CCFM CLIMATE CHANGE ADAPTATION REPORT SERIES

Climate Change Adaptation and Sustainable Forest Management: Preparing for the Future

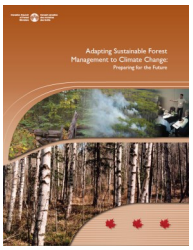
Photo Credit: Jason Edwards

To minimize the risks and maximize the opportunities posed by climate change to Canada's forests and the forest sector, the Canadian Council of Forest Ministers (CCFM), at the request of Premiers, initiated collaborative work on adaptation in forestry. Phase 1 of this inter-jurisdictional effort, completed in 2010, provided an assessment of tree species vulnerability. Phase 2 provides tools and state-of-the-knowledge information to members of Canada's forest sector to better equip them in their efforts to incorporate climate change considerations into all aspects of sustainable forest management (SFM). Described in a series of ten reports, this material in conjunction with workshops, seminars, and presentations is helping Canadian forest practitioners as they prepare for the future.

Canadian Council of Forest Ministers
Conseil canadien des ministres des forêts

Adapting Sustainable Forest Management to Climate Change

The Case for Adapting SFM



Preparing for the Future

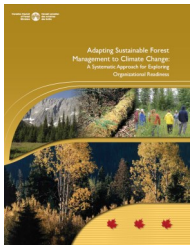
Edwards J.E.; Hirsch, K.G. 2012.

Climate change is an unprecedented issue in modern times, posing a number of challenges to sustainable forest management (SFM) in Canada. These challenges include how best to plan and adapt for an uncertain future. The Canadian Council of Forest Ministers (CCFM) has recognized the need to minimize the risks and maximize the opportunities that climate change presents for Canada's forests and forest sector and has therefore initiated collaborative, interjurisdictional work on adaptation in forestry.

This report briefly characterizes the issue of climate change as it relates to SFM in Canada and outlines the importance and benefits of adaptation for Canada's forest sector. Additionally, it presents the CCFM approach for adapting SFM to a changing climate and summarizes a suite of tools and products that the CCFM has developed to enhance the capacity of the Canadian forest sector to adapt to climatic changes.

Edwards J.E.; Hirsch, K.G. 2012. Adapting sustainable forest management to climate change: preparing for the future. Can. Counc. For. Minist., Ottawa, ON.

Preparing For Adaptation



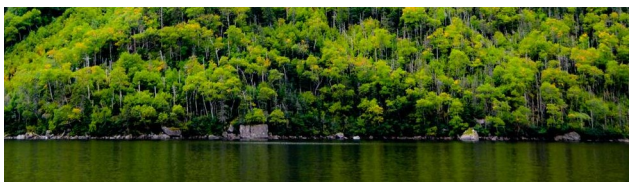
A Systematic Approach for Exploring Organizational Readiness

Gray, P.A. 2012.

Any organization planning to proactively manage for climate change effects needs a game plan. A crucial first step is to identify the strengths and capabilities, along with weaknesses and gaps, that will affect the organization's readiness to respond to the challenges of climate change. The organizational readiness of any business or other entity is based on its own combination of institutional structure and function, financial resources, acquisition and use of information, know-how, and adaptive decision making. Given that Canada is an ecologically diverse, multijurisdictional country, a single prescriptive approach to evaluating organizational readiness to address climate change is not possible.

This report describes a systematic approach that practitioners can use to develop and answer a specific suite of questions that will in turn help them to assess their respective organizations' readiness to adapt to the effects of climate change.

Gray, P.A. 2012. Adapting sustainable forest management to climate change: a systematic approach for exploring organizational readiness. Can. Counc. For. Minist., Ottawa, ON.



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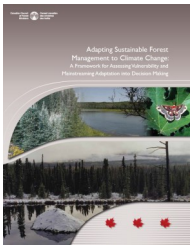
Adapting Sustainable Forest Management to Climate Change

The Adaptation Blueprint



A Framework for Assessing Vulnerability and Mainstreaming Adaptation into Decision Making

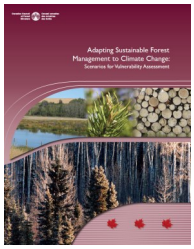
Williamson, T.B.; Campagna, M.A.; Ogden, A.E. 2012.

