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September 26, 2017

Honourable John Horgan
The Premier of British Columbia

Honourable Doug Donaldson
BC Minister of Forests, Lands, Natural
Resource Operations & Rural Development

Dear Premier Horgan and Minister Donaldson,

RE: 2017 Megafires in BC - Urgent Need to Adapt and Improve Resilience to Wildfire

The extreme wildfire season of 2017 is not an isolated event. It represents the new normal and is part of a global trend of increasing megafires with tremendous social, ecological and economic costs. In BC, wildfire seasons have started earlier and last longer, and have been influenced by more pronounced droughts due to climate change and excessive fuels as the result of fire suppression, widespread forest health problems, and forest management practices. Inadequate funding and numerous policy conflicts perpetuate hazardous conditions leaving communities vulnerable to wildfire.

As 2017 -- the pinnacle of exceptional wildfire years -- has proven, ***forests and communities in BC are not resilient to wildfire and adaptation is urgently needed.*** The status quo approach of addressing wildfire threat in BC is not working. The 2017 wildfires have overwhelmed suppression capabilities and costs have exceeded \$700 million: \$500M for suppression and \$200M emergency support for evacuees. In the last decade (2006-2015), the cost of *direct* fire suppression in BC was \$1.82B, with *indirect* costs on human health, ecosystem services, environment, and biodiversity estimated to be 2 to 32 times that amount. Over the same period, only \$183M was allocated to pro-active, preventative wildfire management (\$78M to Strategic Wildfire Prevention Initiative (SWPI), \$85M to Forest Enhancement Society of BC (FESBC), ~\$20M to Ecological Restoration (ER)). In contrast, over the same period, \$17B was allocated to seismic upgrades by the Province to mitigate *potential* consequences of an earthquake. Research has shown that the cost of reducing wildfire extent and severity through pro-active fuel management is far lower than the cost of fighting extensive wildfires. Climate change will continue to exacerbate the situation through drought, increased tree mortality, and longer and dryer fire seasons. A meaningful financial commitment is long overdue to address the *ongoing* consequences of wildfires in the interior of BC.

The 2004 Filmon Report was commissioned in response to the catastrophic interface wildfires of 2003 and provided a road-map for addressing the wildfire risk to communities throughout BC. On the operational side, in areas of emergency response coordination and communications, there has been substantial improvement. However, in the area of fuels and forest practices, which is the largest component necessary to reduce wildfire severity and threats to communities, there has been little action. Implementation of the Filmon Report recommendations has been inadequate and resistance from provincial-level public and private-sector agencies have left BC citizens and communities vulnerable to wildfire. ***A holistic, landscape view of this problem and transformative changes to wildfire and forest management are urgently needed to achieve forest and community resilience to contemporary and future wildfires.***

In this white paper, we propose a four-pronged approach and provide specific recommendations to improve forest and community resilience in BC. Our recommendations reiterate several from the 2004 Filmon Report that need to be fully implemented and provide new recommendations to address problems that have become apparent in the past 13 years. Below, we summarize the four approaches. In the appendix, each approach is discussed in detail by identifying urgent needs, providing constructive criticism of current actions, and recommending ways that change can be effectively implemented.

1. Initial Attack and Emergency Fuel Reduction Treatments (15 Recommendations)

BC needs improved short-term wildfire response and immediate fuel reduction treatments. To do so requires significant increases in human resources for all facets of wildland fire management, including wildfire suppression, managed wildfire, and prescribed fire. Science-based fire management and First Nations traditional ecological knowledge need to be combined in a landscape-level tactic and strategy to achieve forest resilience and long-term sustainable forest management.

2. Integrate Wildland-Urban Interface Zoning and Pro-Active Landscape Planning (13 Recommendations)

BC needs to develop a new relationship with its rural communities, especially First Nations, when it comes to reducing the threat of wildfire. Long-term maintenance of a low fire hazard condition in the forests and on rangelands in the vicinity of rural communities needs to be the *primary* land management objective. Existing policies that run counter to community resilience must be amended, if not abolished.

3. Forest Restoration and Adaptive Forest Management (10 Recommendations)

BC needs to adopt a more enlightened approach to forest management and restoration to increase ecosystem resilience and enable recovery following wildfire. Given the many values at stake in BCs forests, adaptation must include transformative restoration and management informed by science and traditional ecological knowledge to counter unintended consequences of the past and increase ecosystem resilience in the future.

4. Research to Inform Adaptive Wildfire Management (8 Recommendations)

Given climate change, we are entering a new era in land management and risk reduction planning, so there must be investment in new research. BC must incorporate current and future new knowledge on fire regimes and ecosystem function into wildfire management. Effective transformation of wildfire management must be evidence-based to overcome current limitations.

