GOVERNMENT OF CANADA RESPONSE TO RECOMMENDATIONS IN THE STANDING COMMITTEE ON NATURAL RESOURCES REPORT:

"INSECT MANAGEMENT IN CANADA'S FOREST SECTOR: STRENGTHENING NATIONAL COOPERATION AGAINST CURRENT AND FUTURE OUTBREAKS"

June 2019

INTRODUCTION

The Government of Canada has reviewed the report of the Standing Committee and thanks its members for their efforts in developing this report. The Government also wishes to extend its thanks to the numerous witnesses who provided expert testimony to the Committee, providing the members with a diversity of perspectives on insect management in Canada's forest sector.

Historically, forestry is one of Canada's most important manufacturing industries, accounting for 7.2 percent of all exports, injecting roughly $24.6 billion into the economy and employing more than 200,000 people across the country. Forestry is now leading the way in the burgeoning bioeconomy, helping to reduce greenhouse gas emissions and transitioning Canada to a low-carbon economy. Key to ensuring the sector's future is maintaining the health and resilience of our forests.

Fire, insects and disease continually affect Canada's forests. These natural disturbances can renew whole forest landscapes and, over time, shape forest composition, structure and habitat diversity. While natural disturbances are essential to forest health and renewal, they can have a negative impact on the people, communities and businesses that reside in or rely on forests.

Canada is facing multiple challenges related to pests in our forests and human activities, such as international trade of forest products. These challenges are also impacted by our increasingly complex world, characterized by constant change, such as the increased movement of goods and people, climate change, and an increased demand for real community engagement in natural resource development.

The Government of Canada agrees with all of the Committee's recommendations. Addressing current and emerging forest pest challenges of national significance calls for mobilizing the people, the infrastructure, and the partnerships that characterize Canada's pest risk management system. Coordinated efforts are needed to tackle our greatest socio-economic and environmental issues related to forest pests, both within and across our borders. The government response to the specific recommendations follows, and will outline federal science, programs and engagement mechanisms that both respond to the recommendations and help enhance forest pest risk management in Canada. The Government believes that together, these initiatives are adequate to carry out the federal core mandate in forest insect management and that additional resources are not required to achieve the outcomes outlined in the Committee's report.

STANDING COMMITTEE RECOMMENDATION #1: The House of Commons Standing Committee on Natural Resources (the committee) recommends that the Government of Canada work with industry, civil society, research institutions, Indigenous governments and communities, and provincial, territorial, municipal and/or international governments to strengthen Canadian capacity to prevent, mitigate and/or adapt to regional pests by:

>a) Continuing to enhance border protection against foreign invasive species and to promote preventative and/or proactive outbreak management practices, such as the Early Intervention Strategy to combat the spruce budworm in Atlantic Canada;

>b) Expanding federal research on invasive species, including the mountain pine beetle, especially with regards to their impacts in new host environments and other factors related to ecological and/or climate change;

>c) Providing long-term financial and/or policy support, where necessary, according to the stated needs of regional governments and forest managers, including municipalities and Indigenous governments and communities;

>d) Coordinating a central reporting and information-sharing system to allow forest managers access to the same outbreak management data nationwide;

>e) Offering educational and training opportunities to forest managers, as needed, in communities and jurisdictions with inadequate outbreak management capacity;

>f) Investing in research and expertise to bring forward Indigenous knowledge of forest land and resource management;

>g) Strengthening citizen awareness and engagement through public outreach campaigns that aim to promote and normalize risk-reduction practices;

>h) Encouraging the adaptation of regional harvesting and reforestation policies, according to new ecological realities and science-based evidence on climate change, to ensure the diversity and sustainability of both urban and rural forests; and

>i) Including specific research and support for municipalities to deal with invasive insects and diseases, recognizing the social, environmental and economic value of urban forests.

GOVERNMENT RESPONSE:

The Government of Canada agrees with this recommendation. In collaboration with a broad range of stakeholders, the Government has worked collaboratively to establish a comprehensive policy framework to address forest pests in Canada.