Vulnerability assessments integrate information about a system's sensitivity and exposure to climate change as well as its ability to adapt. Such assessments are used around the world as a basis for informing climate change adaptation policies and practices but rarely have been explicitly applied to SFM in Canada.

This document presents a flexible and broadly applicable assessment framework that enables forest managers to better understand how sustainable forest management is vulnerable to current and potential future climatic conditions and how such information can be incorporated into adaptation decision making on an ongoing basis.

Williamson, T.B.; Campagna, M.A.; Ogden, A.E. 2012. Adapting sustainable forest management to climate change: a framework for assessing vulnerability and mainstreaming adaptation into decision making. Can. Counc. For. Minist., Ottawa, ON.

Exploring Futures



Scenarios for Vulnerability Assessment

Price, D.T. and Isaac, K.J. 2012.

Scenarios represent an important tool for decision makers to use in exploring the causes and effects of possible changes in future environmental conditions and the implications of those changes for forests and the social, environmental, and economic benefits that forests provide. Scenario analysis allows managers and other stakeholders to evaluate the consequences of plausible alternative futures for forest management and to develop robust adaptation strategies.

This report addresses the origins of the scenarios that will be needed to assess the impacts of climate change and other stressors on managed forest systems. It examines how scenarios can be constructed for application at local scales, using both top–down (downscaling from global and regional projections) and bottom–up (accounting for local trends and projections) approaches. Practical examples of using scenarios for impact assessment in forestry are briefly reviewed in four case studies from across Canada.

Price, D.T.; Isaac K.J. 2012. Adapting sustainable forest management to climate change: scenarios for vulnerability assessment. Can. Counc. For. Minist., Ottawa, ON.

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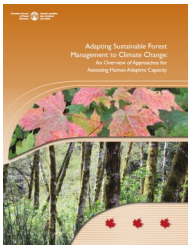
Adapting Sustainable Forest Management to Climate Change

Assessing Adaptability



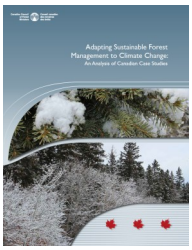
An Overview of Approaches for Assessing Human Adaptive Capacity

Williamson, T.B. and Isaac, K.J. 2013.

Evaluating the capacity of the human elements of an SFM system to adapt to climate change, be it a company, community, or government, is essential to any vulnerability assessment. This report presents an overview of assessment techniques, concepts, and approaches for describing and analyzing human adaptive capacity, and some general high-level options for enhancing it. Relevant case studies are reviewed to provide tangible illustrations.

Williamson, T.B.; Isaac, K.J. 2012. Adapting sustainable forest management to climate change: an overview of approaches for assessing human adaptive capacity. Can. Counc. For. Minist., Ottawa, ON.

Case Studies of SFM Adaptation



An Analysis of Canadian Case Studies

Johnston, M.H.; and Edwards, J.E. 2013.

While vulnerability assessments are an established methodology for adaptation planning, the CCFM recognizes that there are many other approaches that are equally valid. Drawing from a number of different vulnerability assessment initiatives from across Canada, this report provides a comprehensive synthesis and analysis of the best practices and lessons learned by those undertaking vulnerability assessments associated with various aspects of sustainable forest management. Many of the projects are testing all or parts of the CCFM approach to adapting SFM to a changing climate.

Johnston, M.H.; Edwards, J.E. 2013. Adapting sustainable forest management to climate change: an analysis of Canadian case studies. Can. Counc. For. Minist., Ottawa, ON.

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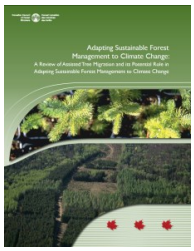
Adapting Sustainable Forest Management to Climate Change

Assessing Assisted Migration Options



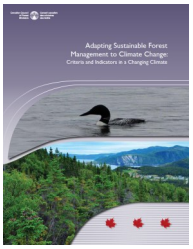
A Review of Assisted Migration and its Potential Role in Adapting SFM to Climate Change

Ste-Marie, C. 2014.

