMARY 4

The Changing Wildland Fire Environment 5

BACKGROUND TO THE STRATEGY 5

Area Burned in B.C. 6

Program Linkages 10

STRATEGIC FRAMEWORK 10

Strategic Shift 11

Strategic Goals, Priorities and Actions 11

BENEFITS OF A WILDLAND FIRE MANAGEMENT STRATEGY 17

MULTIPLE AGENCY ROLES 18

CONCLUSION 20

REFERENCES 21

FOREWORD

Fires that burn over forest and range lands are called "wildland" fires, and are a natural aspect of British Columbia's landscape. The healthy, diverse and productive forests and rangelands that existed in the province prior to 1800 were that way in part because of periodic burning. In addition to fires that occurred as a result of lightning, many First Nations traditionally used fire as a forest stewardship tool. However, when wildland fires threaten public safety, destroy property and damage natural resources we need to take action.

As our climate changes, so must our management of wildland fire. First Nations, forest professionals, the Forest Practices Board, the Auditor General and the Honourable Gary Filmon as chair of the Firestorm 2003 Provincial Review have all identified the need to be innovative in our approach.

As a result, British Columbia has played a lead role in the Canadian Wildland Fire Strategy, and is now leading the way by developing a complementary strategy specifically for B.C. The B.C. Wildland Fire Management Strategy gives provincial direction for the management of fire that will effectively restore the natural role of fire in ecosystem processes, as well as improve our ability to continue providing a world-class level of wildfire response when unwanted fires occur.

This strategy was developed by a team with representatives from the ministries of: Agriculture and Lands; Community and Rural Development; Energy, Mines and Petroleum Resources; Tourism, Culture and the Arts; Environment; Forests and Range; and, Healthy Living and Sport as well as the Integrated Land Management Bureau and the Oil and Gas Commission.

EXECUTIVE SUMMARY

Implementation of the B.C. Wildland Fire Management Strategy will result in healthier forest and range ecosystems; communities that are less at risk from fire and smoke; and a more cost-effective fire suppression program. This will be achieved by adopting a proactive approach to:

1. Reduce fire hazards and risks (particularly in and around communities and other high-value areas);

2. Carefully use controlled burning where the benefits are clearly defined and the risks can be cost-effectively managed;

3. Monitor and manage, rather than suppress, fires that are of minimal risk to communities, infrastructure or resource values;

4. Implement land, natural resource and community planning that incorporates management of wildland fire at all appropriate scales; and

5. Develop a high level of public awareness and support for wildland fire management.

These measures, combined with our continuing commitment to aggressive action against unwanted fire, will help us achieve one of the B.C.'s primary goals for the 21st century: "to lead the world in sustainable environmental management, with the best air and water quality, and the best fisheries management – bar none".

More than 50 per cent of the province's landmass is covered by natural forest and rangelands. These ecosystems are a critical component of clean air and water, and provide a wide variety of commercial and non-commercial goods and services important to the people and the economy of B.C.

Fire is a natural and essential ecological process in most of B.C.'s forests and rangeland. However, as was vividly illustrated during the 2003 and 2009 fire seasons, it can also have undesirable social and economic impacts, threatening human health, safety and property. Balancing the potential benefits and risks of wildland fire is a complex task for land, natural resource and fire managers. It is also a task that is vital to public safety and the sustainable management of forests and rangelands in the province.

It is not possible or desirable to exclude all fire from the forest and range environment, but it is necessary to protect communities, infrastructure and natural resources from fire damage. Therefore, there are two interdependent components of the Province's approach to wildland fire: proactive fire management (addressed by this Strategy); and aggressive fire suppression (described in the Forest Protection Program Strategy). The measures set out in the Wildland Fire Management Strategy may require a new understanding of the role of proactive fire management in supporting the goals of provincial wildfire management by many managers, stakeholders, organizations and the public.

A strategic shift is needed to proactively manage the benefits and risks of wildland fire to meet the immediate and longer-term needs of society.

BACKGROUND TO THE STRATEGY

Most of B.C.'s forest and rangeland ecosystems have evolved with the influence of fire. Historically, an average of about 500,000 hectares would burn each year. Since the introduction of modern fire-suppression techniques, that area has declined to one-tenth the historical average.

Under natural conditions, periodic forest and range fires served to: reduce the build-up of flammable fuels; create a mosaic of young-to-old forest and range conditions and habitats; replace older forest stands susceptible to insects and disease; and limit the occurrence of large fires by creating natural fuel-breaks. When the natural fire cycle is interrupted, however, there is a reduction in the health and vigour of the forest and, as forests age, fuels build to unnatural levels increasing the risk of catastrophic wildfires that are difficult to control and that may seriously impact communities and resource values.

Despite its natural and essential roles, fire has negative consequences when it conflicts with the public interest. Examples of negative impacts include: loss of homes, property and critical infrastructure; damage to domestic watersheds; and destruction of commercially valuable timber. Smoke from wildland fires can also interfere with road and air transportation, inhibit tourism, and cause serious public health problems.

The potential cost of wildfire is well documented. In 2003, the Province spent approximately $500 million on suppression activities and suffered damage to timber, forest productivity, homes and infrastructure far exceeding that value. The indirect economic costs (e.g., lost tourism) in 2003 were estimated at $80 million in the central Okanagan area alone, and this does not include the negative impact on air and water quality in the region. The cost of fire suppression during the 2009 fire season was more than $400 million. Many of the 2003 and 2009 fires occurred in areas where fuels had accumulated over decades and during dry, hot weather conditions, these fires became very large and intense. Fires like this remove so much forest cover that soil productivity can be reduced and soil erosion can lead to flooding, landslides, decreased water quality and a variety of other negative consequences.