Due to the erosion in natural boundaries affecting the establishment and distribution of native forest pests, it is reasonable to forecast an increased expectation for federal assistance in emergency responses to the migration of these pests. In 2007, Federal, provincial, and territorial (FPT) forest ministers endorsed the vision and principles of a national forest pest

strategy (NFPS) as a longer-term strategic option to support, national, risk-based approaches to ensure a proactive, integrated response to the threat of forest pests. The NFPS framework has guided an important part of the Government of Canada engagement in forest pest management. Most progress made to date is the result of engagement from FPT government organizations under the Canadian Council of Forest Ministers (CCFM), and efforts are being made to broaden this engagement to other governments and non-government organizations.

Prevention of, and preparedness for pest introduction are the Government of Canada's priorities under Canada's Invasive Alien Species Strategy (2004). Programs addressing invasive species focus on the prevention of introductions into or spread within Canada, and include:
- Assessing risk of pest introduction and spread;
- Regulating imported forestry commodities and other high-risk trade pathways for pest introduction; and
- Monitoring high-risk commodities and potential pathways through border and post-border inspection

More recently, prevention and preparedness for forest pest introduction and spread were included as part of broader efforts to address risks to plant health under the Emergency Management Framework for Agriculture in Canada and the Plant and Animal Health Strategy for Canada, endorsed by FPT ministers of agriculture in July 2016 and 2017, respectively. The Canadian Plant Health Council was established in October 2018 to bring plant health partners together to coordinate implementation of the plant health aspects of the Strategy. The Council is developing its plan of coordinated, prevention-based approaches and activities to protect forests, agriculture and other plants from pests and will have a finalized work plan in spring 2019.

The Government of Canada works to develop international plant health standards and support their acceptance and implementation globally. When our trading partners adhere to these standards, the likelihood of introducing a foreign pest into Canada is reduced. Canada is a Contracting Party to the International Plant Protection Convention (IPPC), an international treaty that establishes a common approach to preventing the introduction and spread of plant pests, and promotes appropriate measures for their control. Through the IPPC and the related North American Plant Protection Organization (NAPPO), Canada brings Canadian ideas and interests to the international standards development arena.

Canada has initiated and is supporting an international research coalition, the International Forestry Quarantine Research Group, under the IPPC. The Research Group supports and addresses critical forestry quarantine issues for the global plant protection community through scientific analysis, discussion and collaborative research, including the development of new phytosanitary treatments for wood.

Science is playing a core role to support Government of Canada policy decisions for pest risk management and to foster innovation in how we address forest pest and phytosanitary issues. Scientific research is foundational to better understanding, forecasting, mitigating and adapting to forest insect issues that continue to emerge, evolve, and increase in complexity. A changing global climate is exacerbating this complexity. The nature and magnitude of potential changes to forest pest behaviour and distribution is highly uncertain given that some changes will be beneficial while some will be detrimental. Understanding and reducing uncertainties associated

with climate change help enhance the adaptive capacity and resilience of the forest sector to future climate challenges.

In 2016, the Government of Canada led national-level conversations with over 140 experts from 80 different organizations, including academia, FPT government agencies, research institutions and non-governmental organizations to better define its role as a forest science provider. Following these conversations, the Government restructured the science portfolio of the Canadian Forest Service (CFS) of Natural Resources Canada around seven areas including forest pest risk management and climate change. Investments of approximately $20 million annually (salary and operations) are made by the CFS to conduct broad-scale, long-term, research providing the forest sector with science solutions addressing risk management needs at key response stages of a native or foreign forest insect infestation. In addition, Canada invests approximately $10 million (salary and operations) in the Forest Climate Change Program, which provides information about the impacts of climate change on Canada's forests and adaption to changing climate conditions. Results from this ongoing research program are adapted to particular requirements of urban and working forest management.

