



Forest
Practices
Board

Tactical Forest Planning: The Missing Link Between Strategic Planning and Operational Planning in BC

SPECIAL REPORT

JUNE 2019

FPB/SR/58

TABLE OF CONTENTS

SUMMARY	i
INTRODUCTION	1
TACTICAL FOREST PLANNING – A TRANSFORMATIVE APPROACH TO FOREST RESOURCE PLANNING	3
Characteristics of Robust Tactical Forest Planning	5
Who are the Partners in the Process?	7
MAKING THIS HAPPEN	8
Managing Complexity	9
CONCLUSION	10

SUMMARY

Good forest management requires good planning. Good planning occurs at multiple levels and in increasing detail, from the strategic to operations on the ground. In British Columbia, objectives for multiple, potentially competing, values are provided by government, typically through strategic land use plans increasingly prepared in partnership with First Nations. At the operational scale, forest professionals undertake detailed planning to direct forestry activities. What is largely missing in BC is a process for planning at an intermediate level to translate government's broad objectives and provide clear and tangible direction to operational planning by forest professionals.

In its proposed changes to the *Forest and Range Practices Act*, the provincial government has recognized the need for coordinated planning between strategic and operational plans to “resolve overlapping government direction and coordinate resource management objectives, targets and strategies.”¹ The Board supports this important initiative. The need for what government is calling “landscape-level planning” is more critical now than at any time in the past, as forest resources are increasingly affected by the cumulative effects of multiple developments and natural disturbances due to climate change.

In forest management, “tactical forest planning” is an approach to planning between strategic and operational plans that is potentially transformative for how we manage BC's forests. Tactical forest planning is a process of designing a future forest that involves the interaction of:

- a *social process* to define a vision for the ‘desired future forest’; the process should be based on a partnership between the provincial government and Indigenous peoples and provide for meaningful consultation with stakeholders and the public, and
- a *technical process*, using computer modeling, current data, local knowledge, and expert opinion, to identify feasible management approaches to achieve the desired future forest. The outputs are clear, measurable, and achievable targets that can be applied to operational forest plans.

Tactical forest planning recognizes that each forest resource needs to be considered at a scale appropriate to it—whether it be a fisheries sensitive watershed, the home range of a large predator, or an economic unit for

¹ Forest and Range Practices Act Improvement Initiative: Renewal and Resilience Discussion Paper – <https://engage.gov.bc.ca/forestandrangepactices>.

forestry planning. It is forward looking, using computer models to project the location of forestry activities over space and time to plan for the best outcome for the various forest resources of concern.

Among its many benefits, comprehensive tactical forest planning could streamline or eliminate some of the current requirements of operational planning and might satisfy the demand for many single issue tactical plans such as access plans, fuel management plans, silviculture strategies, etc. The technology behind these plans makes them readily adaptable to changing forest conditions or as new information becomes available. Flexibility is vital when our forests are transforming rapidly under a changing climate.

The Board recommends that tactical forest planning be implemented throughout the province to fill the missing link between strategic and operational planning and that it be based on the following principles:

1. **Inclusive** – it is a platform for collaboration. The process facilitates shared decision making with Indigenous people. The process allows for meaningful consultation with the public where concerns about their values can be addressed.
2. **Integrative** – the process simultaneously considers all values and all natural resource management activities, issues and opportunities in the design area.
3. **Place based and forward looking** – plans are explicit in space and time. The plan shows where and roughly when forestry activities might happen and where and when objectives for values might be achieved on the land.
4. **Embedded in the forest management system** – plans are consistent with strategic land use plans and government to government agreements, they provide direction to operational plans under the *Forest and Range Practices Act*, and are approved by the province.²
5. **Continuous improvement** – monitoring of plan implementation and effectiveness is fundamental and is built into the process design to provide feedback to adapt and continuously improve plan outcomes over time.

The Board believes that implementing tactical forest planning would strengthen public confidence in forest management and contribute to improved stewardship of BC's forest resources.

² There are many models for how plans can be developed including provincial led processes, joint province/First Nations processes, delegated models, and other forms of partnerships. Further work is required to explore the range of models for developing tactical plans.

INTRODUCTION

“Many environmental forest resources and values need to be managed and conserved over larger areas of land than individual cutblocks and roads. The practices to protect these values need to be planned and implemented at ‘watershed’ or ‘landscape’ scales.”

-- Forest Practices Board 1999 Annual Report

For 20 years the Forest Practices Board has been advocating for forest management planning that looks beyond operational planning of individual cutblocks and considers the entire landscape where forestry is conducted.

Doing forestry properly is complex. It requires forest professionals to consider the implications of their planned activities on multiple forest values over large areas, both in the short term, during and after logging, and over the time it takes for a replacement forest to regrow.