The 2017 wildfire season cannot be just another “wake up call” – it has revealed the tremendous vulnerability of our forests and communities and short-comings of past mitigation efforts. Without immediate action, large and intense wildfires will undoubtedly burn, escalating economic, social, and ecological costs. As signatories to this letter, we urge the Province to engage with leaders from First Nations, Municipalities, Regional Districts, and expert fire and land managers to mitigate wildfire hazards and implement the recommendations (detailed in the Appendix) to transform policies and practices to improve resilience to wildfire.

Sincerely,

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cc. Dr. Andrew Weaver, BC Green Party Leader

cc. Mr. John Rustad, Forest, Lands and Natural Resource Operations Critic, BC Liberal Party

Signatories

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Appendix – Recommendations for Adaptation and Improved Resilience to Wildfire

Each of the four approaches to adapt and improve forest and community resilience to wildfire is discussed by identifying urgent needs, providing constructive criticism of current actions, and recommending ways that change can be effectively implemented. These recommendations reiterate several from the 2004 Filmon Report yet to be fully implemented and provide new recommendations to address wildfire management and related social-ecological problems that have become apparent in the past 13 years.

1. Initial Attack and Emergency Fuel Reduction Treatments

BC needs significant increases in human resources for all facets of wildland fire management, including wildfire suppression, managed wildfire, and prescribed fire. Additional seasonal staff serving on initial attack and unit crews are needed. Additionally, BC has a large pool of very experienced seasonal staff that should see advancement to fulltime positions doing landscape fire planning as well as prescribed fire planning and implementation. Promoting, hiring and training local people will build capacity in First Nations communities and rural municipalities. Managed wildfire needs to be used more as a landscape-level tactic and long-term resource management strategy. However, its use must be guided by ecology and not simply economics. Prescribed fire needs to be used extensively to reduce hazardous fuel accumulations in the WUI as well as the larger landscape around communities. When applied correctly, it is a highly effective fuel treatment that can reduce fuel continuity over large areas and establish a safe work environment for wildland fire fighters. Researchers have determined that prescribed fire, in combination with manual/mechanical thinning, is the most effective fuel treatment available when compared to thinning or burning as stand-alone treatments. Where prior thinning is not available, prescribed burning is the best option. Prescribed fire also has substantial ecological and cultural benefits for many of BC's terrestrial ecosystems. BC faces a significant deficit in qualified, experienced prescribed fire practitioners capable of delivering the scale of burn program necessary. In order to build this capacity and address concerns over liability, we encourage the Province to adopt the following recommendations.

15 Recommendations:

Wildland fire resources:

- Increase the number of full and part-time BC Wildfire Service (BCWS) staff in order to increase capacity for prescribed fire planning and operations, and landscape wildfire management planning.
- Fund First Nations governments to employ and train fire management staff and planners.
- Train and certify a number of contract crews to the provincial Type 1 crew standard.
- Hire additional unit crews during prescribed burning and wildfire seasons.

Resourcing fuel reduction treatments (including thinning and prescribed burning):

- Provide prescribed fire training and extend the Provincial certification to non-agency personnel. This training and certification must not be limited to just burn bosses; it must include all support positions.
- Add fire effects and burn planning courses to the required Provincial Burn Boss Certification curriculum (e.g., adopt the Parks Canada course for burn planning and the US RX-310 Fire Effects course).
- Province must certify and track certification currency for all prescribed fire personnel regardless of their employer.
- All burn plans on Crown land must be reviewed and approved by a certified burn boss with certification equal to or exceeding the level of the burns they are reviewing.
- Province must develop regional multi-party prescribed fire modules in order to address the current short-fall in qualified practitioners.
- Province must provide adequate funding to BCWS and First Nation crews for prescribed burning.
- Province must provide timely funding for early spring prescribed burns to ensure that the timing for prescribed fire is not missed in any given year.
- Province must address smoke constraints to prescribed burning. Either change the Ventilation Index approach to an approach focused on actual airshed pollution capacity (under PM2.5 criteria) or provide greater flexibility in Ventilation Index (e.g., allow burns under "fair" conditions).

- Province must set limits on liability. For approved burn plans conducted by trained and certified personnel, there should be less liability. The Province self-insures so it can set limits on liability.
- Province must implement a burn monitoring process based on burn objectives and scale of operations. Fire effects predicted in burn plans must be measured during burns to determine if/how desired fire behaviour is being achieved. Ecological and forest effects of prescribed burns must be measured before and after burns to determine if management objectives are being met.
- Province must implement a process of open and transparent after-action reviews of plans, operations and efficacy of all prescribed burns. This is needed to build the knowledge base, expertise, and capacity.