With regard to the mountain pine beetle, ongoing research conducted by the Government of Canada remains a priority, and capacity has recently expanded. Over the past year, scientists from the CFS have played a leadership role to complete a national risk assessment of the threat posed by the beetle to the boreal and eastern pine species. The assessment represents the most up-to-date knowledge synthesis in support of future evidence-based decisions regarding this pest. The Government of Canada will use it to guide its future research activities pertaining to mountain pine beetle. This effort is the result of collaboration between the FPT governments, and academia, and it will culminate with the publication of the assessment in the spring of 2019. The same level of collaboration contributed to the development of a strategic approach to slow the spread of mountain pine beetle delivered to the CCFM Forest Pest Working Group in 2017. This containment strategy, which is based on the most recent science on the effectiveness of management actions in Alberta and the ecology of the beetle in its newly infested environment, is meant to inform future management efforts to help slow its spread eastward. The Government of Canada also monitors mountain pine beetle expansion and other forest-health related risks in the Canadian Rocky Mountain Parks. These activities are essential to understand risks to neighbouring forests and to address beetle challenges in the national parks.

A large portion of the Government's research program for forest pest risk management addresses foreign invasive species, whose primary entry point are generally urban environments. The research focuses on the pathways by which invasive forest pests move globally, on protecting Canada's fibre supply, and providing forest managers, urban planners and Canadian home owners with real solutions to the challenges posed by these invasive pests that threaten Canada's forests. One example is the emerald ash borer (EAB). Since the first discovery of this insect in Canada, federal government scientists have focused their efforts on developing detection and control options that would allow forest managers to limit EAB population growth, to slow the spread of EAB and to reduce the economic impacts of EAB on forests and communities. The most successful EAB detection tool developed to date is a branch sampling method that is now a standard operational detection tool used in urban areas across North America, including in affected cities in the United States. The ability to detect very low EAB populations is providing forest managers with the lead-time necessary to make informed

decisions about managing EAB outbreaks. Government scientists in collaboration with the private sector also developed the first biologically-based product to become available for control of EAB in Canada. The botanical origin of this product, and the low toxicological risk characteristics of its active ingredient have made it particularly useful in urban settings and environmentally sensitive areas.

The Government is also making targeted strategic investments to enhance ongoing programs. For example, federal Budget 2018 committed to providing up to $74.75 million over five years to prevent the spread of the current spruce budworm outbreak, enabling governments, academia, industry and other stakeholders to continue to work together to implement an operational-scale research experiment of a novel early intervention strategy to manage spruce budworm outbreaks to protect our forests and support the economy. The Budget 2018 measure included $0.75 million of ongoing funding for research on early intervention beyond 2022, supporting long-term scientific studies on proactive management options for forest managers. Canada is also making investments to maintain state of the art research centers, which act as a point of entry for regional and municipal governments and forest managers to access ongoing scientific and technical support to address regional, national and international forest health issues. Budget 2016 included $87.2 million to upgrade scientific infrastructure, including federal labs conducting research that informs our responses to destructive forest pests.

Scientific innovation and disruptive technologies are advancing at unprecedented rates and can also be harnessed to improve prevention and preventative approaches to foreign invasive pests. Ongoing large scale applied research projects are underway to develop a suite of genomic-based tools to rapidly and accurately detect invasive alien species threatening our forests. The Government of Canada, Genome British Columbia, Genome Quebec and FPInnovations are jointly funding the BioSurveillance of Alien Forest Enemies ($8.6 million), a multi-partner project that will enable forest health professionals to track and determine the source of significant threats to forests and develop measures to prevent further invasions.

The importance of the challenges faced by the Canadian forest sector, communities and environment as well as the need for longer-term policy support call for a concerted effort to provide the best available science-based solutions building on the diverse capacity of the country's research system. The extent and scope of the issues are such that an agile, long-term approach to research appears to be the best option to ensure that they are addressed comprehensively. As such, the Government of Canada has initiated the co-creation of a national research agenda in collaboration with partners, including federal government departments and agencies, provincial, territorial and Indigenous governments, municipalities, universities, non-government organizations, etc. The purpose of this research agenda is to set a high-level direction for research supporting forest pest risk management policies and practices for the long term. By doing so, it aspires to a nationally coordinated framework to risk-manage and prevent the highest threats to Canadian forests and trade values at home and abroad. In order to attract as many collaborators as possible, the agenda aims to strike a balance between focusing on national issues and high-profile regional requirements, and between long-term foundational research questions and emerging short-term needs. A cohesive approach will maximize the value of existing research infrastructure and assets across Canada. The research agenda aims to establish sustainable linkages between researchers across disciplines, forestry practitioners, and decision-makers in order to ensure that science generates integrated

solutions adapted to users' needs and connected to crosscutting, strategic objectives from an economic, social and environmental standpoint.