The fires during 2003 and 2009 served to highlight a growing problem for B.C. Despite having developed a world-class fire-suppression organization, the Province's forest and range resources and communities still may face significant wildfire risks. By managing the natural role of fire, the Province can mitigate the trend by which the combined effects of fuel build-up and climate change exceed the capacity to suppress unwanted fire. Continuing to increase fire suppression tactics is not an option, as some areas in the province have already reached a point where even the most aggressive action would not be safe or effective.

Wildland fires can threaten public health and safety, property, services and resources.

The only feasible response to this situation is to become much more innovative and proactive about management of wildland fire, while also maintaining a high level of suppression capability.

This strategy sets out a number of approaches that will result in more cost-effective and sustainable management of the benefits and threats of wildland fire in B.C.

The Changing Wildland Fire Environment

The operating environment of the B.C. Ministry of Forests and Range (and its partner agencies) is changing due to a number of complex and interrelated factors, some of which are described below. Combined, these factors place increased pressure on fire management capacity and present escalating risks to the sustainability of economic and non-economic benefits from forest and range lands, as well as to life, property and public infrastructure.

The convergence of these factors and their inevitable consequences can only be addressed by understanding them and making proactive adjustments to public policy and wildland fire management programs. The past wildfire management approaches of the 20th century are inadequate for what B.C. faces now and over coming decades.

Climate Change

Climate change research indicates that the incidence and severity of wildfires will greatly increase over the next several decades. The evidence for this is exemplified by the increasing frequency of "record" years[1], such as 2003 and 2009 in B.C.

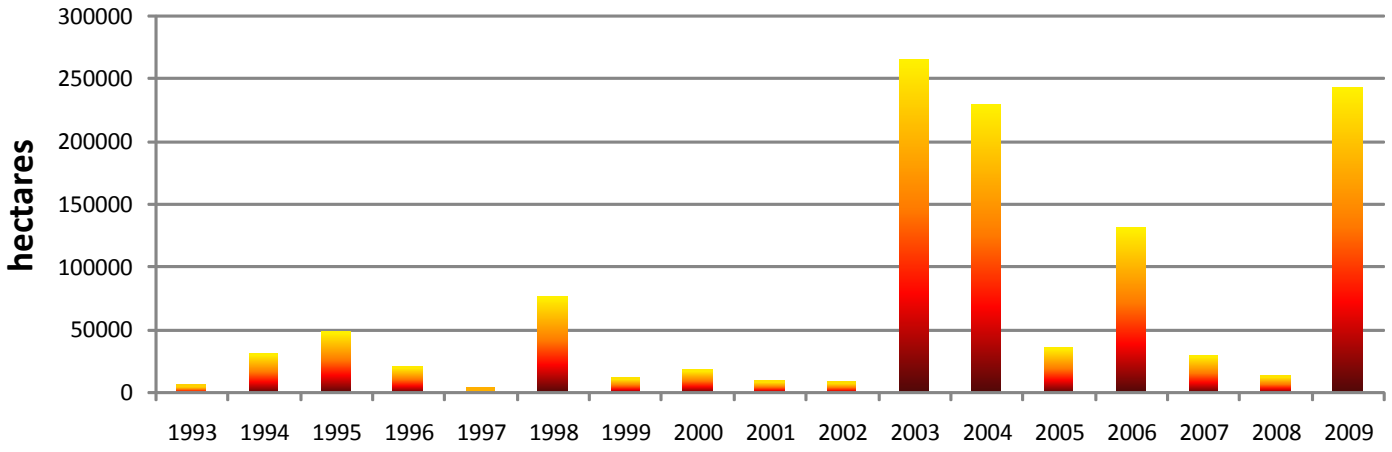
Climate models[2] indicate that by 2050, average winter temperatures in B.C. are expected to increase by 2-3 C in the south and by 4-5 C in the north. Summers throughout the province may warm by an average of 2-3 C, and the southern and coastal regions are projected to become drier in the summer. Provincial records show that the wildfire season has been increasing in length by one to two days per year since at least 1980. At the current rate, by the middle of this century, some areas of the province may experience forest fires year-round. Science also suggests that the frequency of lightning-caused fires will increase.

Carbon Release and Sequestration, Fire and Fuel Management

In the past decade, carbon dioxide has been identified as the main gas responsible for climate change. As forest and range lands burn, they emit carbon and, to a much lesser extent, other greenhouse gases. United States research indicates that carbon released by fires represents approximately four to six per cent of anthropocentric emissions on a continental scale, but can vary widely at local scales[3]. However, unlike carbon emitted during fossil fuel combustion, carbon released by fires is, in part, balanced by the growth of post-fire vegetation sequestering (taking in) and storing carbon over subsequent decades.

Due to decades of fuel build-up and climate change, wildfire severity is tending to increase. In relatively dry (fire-prone) B.C. forests, fuel reduction treatments (such as thinning trees and removing ladder fuels) that increase fire resistance are warranted for their effect of increasing carbon sequestration in vegetation over the long-term[4].

Area Burned in B.C.



