

Managing forests for future challenges: A literature review

As climate change shifts environmental regimes globally, understanding how decision-makers can increase their capacity to adapt to known threats and anticipate the unknown is increasingly critical to preserving ecological and social systems. In Canada, climate change is impacting forests through more frequent and severe wildfires, droughts, and pest outbreaks. This study synthesizes research on anticipatory decision-making in forestry and forest governance to shed light on current approaches to managing for known and unknown future threats.

Research Questions

1. How does the literature on forest management incorporate “anticipatory governance” to manage for known threats (reactive, adaptive) and the unknown future threats (proactive, anticipatory)?
2. How is future planning defined (adaptation, anticipation), what rationales are given for managing future risks, and what methods are used to develop and implement future plans?

Highlights of Findings

There is a variety of approaches to future planning in the literature:

- **Adaptive management**, in contrast to “traditional forestry practices”, acknowledges that forests are experiencing unprecedented conditions and past approaches may not be adequate in future.
- Where adaptive management deals with *known risks*, **anticipatory management** is more focused on predicting and planning for *unknown risks* and future unknown conditions.
- **Anticipatory adaptation** is very broad in its use, from adapting rural communities to climate change and reducing the impacts of climate events to anticipating changes in local values and adaptive capacity.
- **Adaptive co-management** is unique in its focus on *how* to achieve anticipatory management goals. In community forestry, this is usually accomplished by empowering local authorities and individuals to take action, ensuring that resource management is done in a way that sustains traditional ways of being.

Management/Policy Implications

This review provides an overview of different approaches to anticipatory management. Understanding how anticipatory management has been done can provide forest managers, policymakers, and communities with additional tools and strategies to assess and deal with future known and unknown threats.

Future Research

Despite the prevalence of forestry in Canada, this review did not find any papers that looked at the future management of Canadian forests. Future research should examine how anticipatory management is done in practice in Canada, and the challenges of working across jurisdictions (e.g. nation-to-nation, federal-provincial).

For more information on this study: Contact the study team for the full report.

Study Team Leads: Vivian Nguyen, Carleton University (viviannguyen@cunet.carleton.ca), Nicole Klenk, University of Toronto (nicole.klenk@utoronto.ca), Stephan Schott, Carleton University (stephanschott@cunet.carleton.ca)