Strong relationships with Indigenous communities could enable a synergistic and holistic approach to understanding the environmental challenges that forest pests and interactions with other disturbances like climate change and wildland fire pose is integral to the co-development of the national research agenda for pest risk management mentioned above. In February 2018, Natural Resources Canada convened Indigenous leaders and organizations from across the country to start a conversation that will help set a path for ongoing engagement around forest research. Indigenous participation in dialogues is an important element of ensuring that activities, including the development of policy, legislation, regulation, the carrying out of research or any other government activity, appropriately account for Indigenous knowledge and perspectives. In order to ensure effective participation of Indigenous groups for discussing issues related to the federal mandate, the Government of Canada has established policy instruments to help fund Indigenous participation in dialogues with its representatives.

With respect to national reporting and information sharing, the Government is committed to provide access to the most current, consistent and reliable forest resource information through the National Forest Information System (NFIS). This web-based information technology infrastructure was developed in collaboration with provincial and territorial governments under the CCFM. It contributes to integrate information across jurisdictional boundaries and to provide consistency in reporting on Canada's forests and sustainable forest management. Initial participants in the NFIS are the FPT governments, but the system is designed to include information from other sources such as Indigenous governments, the forest industry, or non-governmental organizations. The NFIS provides a suite of applications directly serving the purpose of forest pest risk management in Canada: the National Forestry Database (NFD), the National Forest Pest Strategy Information System (PSIS), and the Canadian Forest Invasive Alien Species (CanFIAS) Database. The NFD collects and compiles national forest data and forest management statistics, including on forest area damaged by insects across Canada. The PSIS collects and compiles historical data from forest pest surveys collected by the FPT governments. The CanFIAS portal provides information on foreign forest invasive pests as well as a database of occurrences in Canada.

The Government of Canada is making progress towards the development of a National Plant Health Information Network, connecting experts in plant health to address emergencies and resolve collective challenges by providing more rapid access to specialized knowledge and expertise, resources and capacities to support, protect and improve Canada's plant resources. The Government is completing a study identifying and mapping information sharing needs and technical capacities for information exchange between organizations involved in plant health emergency response.

The Government of Canada supports educational and training opportunities to enhance capacity to address ongoing and emerging risks from forest insects. The Government hosts the annual Forest Pest Management Forum, which is the largest and most significant gathering of forest pest management experts, managers, and practitioners in Canada. The Forum celebrated its 61th anniversary in December 2018. The forum serves as a knowledge exchange opportunity on forest pest conditions, management and science.

The Government engages in ongoing knowledge and technology transfer with forest managers, particularly in urban centers when it pertains to foreign forest insects. Recent examples include a significant number of information and training events as well as publications targeting practitioner audiences around emerald ash borer detection in communities that have ash trees in Ontario, Quebec, Manitoba, and New Brunswick. In addition, ongoing media outreach and field tours have made the Government expertise on the detection and management of this invasive insect more accessible to a wide range of audiences. The Government also engages practitioners across the country via webcasts, for instance through the Canadian Institute of Forestry's (CIF) National Electronic Lectures. For example, from March to April 2019, the CIF presented an e-lecture series featuring the Early Intervention Strategy for Spruce Budworm – Phase II in Atlantic Canada, an initiative funded in Budget 2018.

The Government maintains the Trees, Insects and Diseases of Canada's Forests website, an authoritative database that provides Canadians with information and illustrations for almost 300 insects and 200 diseases found in Canada's forests. Canada also maintains the Forest Invasive Alien Species web portal, which provides Canadians with access to detailed information on invasive forest pests.

Similarly, in February 2019, the Government and its collaborators under the CCFM Forest Pest Working Group collaborated with the Invasive Species Centre to provide training to provincial and territorial government officials involved in forest health protection programs. One of the objectives of the NFPS is to promote forest pest identification capacity at the national level where gaps are currently observed or anticipated in the near term.