Natural Forest Structure and Composition

Where fire has historically been an integral part of the ecosystem, excluding fire from landscapes has led to vast areas where the forests are older than they would be naturally. In many cases, forests have significant accumulation of surface litter (dead branches, needles, blowdown) that in a natural regime would have been periodically burned by low-intensity fires. The result of this is an ever-increasing risk of large, high-intensity fires. The situation has been made worse in the Interior where large tracts of timber have been killed by the mountain pine beetle. Also, in some areas of the province, exclusion of recurring fires that historically maintained grassland and shrub ecosystems has led to tree encroachment and a decline in important wildlife habitats and other ecosystem values.

In some ecosystems, exclusion of naturally-occurring historic wildfire has changed the dominant species composition (e.g., from ponderosa pine to Douglas-fir) and increased tree density and ladder fuels (the continuity of fuels from forest floor to tree canopy). These changes can escalate fuel hazards and the risk of high-intensity wildfire, while increasing forest health problems (insects, pathogens) and decreasing forest resilience.

Competition for Land and Resources

Over the past decade, B.C. has experienced a significant increase in the competition for ecological goods and services provided by public forest and range lands. For example, timber rights are allocated to the full extent of the allowable annual harvest in most areas. These same lands are under increasing pressure for mineral and energy development, agriculture, conservation concerns, recreation uses and a variety of other purposes. More recently, there has been a rising interest in forest fibre as a source of energy. The result is that there is no "surplus" resource that can be left unprotected or unmanaged.

During the last 15 years in most regions of B.C., Crown land-use plans have assigned resource-use guidelines across forest and range landscapes. While these plans express the public's land-use preferences on a broad scale, they do not provide specific direction for fire management and mitigation of the wildfire threat to identified values.

Changing Forest and Range Practices

Increasingly, forest and range management practices are expected to address a broad spectrum of interests and complexities on the landbase, all within overarching principles that require maintenance of natural ecological processes and biological diversity. Some forest practices are aimed at protecting ecological values. Examples include variable-retention harvesting, maintaining coarse woody debris and wildlife trees and designating old-growth and riparian management areas. However, these practices can lead to increased fire intensity and size. On the other hand, fire is an important natural process in many ecosystems and is largely excluded under current management regimes.

An Array of Fuel Management Options

In general, fuel management options include forest thinning, controlled burning, wood mastication (chipping small trees and shrubs), leaving thinned material on site or removing it, or a combination of techniques. Local environmental, social and economic considerations will affect the choice of treatments used at each site.

Among the fuel reduction alternatives, there are economic opportunities to transport biomass to pellet manufacturing or biofuel facilities. Wood pellets may be used for generating heat or electricity and can be used as fossil fuel substitutes. Within a hundred years, forests can both sequester carbon as they grow and provide energy-producing wood-fodder, reducing the requirement to use fossil fuels.

Expanding Urban and Rural Settlement

Population and economic growth in B.C. have resulted in the expansion of urban development into wildland areas (the wildland-urban interface); many permanent residences and recreational homes and facilities are located in the forest and on rangelands. These developments include supporting utilities, roads and increased traffic. Together, these greatly increase the risk of human-caused wildfires and the threats to human life and safety, homes, businesses and infrastructure.

In B.C., the potential consequences of wildland fire impacting communities became obvious in 2003; many of the causes and recommended responses can be found in Firestorm 2003, Provincial Review[5]. As developments and infrastructure expand, so do the numbers of organizations that have a role in wildland fire management and suppression. For example, since 2003, more than 100 Community Wildfire Protection Plans have been developed or are underway for local governments and First Nations, and communities are now completing fuel management treatment projects.

Expanding Access to Wildlands

Across the province, expanded resource road access has increased the potential for human-caused wildfire. For example, a 2.7 million hectare area surrounding Quesnel was examined and it was found that forest road length expanded by an average of eight per cent per year between 1986 and 2007[6]. On the other hand, road users may see and report fires and suppression crews and equipment may more readily be deployed to wildfires.

Smoke and Other Particulates from Wildfires and Controlled Burns

Smoke from wildland fires is comprised of a mixture of gases and fine particles with a diameter of 2.5 micrometers or less (referred to as PM2.5). From a human health perspective, PM2.5 is B.C.'s most important air pollutant, and is of particular concern to

children, the elderly and those with pre-existing heart and lung disease. For nearby communities, the impact of PM2.5 on local air quality can be significant. For example, during the 2003 Kelowna fires, PM2.5 levels reached 186 ug/m3. In contrast the provincial objective is 25 ug/m3. Smoke can also reduce visibility and thus affect highway and aviation safety.

Controlled burns used for fuel reduction or ecosystem restoration are ignited during specific conditions. Ignition is timed to coincide with low fuel-moisture content and favourable weather patterns, resulting in less smoke and smoke that more-readily disperses away from communities. On the other hand, wildfires ignite under uncontrolled conditions and there is no opportunity to choose ideal weather conditions. Also, wildfires frequently smoulder with inefficient combustion and this results in more particulate emissions - approximately double that produced during flaming combustion. Controlled burning can effectively reduce fuels and cut back catastrophic wildfire risk and uncontrolled smoke production.

Public Expectations

Public perspectives on the forest have changed since many of the current wildland fire policies and programs were brought into place. In many ways, the public is more conscious of the importance of maintaining ecological values and natural forest processes and attributes. Much of the population however, has little first-hand knowledge of forest and range ecosystems and their management. This leads to a number of apparent contradictions that must be addressed and balanced in public policy and wildland fire management. For example, while the public may support the idea of fire as a natural and essential component in a forest landscape, they may not accept the visual consequences, the perceived risk of fire and, particularly, smoke, even in controlled conditions.