2. Integrate Wildland-Urban Interface Zoning and Pro-Active Landscape Planning

BC needs to develop a new relationship with its rural communities, including First Nations, when it comes to reducing the threat of wildfire. There have been many positive outcomes from the Filmon Report and the subsequent Strategic Wildfire Prevention Initiative (SWPI) and First Nations Emergency Services Society, such as increased awareness of wildfire threat and the need for proper community planning. On the other hand, several aspects of the Province's approach to solving the problem have been detrimental to relations between the three levels of government. Local government was expected to lead in the planning and operational treatment of wildfire hazard across the wildland-urban interface (WUI) including hazards on Crown land. They are severely hampered by existing forest and wildlife management policies that were not intended to mitigate wildfire hazard as a priority land management objective (e.g., as guided by existing Commission on Resource and Environment (CORE) plans and Land and Resource Management Plans (LRMPs)). We recommend the Province set the long-term maintenance of a low fire hazard condition in the forests and on rangelands in the vicinity (in areas as far out as 15 km) of rural communities as the *primary* land management objective. Additionally, we have a number of specific recommendations for addressing existing policy that run counter to community resilience.

13 Recommendations:

- Province must work with local governments and First Nations to adjust spatial limits on the WUI buffer based on local forest, fuels, topography and values-at-risk, as is the practice in other jurisdictions. Communities/First Nations/FLNRORD must work together to determine the best way to ensure that the work is done in a way that maximises actual fire risk reduction and increased resilience, and protects and enhances community values and benefits.
- All municipal lands in need of treatment must be eligible for funding regardless of where it is in the WUI (e.g., currently municipal land beyond 2 km buffer is ineligible for funding from both SWPI and FESBC – even if they received prior operational treatment with funding from SWPI).
- All Crown land outside the municipal boundary is to be directly managed by the Ministry of Forests, Lands, Natural Resource Operations, & Rural Development (FLNRORD).
- All Crown land in the WUI must be taken out of the Timber Harvesting Land Base (THLB). However, this does not preclude future fiber recovery from these lands.
- Restocking requirements in the WUI must be abolished. Upper limits of stocking standards on other Crown land must be lowered (where relevant) to those that reflect reduced risk of high severity wildfire. Thus, forest companies would be required to thin overstocked stands, with the exception of deciduous species.
- Wood from fuel treatments on Crown land in the WUI must be auctioned off with the profits fed back into WUI treatment and maintenance funds managed by the community and local Resource District.
- Where necessary, the Province must subsidize the removal of low-value wood and make it available under auction to local bioenergy facilities or other users.
- Province must provide funding to assess fuel hazards on private land in the WUI.
- Province must provide funding programs for fuels treatment on private land and home renovations to increase resistance to wildfire in accordance with FireSmart recommendations.

- Province must provide carbon-offset opportunities for land treated to reduce fuels in the WUI (e.g., lands on which fuels mitigation requires canopy cover less than the critical criterion used in the Zero Net Deforestation Act) or exempt the WUI from the Zero Net Deforestation Act.
- Province must remove or modify barriers to fuel treatment and wildfire hazard reduction in the WUI (e.g., mule deer winter range constraints, old-growth management areas, etc.).
- Where wildfires have impacted treated areas, post-fire research is needed to determine what elements of the prescription and its implementation have or have not worked. These treatment effectiveness monitoring opportunities should be published and provided as a resource to practising foresters to facilitate adaptive management.
- The Province must open up existing land use plans with the requirement that WUI special management zones and other updates be added.

3. Forest Restoration and Adaptive Forest Management

Compromised resilience of many of BC's grasslands and forests makes them vulnerable to severe wildfires, as witnessed in 2017. Ecological restoration aims to increase resilience by focusing on key processes (not stable states) to assist the recovery of degraded ecosystems. Understanding the causes and consequences of the altered forest composition, structure and ecological processes is essential to guide effective solutions. In BC, wildfire is a primary driver of forest dynamics, with historical frequency, size and magnitude varying among forest types. Disruption of fire regimes since the late 19th century was due to colonial actions to eliminate indigenous traditional fire use, land use change, increasingly effective suppression, and forest management focused on optimizing stand-level timber production. Reduced fire occurrence and extensive timber harvesting with little attention to landscape-level impacts has decreased forest diversity yielding uniform forest structures, contributed to widespread forest health problems (e.g., mountain pine beetle and Douglas-fir bark beetle outbreaks), and increased fuel loads across landscapes and elevational gradients. Other consequences include, but are not limited to, loss of habitat for 30% of BC's species at risk, increased fuel hazards surrounding many communities, and reduced carbon sequestration and storage in dense, overstocked forests. Given the many values at stake in our forests, adaptation must include transformative restoration and management informed by science and traditional ecological knowledge to counter unintended consequences of the past and increase ecosystem resilience in the future.

