BRITISH COLUMBIA | Ministry of Forests

2023-2026
Forest Health Strategic Plan

Director's Message

British Columbia's forests are a vital resource that is entwined in the socio-economic fabric of our Province. In the face of climate change, our forests are more important than ever in terms of biodiversity capturing carbon, moderating the water cycle, and for many other ecosystem services. To provide these services, our forests need to be healthy… from stand initiation to maturity. This strategy, that will guide the provincial Forest Health program through to 2026, sets a clear vision for incorporating science, indigenous knowledge, strategic tools, and decision support strategies, with the talents and passion of our people in both proactive and reactive ways. As forest professionals, we all have a part to play in creating and maintaining healthy forests, and I hope that everyone who reads the strategy will see themselves reflected in the Vision, Mission, and Values.

Derek Lefler
Director, Forest Science, Planning and Practices Branch

VISION

Remain trusted leaders in proactive and targeted reactive forest health management.

MISSION

Establish an effective Forest Health program through scientific excellence, recognizing and interpreting the role of natural disturbances and climate change, and applying innovative technologies, in partnership with collaborators.

Our History

For 45 years, the Forest Health (FH) program has been responsible for providing science-based guidance on managing pest issues in British Columbia's forests. In its inception, the program was tasked with managing insect outbreaks, primarily bark beetles and defoliators, on public forest lands. Over time, this role has expanded to providing expertise and support to internal and external clients in detection methods, hazard and risk assessment, treatment strategies and monitoring of biotic and abiotic agents damaging to forest values. The combination of unprecedented events affecting forests, and the appearance of new threats, make it increasingly difficult to deliver management practices that prevent or mitigate the impacts of forest health agents within our rapidly shifting social and ecological environments.

Values

Adaptability – anticipating and responding to our changing environments

Collaboration – engaging and learning from our government, First Nations, community, academic, non-government organization and industry partners

Communication – provide accurate independent, and influential scientific advice through multiple channels

Innovation – exploring and developing effective tools, strategies and tactics using the best available science

Learning – foster curiosity and innovation; evaluating utility and effectiveness

Long-term view – ensure long-term program stability and viability with the highest standards of professionalism

Key Concepts

Hazard

The degree to which the characteristics of a tree or stand make it vulnerable to damage. It is equivalent to susceptibility.
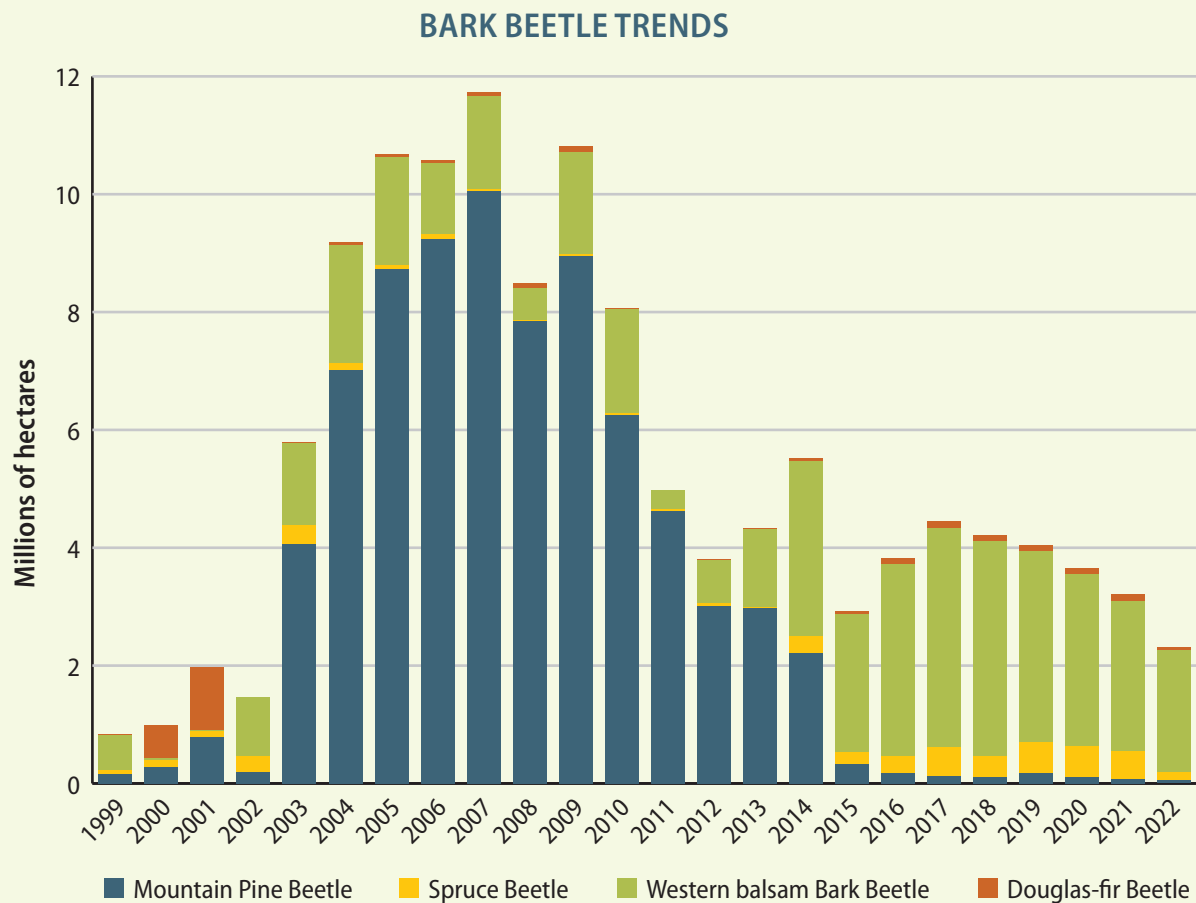
Risk