"Research is quite clear that climate change will create conditions that will contribute to more large forest fires throughout most of Canada. We, therefore, expect that agencies will soon experience more and more of these 'extreme' years. Years that challenge and overwhelm current levels of suppression will become more the norm…."

"Through this next century, it is reasonable to expect that the forests of Canada will see more fire, and the values we have in the forest will be threatened more frequently. How we adapt to this increased presence of fire must include more than simply relying on fire suppression. It requires a rethinking of how much fire we can live within our forests."

Mike Flannigan and Mike Wotton
Natural Resources Canada – Canadian Forest Service
Great Lakes Forestry Centre – April 2008

STRATEGIC FRAMEWORK

Program Linkages

With the Ministry of Forests and Range as the lead agency, the framework for B.C.'s Wildland Fire Management Strategy recognizes that a number of organizations share responsibility for how fire will be managed on forest and range lands across the province. The strategy focuses on the largely uninhabited natural landscapes, most of which are provincial Crown land, as well as areas where those lands interface with urban and rural communities. However, the strategy recognizes that wildland fire policies and activities need to be coordinated with broad public policy objectives, other fire and emergency services within the province, and with other landowners[7] and jurisdictions nationally and in neighbouring states.

FIGURE 1: LINKAGES BETWEEN PLANS, PROGRAMS, AND AGENCIES

Strategic Shift

To achieve the greatest benefits and least overall combination of cost and damage, it is broadly understood by wildland fire managers that to be both efficient and effective, a wildland fire management program must balance its investment in threat reduction activities and its response activities. Threat reduction actions include forest planning, fuel management, and fire prevention. Response actions include pre-fire preparation of fire-suppression equipment and personnel, detection, initial attack, suppression, and post-fire rehabilitation.

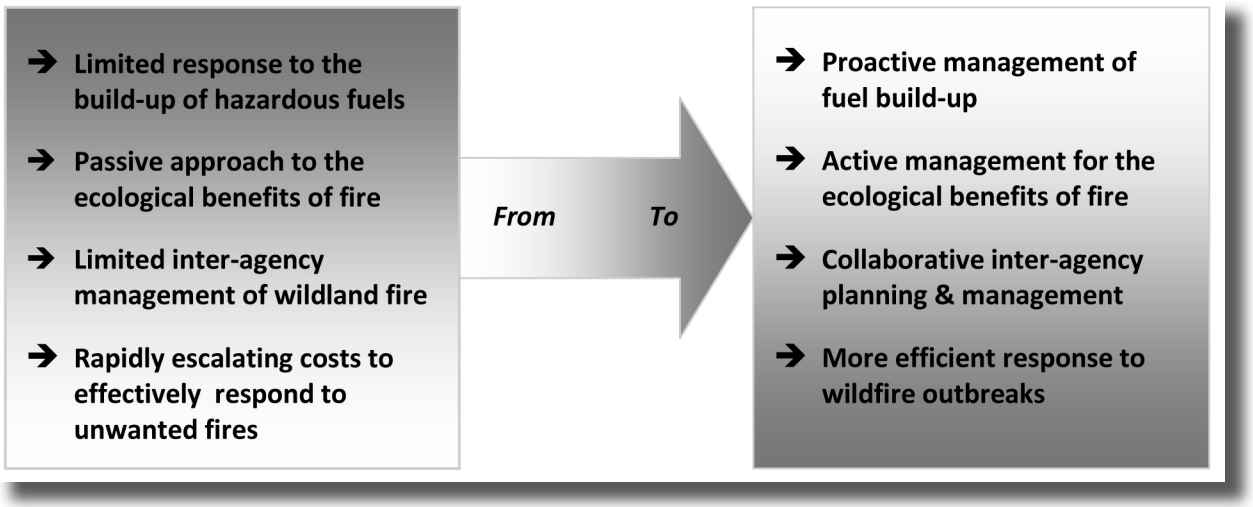
One of the challenges to implementing this model in B.C. (particularly in the past 20 to 30 years) has been the separation between land-use decision making and fire management. In the past, the role of the Ministry of Forests and Range Wildfire Management Branch has primarily been one of response. Recent history shows, however, that fire risk and threats are increasing faster than the suppression capacity to respond. Fire managers have been forced to prioritize limited suppression resources and utilize a modified response strategy[8]. What is now required is a broadening of the program mandate to include innovative fire management activities (Figure 2).

The changed operating environment for wildland fire management calls for a formalization and acceleration of the approach being taken by governments, their partners and stakeholders. A more integrated approach is needed, where management of fuels and both the benefits and risks of wildland fire are fully recognized and considered in decisions at all levels. This planned, deliberate approach while maintaining the capacity for an appropriate level of suppression response to undesired fires is essential for the province to meet its sustainable resource management goals, as well as its fiscal, public health and safety goals.

Strategic Goals, Priorities and Actions

This Wildland Fire Management Strategy (WFMS) is guided by the Wildfire Management Branch mission. The mission includes providing for human safety;

Figure 2: Strategic shift in B.C.'s approach to wildland fire from a reactive or response orientation to a more proactive planning, prevention and mitigation approach.



supporting emergency response to wildfire, protecting forests, grasslands, natural resources and other assets, and using innovative and effective fire management.

As indicated in Figure 3, Wildland Fire Management Strategy goals provide direction for developing strategic priorities and actions, that are designed to achieve the desired outcomes.

