

A Climate Change Vulnerability Assessment for B.C.'s Managed Forests

B.C. is working to adapt its forest management framework in order to foster resilient and productive ecosystems in the face of climate change. Profound changes to BC's forests this century will likely be caused by more frequent and severe natural disturbance events (especially fire, insects, and diseases). As climate will continue to change over the next 100 years and affect BC natural resources, vulnerability assessments can provide key information to inform adaptation. This report examines the impacts of climate change, exposure, and sensitivity in BC's managed forests with regard to:

Hydrology and Aquatic Ecosystems

- Climate change and extreme weather will affect the timing and magnitude of streamflow, reduce water availability, increase stream temperatures, windthrow, flooding and landslides.

Natural Disturbances

- Most types of disturbance are expected to increase in BC, including those from insects and disease, fire, drought, wind, mass movement and flooding.

Soils

- Alteration of the carbon sequestration, nutrient availability, and composition of biotic communities in soils may occur.

Forested Ecosystems

- With climate change, all climate habitats (climate variables associated with BEC zones) are shifting; in particular, the climate envelopes of tree species are shifting upslope and north.

Wildlife

- Although wildlife are adapted to a wide range of climatic conditions, extreme weather and natural disturbance will result in loss of habitat and increased mortality from disruptions in food supply and increased exposure to predators.

The assessment draw upon three regional case studies to better understand the impacts of the multiple climate-related changes on forest values and to develop appropriate management responses. It examines a suite of potential management responses that could reduce impacts, and identifies barriers to implementation. Most of these management responses (apart from assisted migration) are not novel; rather, they are elements of ecosystem-based management that require broader application. They fall under two broad categories:

Adaptation Strategies

- Reduce risks to forest ecosystems; and,
- Reduce risks to forestry-dependent communities.

Recommendations to Increase Adaptive Capacity

- Build institutional support;
- Improve planning capacity;
- Increase knowledge;
- Use a provincial advisory committee to “guide adaptation investment.”

The recommendations in this report are designed to protect communities, reduce risks to BC's forest resources, and demonstrate responsible stewardship. These benefits are of major importance in improving ecosystem health and fostering public confidence in BC's resource management. For specifics, refer to the Provincial Vulnerability Assessment ([Executive Summary](#) or [full report](#)).