10 Recommendations:

Pro-action to increase resilience to wildfire:

- Reintegrate BCWS and FLNRORD to address the institutional barriers that artificially disconnect and disregard fundamental relations and feedbacks between fire and forests.
- Prioritize and fund ecological restoration of grasslands, open forests, and early-seral habitats for species-at-risk.
- Adjust landscape planning priorities. Allocate land to be managed for wildfire resilience rather than relying on the current "protection" approach.
- Retain and promote more land cover in deciduous species that form natural firebreaks.
- Landscape management must conform to natural firesheds. Under the current approach, managed wildfire is only permissible on parts of the landscape free from administrative constraints or resource allocations.

Reaction to enable ecosystem recovery following wildfire:

- Following wildfire, the Province must monitor for potential negative impacts on natural regeneration of trees and native plant species (e.g., invasive species and noxious weeds) resulting from reseeding burned areas with non-native plants and salvage logging that disrupts soils and seedbanks.
- Develop and apply innovative post-fire management strategies for ecosystems in the driest climates (e.g., Ponderosa Pine and Interior Douglas-fir biogeoclimatic zones) where contemporary and future climate, combined with fire damage to soils, may render sites unable to support conifer trees.

- Develop and apply post-fire replanting strategies for dry forests that enhance resilience rather than optimize timber projection (e.g., adjust preferred species and reduce stocking standards). Apply silvicultural treatments such as juvenile spacing, thinning and pruning to the monocultures of dense lodgepole pine that are legacies of past forest practices and form hazardous fuels over long periods.
- Province must consider not replanting sites that have been burned repeatedly in recent years (i.e., reburns). Research shows reburns can function as dedicated landscape fuel breaks.
- Ensure restoration and salvage logging strategies after fire reduce the risk of future high-severity fires. In locations near the WUI or in landscape fuel breaks this will include leaving large trees and snags (i.e., biological legacies valuable for wildlife) while removing all small-diameter trees (even if it must be subsidized), yielding forest structures similar to shaded fuel breaks. Monitoring must be used to reduce the likelihood of substantial burn severity should the site burn again.

4. Research to Inform Adaptive Wildfire Management

BC must incorporate current knowledge of fire regimes and ecosystem function into wildfire management. In the absence of empirical fire ecology evidence, policy and practices developed in the 1980s and 1990s were based on expert knowledge and observational science that did not acknowledge fire suppression impacts, and antiquated ecological concepts such as linear, directional succession and stable, climax forests. Constrained by inadequate funding for research, wildfire management in BC largely remains an exercise of emergency command-and-control, independent of new scientific knowledge. Given rapidly changing climate, the Intergovernmental Panel on Climate Change advocates adaptation to increase resilience of ecosystems and communities to extreme events such as wildfire. It is globally recognized that wildfire policies and practices must shift from control of ecosystems wrongly assumed to be stable, towards strategies to manage the capacity of ecosystems to function and adapt to cumulative environmental changes that are exacerbated by a warming climate. Effective transformation of wildfire management must be evidence-based to overcome current limitations. Fortunately, BC has outstanding universities capable of helping to lead ecosystem-specific research efforts and help guide management through these tumultuous times. Below we provide a framework to facilitate research to guide effective adaptation.

8 Recommendations:

- Increase and sustain funding for wildland fire research in the fields of ecology, fire science, social science and economics to provide up-to-date science as the basis for adaptive management.
- Foster collaborations with First Nations to integrate traditional ecological knowledge with western science as a key component of successful adaptation.
- Identify priority topics based on the *Blueprint for Wildland Fire Science in Canada (2018-19 – 2028-29)* that is being developed by experts from across Canada, including several representatives from BC.
- Develop an unbiased framework for adjudicating proposals and allocating funds that is independent of the forest industry, which is already represented on boards such as that of FESBC (e.g., adopt frameworks used by the National Science and Engineering Research Council (NSERC) or the US Joint Fire Science Program).
- Make funding available to academia. Incentivize or require collaboration with academia when allocating funds to applied research and development agencies.
- Incentivize collaborative research with academia to assess efficacy of WUI and landscape-level fuel mitigation supported by SWPI and FESBC (e.g., expand the US Fire Surrogate Study to BC's forest ecosystems).
- Funding must be administered in a form that is eligible for federal matching funds under programs such as MITACS (which more than doubles funding to graduate students and post-doctoral researchers) and NSERC-Collaborative Research and Development (which doubles operational funds) programs, thereby benefiting the research community, collaborating agencies, and the province
- Allocate resources within government (e.g., funding, in-kind support and staff time) to enable applied research and training opportunities for post-secondary students who are developing expertise in wildfire science and management (e.g., support outreach and dissemination of results; fund mutually-beneficial internships; partner on proposals to NSERC-Collaborative Research Experience and Training program).