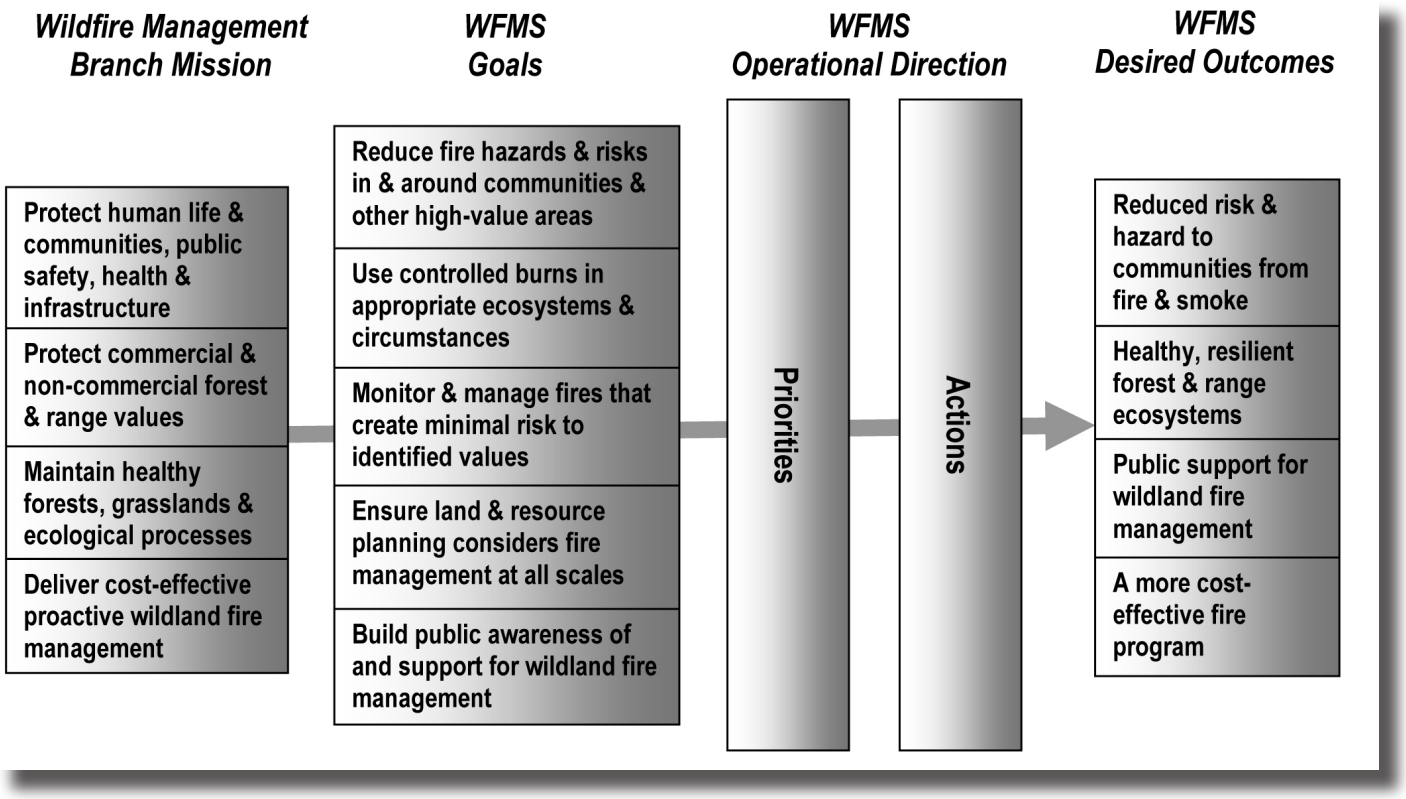
Following are desciptions of the WFMS goals and priorities.

Goal 1:

Reduce the hazards and risks associated with wildland fire in and around communities and other high-value areas.

In and around communities, major public infrastructure (e.g., transmission lines, and highways) and areas of high resource-value, fuel build-up can occur just as it does elsewhere in the forest. Often in these areas, the option to let naturally occurring fires burn, or to use controlled fire, is constrained by risk and smoke concerns. These same areas are often the most likely to experience human-caused fire starts. This has created a situation where the highest public

Figure 3: Structure of the Wildland Fire Management Strategy



values are located in the areas of highest hazard and risk. Approximately 1.7 million hectares of forest area surrounding communities has been identified as a potential threat[9]. In many communities, especially those surrounded by beetle-killed pine forests, this threat is becoming more serious as fuels continue to accumulate.

Since 2004, the province has been working with communities to establish Community Wildfire Protection Plans and encourage implementation of professionally designed fuel management programs. Further action is required to ensure this work continues and that new developments are designed to mitigate risks.

With the emergence of new technologies and the B.C. Bioenergy Strategy, opportunities may exist to cost-effectively utilize the fibre removed for fuel management purposes. Examples may include cogeneration electrical power production or manufacturing pellets for export.

Strategic Priorities

1.1 Accelerate current programs and reduce risks to communities by completing Community Wildfire Protection Plans and reducing the fuel loading on wildland-urban interface areas. Utilize alternative slash disposal methods (e.g. biofuels) where possible.

1.2 Ensure the standards for industrial operations adequately address wildland fire management, including fuel management in areas where activities have or will increase fuel loading.

1.3 Establish risk analysis tools, guidelines, best management practices and standards for infrastructure and commercial and residential development in forest and range interface areas and continue support of the FireSmart Program[10].