The probability and expected severity of damage represented as a function composed of host susceptibility; suitable environmental conditions (both combined equate to hazard); plus proximity, abundance, and virulence of a forest health factor (FHF).

Priorities

(Seeing) The Forest

GOAL 1: Promote healthy forests

GOAL 2: Incorporate forest health principles and knowledge into guidance, policy and legislation

GOAL 3: Modernize forest health data management, knowledge and decision support tools

(For) The Trees

GOAL 4: Deliver effective and efficient management of forest pathogens and insects, and of climate change impacts

GOAL 5: Adopt a business model that supports proactive and reactive program priorities and operational activities

(By) Our People

GOAL 6: Foster a learning culture of professional development and continuous improvement

It's not just about bark beetles…

Even though the mountain pine beetle epidemic was the landmark moment in BC forestry early in the new millennium, forest health is about more than just managing one beetle. Over the last decade, as the mountain pine beetle has faded, another bark beetle, western balsam bark beetle, has expanded greatly in high elevation and northern forests. Defoliating insects like western spruce budworm play a key role in reducing the growth of and killing Douglas-fir in interior forests, while the range of spruce leader weevil continues to expand as winters become milder. Pathogens like stem rusts cause mortality in new plantations and the impact of foliar fungi ebbs and flows reflecting the more frequent warm and wet springs and summers in various parts of the province. Root diseases play a significant role as disturbance agents in stands of all ages and tree species, while decay fungi quietly go about the business of naturally recycling carbon. The shifting of weather patterns is causing increased seasonal drought to areas where damaging agents can compound their impact by infesting stressed trees. The role of pathogens and insects in the forest may be beneficial or catastrophic and it is important to consider all the ecosystem parts and remember it's not just about bark beetles.

BARK BEETLE TRENDS

Millions of hectares

Legend: Mountain Pine Beetle, Spruce Beetle, Western balsam Bark Beetle, Douglas-fir Beetle

In 2021, with the passing of the Forest Statutes Amendment Act (Bill 23), forest management in BC underwent a substantial regulatory shift. Forest planning will move away from the current Forest Stewardship Plan framework driven by tenure holders to a more inclusive and collaborative Forest Landscape Planning (FLP) framework. In preparing a FLP, the Chief Forester must consider five legal objectives, one of which is specific to managing forest health.

5 Legal FLP Objectives

1 Managing the values placed on forest ecosystems by **Indigenous Peoples**

2 Managing the values placed on ecosystems by **local communities**

3 Supporting the **protection and conservation of the environment**

4 Supporting production & supply of **timber** in the forest landscape area

5 Preventing, mitigating, and adapting to **impacts** caused by **significant disturbances** to forests and **forest health**

A key strategy in the recent Ministry of Forests 2023/24 – 2025/26 Service Plan is investment in forest health treatments that enhance carbon sequestration and rehabilitate and restore forests. Developing the policies, tools and guidance that facilitate the creation of these new plans and treatment strategies helps drive the initiatives and actions presented in this strategy.