This summary report provides an overview of assisted tree migration, describes many of the potential opportunities and risks associated with this strategy, and outlines current thinking on responsible implementation of assisted migration of tree species. Informed and open discussion among all players with an interest in the future of Canada's forests will be key to exploring the assisted migration option. This report seeks to provide a balanced overview to inform the emerging dialogue on this topic.

Ste-Marie, C. (Compiler). 2014. A review of assisted migration and its potential role in adapting sustainable forest management to climate change. Can. Counc. For. Minist., Ottawa, ON.

SFM Criteria and Indicators



Criteria and Indicators in a Changing Climate

Williamson, T.B. and Edwards, J.E. 2014.

Climate change poses unprecedented challenges to forest management and may alter the effectiveness of current criteria and indicators in defining and reporting on progress toward SFM. Decisions about how the existing SFM criteria and indicators can be updated to account for climate change seem warranted. However, incorporating climate change into the SFM criteria and indicators framework is not straightforward. Efforts to do so will ultimately require broad discussion and consultation at multiple scales on how progress toward SFM is to be defined and measured under a changing climate.

This report considers ways in which the criteria and indicators for SFM developed by the Canadian Council of Forest Ministers might be affected by climate change and examines options for updating them to account for climate change.

Williamson, T.B.; Edwards, J.E. 2014. Adapting sustainable forest management to climate change: criteria and indicators in a changing climate. Can. Counc. For. Minist., Ottawa, ON.

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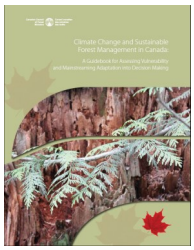
Adapting Sustainable Forest Management to Climate Change

The "How-to" Manual



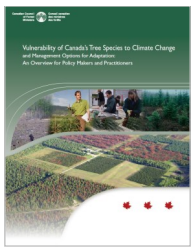
A Guidebook for Assessing Vulnerability and Mainstreaming Adaptation into Decision Making

Edwards, J.E.; Pearce, C.; Ogden, A.E.; Williamson, T.B. 2015.

This guidebook provides practical "how-to" advice to aid forest practitioners in applying the CCFM approach to vulnerability assessment and adaptation planning for sustainable forest management. It provides step-by-step details about how to complete vulnerability and adaptation assessments and includes easy-to-follow worksheets and numerous examples from SFM adaptation assessments already underway in Canada.

Edwards, J.E.; Pearce, C.; Ogden, A.E.; Williamson, T.B. 2015. Climate Change and Sustainable Forest Management in Canada: A Guidebook for Assessing Vulnerability and Mainstreaming Adaptation into Decision Making . Can. Counc. For. Minist., Ottawa, ON.

Vulnerability of Tree Species



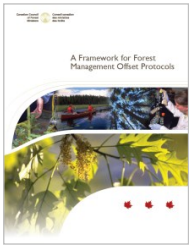
Vulnerability of Canada's Tree Species to Climate Change and Management Options for Adaptation: An Overview for Policy Makers and Practitioners

Johnston, M. 2009.

Forests are climate sensitive and many tree species are showing signs of stress due to climate variability and climate change. This report provides a systematic assessment of tree species vulnerability, identifies potential management actions that will assist decision-makers in adapting to the impacts of climate change, and outlines key knowledge gaps related to our understanding of both species vulnerability and adaptation. This document will be useful for those involved in silviculture, forest management, policy and practices.

Johnston, M. 2009. Vulnerability of Canada's tree species to climate change and management options for adaptation: an overview for policy makers and practitioners. Can. Counc. For. Minist., Ottawa, ON.

Additional Climate Change Task Force Reports



A Framework for Forest Management Offset Protocols

2009.

Canadian Council of Forest Ministers. 2009. A framework for forest management offset protocols. Can. Counc. For. Minist., Ottawa, ON.

For more information on these reports contact:

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