1.4 Encourage local governments to adopt community development plans and enforcement regimes that emphasize risk mitigation and FireSmart principles.

Goal 2:

Plan and implement careful use of controlled burning in appropriate ecosystems and under suitable conditions in order to reduce hazards and risks and achieve healthy forests and grasslands.

Controlled burning is one of the most ecologically appropriate and cost-effective means to achieving land-use and public safety objectives in many areas of the province. It can also help achieve air quality and climate action targets by preventing large, intense burns and replacing them with more frequent, well-timed, low-intensity fires.

Controlled burning has been successfully used in the past to reduce post-logging slash hazard,

reduce understory fuels, create fuel breaks, achieve reforestation, restore fire-dependent ecosystems and domestic range and manage unwanted pests. In recent years, concerns about smoke and legal and financial liability have resulted in a decline in the use of controlled burns.

To fully utilize the benefits of controlled burning and help achieve sustainable management of forests and range, we must restore our burning expertise and skills and improve technology for predicting fire behaviour and smoke management.

To support the use of controlled burns, risk and liability policies will need to be reviewed, and public information and education will be essential to ensure the public understands the use of controlled burns for both fuel hazard reduction and ecological restoration.

Strategic Priorities

2.1 Where and when consistent with appropriate plans, First Nations interests, air quality objectives and safety requirements, increase the use of controlled burns to reduce fuel build-up, restore natural plant communities and habitat, and maintain ecosystem productivity.

2.2 Where ecologically appropriate, cost-effective, and consistent with the Air Action Plan and Bioenergy Strategy, continue or reinstitute the use of fire to remove logging slash and support achievement of silviculture objectives. Use alternative slash disposal methods (e.g. biofuels) where possible.

2.3 Develop and implement plans to enhance controlled burning capacity, knowledge, tools, and expertise.

Goal 3:

Monitor wildfires occurring in areas where there is minimal risk to identified values and intervene when appropriate to reduce hazards and risks and ensure optimum use of fire suppression budgets and personnel.

A wildfire may be either ecologically beneficial or detrimental, depending on its location and intensity. For example, excluding fire from wilderness or old-growth management areas may actually jeopardize their long-term ecological health and sustainability and increase the future risk of high-intensity, destructive fires. Potential wildfire risks to human health, water quality, and other values, however, must also be considered when determining if monitoring is an acceptable wildfire management action.

In remote areas, a more planned and informed response to wildfires will result in more effective and efficient use of fire suppression resources. Presently,

decisions about the degree of fire response and the corresponding allocation of resources are largely based on the local knowledge of the fire control officers. While this knowledge is invaluable, fire managers need to be informed by clear information about resource values risks, and public policy direction – all of which must be available for quick decision making while the fires are burning.

Allocating fire suppression resources to where they can provide the greatest public value will increase efficiency and effectiveness.

Strategic Priorities

3.1 Develop and apply improved, scientifically-based fire analysis models, fire response policies and priorities and decision support processes and protocols for prioritization and allocation of wildfire response resources while fires are burning (consistent with Strategy 1.3).

3.2 Incorporate adequate fire protection and evacuation measures. Ensure developments in remote areas are planned and built to reduce wildfire risks.

3.3 Apply scientifically sound fire and smoke monitoring techniques during and after burning to document fire behaviour and burn effects and to inform suppression strategies.

Goal 4:

Ensure that plans adequately consider the management of wildland fire at all appropriate scales in order to reduce hazards and risks, achieve healthy forests and grasslands and ensure resource-efficient fire suppression.

As commercial development expands across forest and range lands, the values-at-risk increase. Planning for wildland fire is important when local governments, land developers and industry propose to undertake activities on these lands. Recognizing and addressing the potential presence, threats and benefits of fire during the planning process are the most effective and efficient means to achieving the Province's wildland fire management goals.

Regional and sub-regional plans for Crown lands identify land values and uses, including parks and protected areas and areas available for various levels and mixes of integrated resource management (e.g., growing and harvesting timber, mining and energy development, commercial recreation, etc.). In many areas, plans have been developed at a landscape or watershed-scale to describe in greater detail how integrated management will take place and how treaty settlement land or parks and protected areas will be managed. In some cases, these plans are supported by legally established objectives.

Implementation of the following strategies will lead to planning processes that consider the potential occurrence, benefits and threats of wildland fires, leading to a more effective response.

Strategic Priorities

4.1 Recognize fire as a natural process on forest and range lands and incorporate analysis of fire management scenarios and options into Crown forest and range land use plans and practices at strategic and landscape levels.

4.2 Encourage local governments and First Nations to prepare, refine and implement Community Wildfire Protection Plans and Fuel Management Plans.

4.3 Ensure that structures built on forest and range land can be protected through fire-resistant engineering and construction techniques, reduced fuel hazards in the surrounding area and increased fire protection measures or a combination of these approaches.

4.4 Further develop the policies, expertise, capacity, and standards to enable scientifically-based wildland fire management strategies to be used at

all levels of planning where it is applicable, including support for the FireSmart[11] Program.

4.5 Implement and improve upon a scientifically sound, risk-based decision support models to strengthen wildland fire management policy and planning decisions and enable more effective allocation of suppression resources. This includes the increased use of ecologically appropriate wildfire under planned conditions.

Goal 5:

Develop a high level of public awareness and understanding about wildland fire and its management in order to garner support for proactive and resource-efficient wildland fire and fuels management (including policies, planning and on-the-ground actions).