With respect to public outreach, the Government of Canada is engaged and collaborating in initiatives aimed at growing public awareness about forest health in general, and actions to reduce the risk of spreading invasive foreign species in human activities. The Government is an active member of the national Firewood Movement Working Group, along with provincial governments, industry, woodlot owners, and non-governmental organizations. The objective is to develop and introduce consistent messaging and outreach strategies and material to engage the recreating public, as well as to engage and educate the private sector and the managers of recreational and tourism facilities where firewood is burned through best management practices. These efforts complement public outreach efforts from the Government through the *Don't Move Firewood* campaigns, which include signage, ongoing paid and unpaid social media campaigns, distribution of brochures and posters, videos, podcasts, media outreach, and classroom resources. Targeted campaigns are also being developed for oak wilt and emerald ash borer, and opportunities to work with youth and other organizations are being explored. The Government is also actively involved in education and outreach to raise public and stakeholders' awareness about invasive species threats affecting the ecological integrity of national park ecosystems. This includes communication efforts reminding campers of the dangers of moving firewood.

In addition, proactive efforts are being made to promote federal government science in the Media about forest pest risk management. As a result, research conducted at Natural Resources Canada was featured in over 200 media articles in 2018, reaching hundreds of thousands of Canadians. Government research is a source of credible and neutral scientific information that helps clarify facts on high-profile issues for Canadians. Science communication activities also play an important education role as they offer opportunities to raise public awareness about

forest health in general and actions to reduce the risk of moving invasive foreign species in human activities such as outdoor recreation. For example, a proactive and collaborative approach to communications by the Government of Canada has contributed to broad social acceptance of the spruce budworm early intervention strategy initiative in Atlantic Canada (Budget 2018 measure). This success was largely due to the large scale public and media engagement supported by the scientists and field crews involved in the initiative.

Citizen science is another area where the Government of Canada engages with Canadians and represents an avenue to raise awareness about forest insect pest management and the environment. For example, Natural Resources Canada researchers have established an innovative program called *Budworm Tracker* to monitor spruce budworm populations. Data gathered by citizens is helping land managers and scientists monitor and better understand the insect and its spread. In this initiative, volunteer citizens participate and contribute to real, on-the-ground research, and at the same time become part of the solution as they learn about science and their environment.

The Government of Canada supported the adoption of the United Nations' resolution on the International Year of Plant Health in 2020. This will represent another opportunity to bolster Canada's efforts with other international partners in raising awareness about the damaging effects of plant pests and disease, including forest insects, and reinforcing support for plant health protection.

With respect to fostering adaptation to climate change, the Government, with provincial and territorial government partners under the CCFM, has produced extensive resources on climate change adaptation in forestry. The results of this work are tools and state-of-the-art knowledge information to equip members of Canada's forest sector in their efforts to incorporate climate change considerations into all aspects of sustainable forest management. This material is helping Canadian forestry practitioners build resilience through adaptive forest management practices as they prepare for the future. Through the CCFM, Canada also provides support to the Forestry Adaptation Community of Practice. This interactive online community enables the sharing of information and best practices on climate change vulnerability and adaptation in Canada's forest sector. The community is comprised of forest industry members, forest science researchers, forest policy makers and others who are interested in climate change impacts and adaptation options for forestry in Canada. The CCFM working group on forest pests contributes to knowledge sharing and analysis on forest pest management in a context of climate change. The working group recently completed a vulnerability assessment of forest health monitoring policies and practices to climate change. The report provides avenues for adaptation and potential steps to facilitate implementation by forest pest management agencies across Canada in support of sustainable forest management.