GOAL 1: Promote healthy forests

OUTCOMES: Timely and continuous detection, assessment and interpretation of risks from existing and emerging forest health factors under the influence of a changing environment

KEY INITIATIVES:

ACTIONS:

KEY INITIATIVES:	ACTIONS:
Improve the accuracy and timeliness of aerial overview survey data collection and expediting availability to clients.	• Incorporate digital mapping technology to capture survey information with improved accuracy (ground truthing) and more efficient data processing and sharing. • Explore the option of using aerial or satellite imagery to complement human survey data capture.
Development and continuous improvement of hazard and risk rating systems for all major forest health factors	• Summarize existing data sources to improve hazard rating and gain better understanding of pest occurrence and incidence. • Ensure all high hazard pests are identified by biogeoclimatic (BEC) unit in the Climate Change Informed Species Selection decision aid (CCISS). • Incorporate FH into future forest ecosystem modelling. • Provide links to management recommendations for high hazard pests. • Evaluate emerging FH factors (e.g., Swiss needle cast, declines, introduced species). • Explore Indigenous traditional knowledge use in hazard and risk decision systems.
Monitor pest impacts by establishing and maintaining a network of long-term pest incidence and impact plots and by regularly reviewing stand survey information for relevant forest health data	• Develop landscape and stand-level monitoring protocols. • Collaborate with the Forest and Range Evaluation Program (FREP) to reinvigorate a stand-level survey network for monitoring mid-rotation stands. • Organize and summarize forest health data from various ministry sources. • Design a full rotation Forest Health Incidence and Impact Plot (FHIIP) network across the major BEC subzones to compliment the new early Young Stand Monitoring (eYSM) network being installed jointly with Forest Analysis and Inventory Branch (FAIB).

KEY INITIATIVES:	ACTIONS:
Prioritize forest health treatments on landscapes based on risk	● Plan and implement targeted and effective treatments in a timely and biologically sound manner to achieve optimum results. ● Develop bark beetle and defoliator management plans prior to outbreaks.
Collaborate on climate change modelling for priority FH factors	● Develop a spatially explicit climate change layer for planning FH mitigation efforts (e.g., bark beetles). ● Support research projects to develop FH factor dynamics models (e.g., degree day models).
Identify links to major initiatives across programs where FH is already a part of the process • Wildfire • Cumulative effects – forest biodiversity • Old Growth • Carbon accounting and capture • Climate-Based Seed Transfer (CBST)	● Integrate management of FH factors into post-wildfire response protocols (e.g., bark beetles, black army cutworm, Rhizina root disease). ● Integrate FH into the cumulative effects framework. ● Evaluate the feasibility of using existing cumulative effects framework protocols to derive a forest health-centric assessment of current conditions. ● Participate in devising options around innovative silvicultural systems for improving old growth management. ● Collaborate with the Future Forest Ecosystem Centre to recognize forest health contributions to carbon capture, storage and release. ● Ensure climate-based reforestation decision aids take into account risk from FHF under a changing environment.

GOAL 2: Incorporate forest health principles and knowledge into guidance, policy and legislation

OUTCOMES: Forest health risks to forest values and management objectives are evaluated as a part of making forest management decisions

KEY INITIATIVES:	ACTIONS:
Promote inclusion of forest health principles and knowledge into other programs and initiatives through Forest Landscape Planning	• Develop key indicators that can be used in FLP areas to track the status of forest health on desired outcomes to support FRPA resource values. • Consider FHF in development of climate change vulnerability assessments.
Ensure provision is made in legislation around Forest Landscape Planning (FLP) to accommodate a forest health risk management framework.	• Ensure input is provided into FLP-related development projects and support is provided to the pilot working tables. • Define future forest conditions that incorporate FHF activity into the definition of forest resilience.
Support FLP development by creating a guide for incorporating forest health into the process at all relevant levels of planning.	• Develop a guidance document for incorporating forest health into FLP at all levels in collaboration with other OCF programs. • Update FRPA General Bulletin #11: Managing Forest Health under the Forest and Range Practices Act.
Correct deficiencies in existing legislation and policy that hinders the quick and efficient treatment of pest outbreaks on Crown lands.	• Create an action list of proposed legislation and policy changes that could be provided to the CF for deliberation. • Recommend government policies that support effective forest health research and its routine translation into evidence-based practices and outcomes.
The principles of ecologically sustainable forest management are embedded in our operations.	• Update the language of the tools and guidance to better reflect changing ecological paradigms.

GOAL 3: Modernize forest health data management, knowledge and decision support tools

OUTCOMES: Forest health data and knowledge dissemination products are accurate, regularly updated and readily accessible to inform our clients

KEY INITIATIVES:	ACTIONS:
Organize existing forest health data from a variety of sources into a searchable data structure	• Create a searchable database of all active and historical forest health research projects.
Migrate and update the forest health knowledge base to the ministry web portal	• Create a Forest Health Data Hub to act as a "one stop shop" for a broad range of client-centric forest health information. • Create FH factor (e.g., bark beetles) or activity (e.g., AOS)-specific dashboards or other data representation tools to assist in making spatial and other data more accessible.
Training and extension services should be available in both an in-person and online or mobile form	• Revitalize field training for pest identification and schedule sessions across the province. • Develop on-line knowledge products (e.g., modules, handbooks) with partners (e.g., silviculture surveys).
Field guides, data forms and training aids should be reimagined as portable device apps	• Review and update field training guides for the major pest groups and create digital versions for web and mobile users. • Convert the TreeDoc diagnostic tool into a mobile application.
Consistent collection, organization, storage, reporting and accessibility of historical and future forest health data	• Adopt research program data organization and storage standards and ensure historic data is properly archived.