The public is most often exposed to the negative aspects of wildland fire, whereas the importance of maintaining fire as a natural agent of ecosystem dynamics and a tool for forest and range management is often poorly understood. Fire management organizations must help the public reconcile conflicting messages: "prevent wildfires" versus "manage wildland fires". While both messages are important, the first is much more easily understood and communicated – the challenge is to effectively communicate the latter so that public policy, planning and actions can be supported by informed public opinion.

Strategic Priorities

5.1 Provide information to the public to enable understanding and support for the Province's shift in management of wildland fire – particularly the policies for limited-action fires, controlled burns, smoke management and community wildfire protection planning.

5.2 Work proactively with local stakeholder groups during planning and policy development stages to increase awareness and support for incorporating wildland fire management into land-use plans and objectives.

5.3 Work with local communities, public health, tourism and other stakeholder agencies during times when modified-response fires or controlled burns are underway.

BENEFITS OF A WILDLAND FIRE MANAGEMENT STRATEGY

In general terms, Table 1 lists the benefits that will accrue to various stakeholders as a result of implementing BC's Wildland Fire Management Strategy.

Stakeholder	Benefits of BC Wildland Fire Management Strategy
Communities and individual land owners	Reduced risk to: • Life and property • Public services and infrastructure • Public health due to smoke from unwanted fire • Security of water quality and quantity • Response to priority wildfire incidents • Local economic and social development
First Nations and First Nations governments	Reduced threat to: • Life and property • Public services and infrastructure • Public health due to smoke from unwanted fire • Security of water quality and quantity • Response to priority wildfire incidents • The ability to continue with traditional and cultural uses of fire
Forest industry (traditional and emerging)	• Increased security of long-term timber/fibre supply • Greater certainty about costs and liability associated with fuel management and controlled burns • Reduced risk to investments from unwanted fire • New biofuel industries
Ranching/ agriculture industry	• Greater certainty through maintenance of natural grassland (range) ecosystems • Reduced risk of unwanted fire impacting livestock, water supplies, natural barriers, and infrastructure.
Resorts/ outdoor tourism industry	Reduced risk of: • Business interruption and reputation damage due to unwanted fire • Damage to infrastructure • Catastrophic impacts on scenic values
Other resource users	• Greater certainty about costs and liabilities associated with fuel management • Reduced risk of business interruption and loss of infrastructure due to unwanted fire
Province: public health and safety objectives	• Reduced risk of public health problems caused by unwanted fire (e.g., smoke, damage to domestic water supplies) • Increased ability to manage smoke and prepare for mitigation of wildlife impacts • Reduced risk to public safety as a direct and indirect result of unwanted fire – particularly in wildland-urban interface areas
Province: environmental objectives	• Protect species-at-risk that rely on fire-dependent ecosystems • Increased ability to achieve climate change adaptation objectives • Ability to meet commitments to ecosystem-based management objectives • Reduced risk to water quality and quantity
Province: climate change and environmental management objectives	• A direct and demonstrable component of the Air Action Plan • A necessary adaptation to climate change • A demonstrable step toward ecosystem-based and sustainable management of forests • A demonstration of leadership in implementation of the Canadian Wildland Fire Strategy
Federal Government	• Reduced risk to resource values and infrastructure on federally managed lands • A significant contribution to implementation of the Canadian Wildland Fire Strategy • Reduced community protection and recovery costs

MULTIPLE AGENCY ROLES

B.C.'s Wildland Fire Management Strategy is an interagency strategy that requires support from all land management agencies in British Columbia. Since wildfires and smoke also affect communities and create public health concerns, the strategy also relies upon support from community and health services agencies.

Partners in implementing the B.C. Wildland Fire Management Strategy include:

- Ministry of Forests and Range
- Ministry of Community and Rural Development
- Ministry of Energy Mines and Petroleum Resources
- Oil and Gas Commission
- Ministry of Agriculture and Lands
- Integrated Land Management Bureau
- Ministry of Healthy Living and Sport
- Ministry of Tourism Culture and the Arts
- Ministry of Public Safety and Solicitor General
- Ministry of Environment

The table below describes the activities according to which strategy they support. Many of them are already underway and are at various levels of completion -- these are noted with an * beside the strategy number.

Strategy Supported	Activity / Output
1.1*	Support completion of Community Wildfire Protection Plans for all at-risk communities including consideration for adjacent assets.
1.1*	Increase capacity for fuel management planning and operations at the community level.
1.1*	Analyze potential business opportunities involving fuel treatments and bioenergy and independent power production.
1.2*	Review policies and make recommendations relative to obligations and incentives for high standards of fuel management on industrial operations.
1.3	Develop risk assessment tools, and best-practices suitable for use by planners and developers working on or near forest and range lands.
1.3*	Develop and deliver training on fuel management for resource management professionals and community planners where needed.
2.1*	Establish an interagency prescribed fire and smoke management team and program that includes coordinated objectives, targets, monitoring and reporting.
2.1/2.1*	Develop (and train) a pool of skilled and certified prescribed fire planners and practitioners, drawing on best practices from leading jurisdictions.
2.1/2.2	Undertake technical and economic analyses to determine if and where use of fibre for bio-fuels would meet the same objectives as prescribed fire.
2.2	Carry out an analysis of historical practices, options, costs and benefits of a limited liability policy for authorized prescribed burning by third parties on Crown land.