The Low Carbon Economy Fund (LCEF) supports the Pan-Canadian Framework on Clean Growth and Climate Change (PCF) by leveraging investments in projects that will support a clean growth economy, reduce greenhouse gas (GHG) emissions, and help meet or exceed Canada's Paris Agreement commitments. The LCEF Leadership Fund provides up to $1.4 billion to provinces and territories that adopt the PCF in support of projects that reduce GHG emissions in sectors such as commercial and residential buildings, industry, forestry and agriculture. The LCEF is providing over $200 million for forestry projects that reduce GHG emissions, enhance carbon sinks, and support innovative forestry practices in a number of provinces. Making forests more

resilient to climate change contributes to maintain forest health and reduce vulnerability to disturbances such as insect outbreaks.

In addition, the Government's Forest Climate Change Program has produced a national integrated assessment of vulnerability to climate change reflecting future projections of changes in forests across Canada, including forest disturbance patterns like forest insect outbreaks. Regional Integrated Assessments are now being conducted to help tailor adaptation solutions to local needs of communities, industry and other stakeholders. The program has enabled research into the human-assisted movement of trees to more climatically suitable habitats. In the context of repeated urban landscape failures resulting from invasive insect infestations such as the emerald ash borer, gaining greater knowledge about the probable responses of native and exotic tree species to extreme and altered environmental conditions is a particularly useful contribution to urban forest decision making.

Web-based applications and tools are also developed under the Forest Climate Change Program to support adaptation and build resilience in the forest sector. For example, urban and rural forest managers can access maps and other information products to help them select appropriate tree species or seeds for future climates, including trees in urban environments.

Canada also chairs the Forest Adaptation Working Group, which serves as a forum to share information with provincial and territorial governments, academia, research institutes, and industry on current adaptation initiatives across Canada and priority issues and needs for adaptation.

The Government launched the Canadian Centre for Climate Services (CCCS) in October 2018, so that all Canadians – including foresters - have the information and support they need to understand and plan for the effects of climate change, including changes in forest insect biology and disturbance patterns. The CCCS provides reliable climate information, data, and tools, and provides training and user support to help build climate resilience across Canada. The CCCS is committed to developing and delivering climate services that respond to user needs (e.g. historical and future temperature, precipitation). Further, the CCCS is collaborating with Natural Resources Canada and others to develop and test new climate products to meet the needs of the forestry sector, including a web application for projections of forest fire risks and a seasonal drought forecast.

STANDING COMMITTEE RECOMMENDATION #2: The committee recommends that the Government of Canada convene a meeting with provincial, territorial and Indigenous governments, as well as the Federation of Canadian Municipalities to develop a co-ordinated national strategy to deal with invasive insects and diseases, including their impact on the urban forest.

GOVERNMENT RESPONSE:

The Government of Canada agrees with this recommendation. The Plant and Animal Health Strategy for Canada, endorsed by FPT ministers of agriculture in July 2017, sets the direction for a more agile, forward looking, and better-coordinated system to address present-day and future plant and animal health challenges, including forest insect challenges. The Strategy was co-created by plant and animal health partners including federal, provincial and territorial

governments, industry, academia and NGOs. The scope of the Strategy includes sectors beyond agriculture, including forestry. The Strategy, presents an expansive list of potential activities categorized according to four areas for action:

- coordination through partnerships
- a system founded on prevention
- collecting, analyzing and sharing information
- enabling desired behaviours

The Canadian Plant Health Council was established in October 2018 to coordinate implementation of the plant health aspects of the Strategy. The Council is working to address priorities for the plant health sector, harmonizing prevention-based approaches and activities to protect forests, agriculture and other plants from pests, diseases and other risks. As implementation proceeds, plant health partners across Canada will continue to be engaged, including provincial, territorial and Indigenous governments, as well as the Federation of Canadian Municipalities as appropriate.

CONCLUSION

This proposed government response describes concrete actions, policies and programs, either underway or planned, that address all of the Committee's recommendations. The Government agrees with all of the Committee's recommendations, which are well-aligned with the Government's current scientific leadership, collaborative approach and support to the forest sector in the area of forest pest risk management. The Government views the protection of forest resources from the threat of damaging forest insects in rural and urban environments as essential to ensure long-term well-being and prosperity of Canadians. Addressing these threats is a shared responsibility, which calls for the engagement of a wide range of stakeholders. Maintaining coordinated efforts will better prepare Canada to face an increasingly complex and changing threat environment.