Goal 4: Deliver effective and efficient management of forest pathogens and insects, and of climate change impacts

OUTCOMES: Pest mitigation treatments are applied at the most appropriate time to maximize their effectiveness and minimize costs

KEY INITIATIVES:	ACTIONS:
Support research into FHF biology, impact and treatment using a collaborative approach including outside partners	• Continue research projects funded through the various Research Portfolios. • Support the initiative to investigate the impact of pests of subalpine fir across the province. • Continue development of host resistance projects in collaboration with forest geneticists. • Continue research into the impacts from emerging FHF (e.g., Swiss needle cast, declines). • Collaborate with silviculture to design and promote silviculture practices that minimize forest health risks. • Model FHF and the future forest under climate change scenarios (e.g., Future Forest Ecosystem Centre). • Create a peer review process for reviewing research proposals consistent with the forest health research strategy.
Conduct reactive management treatments when they are warranted to protect forest resource values	• Continue to work with districts and tenure holders to deliver effective mitigation of bark beetle activity and damage. • Continue to monitor and treat defoliator populations to mitigate impacts on resource values.

KEY INITIATIVES:

ACTIONS:

Promote stand-level proactive mitigation treatments for resident pathological pests like root diseases, dwarf mistletoes and stem rusts that can be best managed during harvest and silviculture operations	● Incorporate incentives to conduct treatment activities to suppress the impact of resident pathogens on Crown lands through the appraisal system. ● Require operational plans to account for risk to forest values in the FLP process.
Support the detection and rapid eradication of non-native forest pest introductions by maintaining working relationships with other ministries and federal agencies	● Support the Inter-Ministry Invasive Species Working Group in co-ordinating response to invasive species. ● Work jointly with partners through information sharing networks such as the BC Plant Protection Advisory Council and Invasive Species Council to co-ordinate detection and treatment efforts to eradicate invasive species.
Development of research strategies and priorities for both pathology and entomology programs with linkages to other disciplines	● Create a forest health research strategy describing goals, intended outcomes and collaborations.

Goal 5: Adopt a business model that supports proactive and reactive program priorities and operational activities

OUTCOMES: Proactive, long-term program needs like research and monitoring are not sacrificed to reactive, short-term operational needs

KEY INITIATIVES:	ACTIONS:
Create annual budget requests that clearly separate the proactive and the reactive needs of the program	• Create annual budget submissions that reflect the proactive and reactive activities necessary for the success of the program. • Develop a risk-based agile budgeting structure to facilitate early season project starts and educate staff in its use.
Support districts in creating, where necessary, clear district forest health plans, and annual budget requests that reflect operational capacity	• Initiate reporting of accomplishments at the district and regional level through annual reporting.
Develop models for evaluating return on investment for forest health treatments	• Incorporate economic analysis into future forest modelling scenarios. • Use existing projects (e.g., bark beetle analysis) to inform current and future return on investment monitoring.

Goal 6: Foster a learning culture of professional development and continuous improvement

OUTCOMES: The forest heath program is delivered by a professional team of well-trained and respected subject matter experts

KEY INITIATIVES:	ACTIONS:
Incorporate the principles of reconciliation into the workings of the program	• Acquire training to support engagement and reconciliation with First Nations communities and organizations. • Develop partnerships with First Nations in the collection of forest health monitoring data.
Where applicable, ensure the team members meet the standard required by their professional organizations under the Professional Governance Act	• Hire the most qualified individual for every vacancy that occurs within the program. • When practical, use the Under-Implementation pilot MOU to hire otherwise qualified candidates and guide them to achieving an appropriate professional designation.

KEY INITIATIVES:

ACTIONS:

Support professional development where staff interact regularly with their communities of practice and share their knowledge

- Create an onboarding survival guide for new branch and regional specialist hires.
- Continue to use forums like the annual forest health community of practice workshops to promote skills and knowledge training.
- Support specialists attendance at professional forums to foster interaction with colleagues and promote knowledge transfer.

Collaborations with internal and external partners to improve information flow, technology transfer and involvement in joint projects

- Extend collaboration beyond traditional partners into areas such as contracting, recruiting and project management to develop new pools of talent.
- Expand the use of co-op education students and other work experience programs to engage potential future specialists early in their career development.
- Explore the use of auxiliary hires and temporary assignments to recruit specialists for projects that require specialized expertise.
- Develop on-line materials for schools or other external agencies to promote forest health and forest management concepts (e.g., National Forestry Week).