Strategy Supported	Activity / Output
2.1/2.2	Undertake targeted projects to develop techniques that will improve the safe and effective use of prescribed fire, including smoke management.
3.1*	Improve existing fire growth models and implement them for operational use.
3.1/3.3*	Improve the resolution (at multiple scales) of fire weather and smoke forecasting.
3.1*	Formalize the decision framework for applying forecasts and risk assessments to operational fire response decisions.
3.1/4.5	Develop a fully operational multiple-values decision model including a method of incorporating First Nations values, as well as analytical tools for risk consequence modeling.
3.2/4.2	Review and update policies and processes for including wildland fire considerations in adjudication of Crown land applications and tenuring decisions
3.3	Develop methods, technologies and protocols for monitoring, including engagement with the United Nations and Frequently Asked Questions on international standards.
3.1*	Update overarching policy on the responsibilities for and application of decision processes related to fire response.
4.1*	Carry out risk mapping and assessments for parks and Controlled Recreation Areas.
4.1*	Carry out risk mapping and assessments and incorporate strategies into high-priority landscape-level plans to support fire management decision-making.
4.1/4.3/4.4	Develop best practices, templates and planning workshops and make them available to forest and range planners, local governments and private developers.
4.1	Strengthen community watershed wildfire protection planning and water stewardship.
4.1	Strengthen emergency response plans by incorporating wildfire protection planning for the oil and gas sector.
4.1/4.4	Incorporate a stronger fire planning component into appropriate educational curriculum.
4.1	Review policy and legislation and obligations for fire management planning
4.1/4.3/4.4	Develop analysis tools and best practices for landscape-level fire planning and make them available to agencies and practitioners responsible for planning.
5.1	Form an interagency team and develop key messages and an information program – enlist professional education and extension organizations to deliver.
5.2	Enhance the workbook and training course for use by local governments, planners, private forest and range land owners and range managers.
5.3	Establish communication protocols and material, develop clear policies for dealing with smoke health issues on prescribed burns – see also action 2.1.

CONCLUSION

The British Columbia Wildland Fire Management Strategy provides direction for a proactive wildland fire management program for B.C. It will take time, cooperation and resources to achieve full implementation of the strategy. However, several aspects of the strategy are already underway or completed, including:

- Establishment of a Provincial Fuels Management Working Group, composed of the Union of B.C. Municipalities, the First Nations Emergency Services Society and the Ministry of Forests and Range, for the development and implementation of Community Wildfire Protection Plans (Goal 1);
- Implementation of an Accelerated Community Wildfire Protection Initiative to support the efforts of communities in the development of Community Wildfire Protection Plans (Goal 1);
- Implementation of the Ministry of Forests and Range Ecosystem Restoration Program in association with the Ministry of Environment (Goal 2);
- Utilization of alternative funding sources to complete fuel reduction activities including the Job Opportunities Program and Community Development funding (Goal 1);
- New tenures and ongoing support for the development of alternative slash-disposal methods that support utilization of biofuel options (Goal 1);
- Expanded use of modified-response based strategies and long-term fire growth modeling (Goal 3);
- Development of Forest District Fire Management plans (Goal 4, 5);
- Smoke management planning completed in conjunction with the Ministry of Healthy Living and Sport and the Ministry of Environment (Goal 4, 5);
- BC Parks fire management planning, fuel reduction and ecosystem restoration; (Goal 1, 2) and,
- Establishment of a Provincial Prescribed Burn Committee (Goal 2, 5).

The B.C. WFMS will support and continue to build upon these successful initiatives as well as work towards achieving the goals and implementing the strategic priorities as resources become available. Full strategy implementation will result in reduced wildfire impacts and smoke risks to communities and infrastructure, healthy and resilient ecosystems, broad public support for proactive fire management and a more cost-effective fire response program for the province of British Columbia.

REFERENCES

1. For example, Environment Canada, when commenting on the 2003 fire season noted “Prior to this summer, B.C. had gone through its driest three-year period on record”.

2. Based on Pacific Climate Impacts Consortium information contained in Environmental Trends in B.C.: 2007, published by the B.C. Ministry of Environment.

3. Wiedinmyer, C. and J. Neff. 2007. Estimates of CO2 from Fires in the US: Implications for Carbon Management. Carbon Balance and Management 2(10).

4. Stephens, S. et al. 2009. Fuel Treatment Effects on Stand-level Carbon Pools, Treatment-related Emissions, and Fire Risk in a Sierra Nevada Mixed-conifer Forest. Can. Jour. For. Res. 39:1538-1547.

5. Filmon, G. 2004. B.C. Firestorm 2003 Provincial Review. Government of B.C.

6. Caslys Consulting Ltd. 2008. Quesnel Road Project. Summary report for B.C. Ministry of Forests and Range.

7. Including private, municipal, regional, federally managed, and First Nations managed lands.

8. In B.C., as many as 150 wildfires each year are assessed and monitored, but no suppression action is taken. This usually occurs in remote areas where the risk of damage is minimal (and often when the weather is not conducive to fire spread). When deciding to take such modified action, the decision maker considers the potential cost of suppression, the need to allocate limited resources to higher-priority fires, and the potential for ecosystem benefits from the fire.

9. Areas documented by the Ministry of Forests and Range, Union of B.C. Municipalities, and First Nations where wildfires are a potential direct threat to communities.

10. For more information on FireSmart refer to the Government of B.C. Website at http://www.bcwildfire.ca/prevention/property/FireSmart.htm.

11. For more information on FireSmart refer to the Government of B.C. Website at http://www.bcwildfire.ca/prevention/property/FireSmart.htm.