Making that undertaking more manageable traditionally involves a “three-level planning framework, in which strategic, tactical, and operational plans are developed with successively greater detail and spatial explicitness.”¹ Figure 1 illustrates the Board’s view of the relationships among strategic processes, tactical planning, and operational planning.³

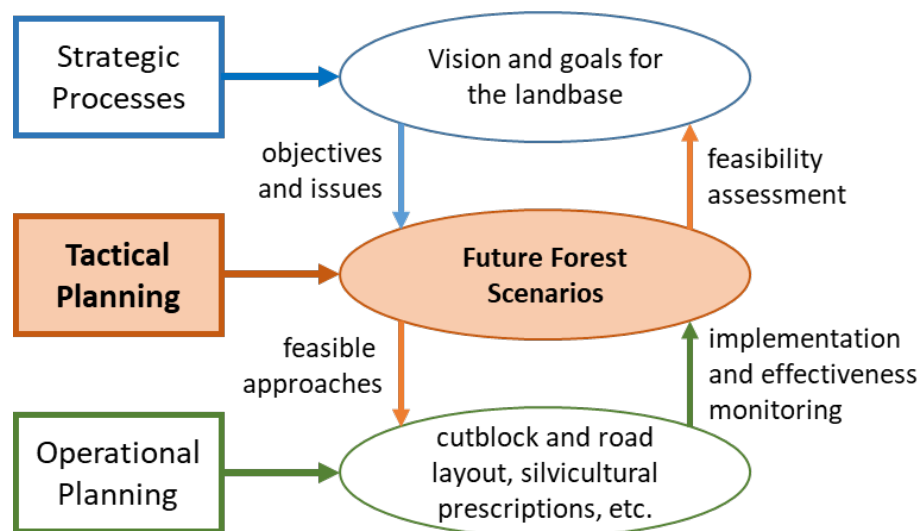


Figure 1. Relationships among forest planning components. The Board focuses on tactical planning in this report.

³ Some strategic direction for forest resources is provided by land use plans, some of which have been established as legal requirements. The *Forest Planning and Practices Regulation of the Forest and Range Practices Act (FRPA)* contains strategic “objectives set by government “for some ‘FRPA values’ that apply to forest practices throughout the province. Other goals and objectives, such as the Provincial Timber Management Goals, Objectives and Targets, remain in policy.

Broad scale, strategic objectives have been developed for many values in British Columbia's forests. However, BC currently lacks a consistent and comprehensive process to plan at a level between strategic and operational plans. Planning is needed at this intermediate level to provide clear direction on how strategic objectives can be met for multiple, and often competing, values.

There are two reasons why strategic direction alone, without tactical planning at the intermediate level, is insufficient to direct operational planning:

1. Strategic goals and objectives are often broadly stated or ambiguous; they tend to be 'aspirational' rather than specific and measurable.
2. They may be outdated. In BC, strategic plans are often decades old and can only be incorporated in operational plans by considering the implications of current and emerging conditions.

In addition, there are values that have not been fully considered in strategic processes and, as a result, there are few objectives for those values. A good example is the function of forests in storing carbon.

The need for intermediate-level, tactical planning in forest management is more critical now than at any time in the past because:

- It is increasingly apparent that many issues of importance to the public, such as managing forestry impacts on water flow and wildlife habitat, are difficult to address on a cutblock by cutblock basis;
- Current and predicted changes in climate will accentuate issues that cannot be resolved at the cutblock level; issues like managing fuels to address risk of wildfire, or fluctuating stream flows.
- Planning at this level provides an opportunity to engage in meaningful partnerships with Indigenous peoples in forest management planning, consistent with government's commitment to implement the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).
- Members of the public are demanding opportunities for consultation about forest management before operational decisions are being made; their concerns are often related to landscape scale issues.

Tactical planning does already occur in BC. However, it is inconsistently applied across the province and most plans address only some of the forest values and management issues in the plan area. The following are some examples of this type of planning:

- *Sustainable Resource Management Plans*, have been developed following approval of Strategic Land Use Plans.ⁱⁱ These cover only a small portion of the province and their scope varies significantly from place to place.

- **Landscape Unit Plans** have been prepared over much of the province to implement biodiversity objectives. These plans primarily set targets for old growth retention, either aspatially or spatially in old growth management areas. Occasionally, other forest attributes related to biodiversity, such as patch size and connectivity, have been specified through these planning processes.
- **Integrated Silviculture Strategies (ISS)** have been piloted in a number of timber supply areas. These plans have evolved over time to include an increasing number of forest values. In a few situations, these have evolved to become integrated stewardship strategies, which are similar to the multi-value planning envisioned by the Board.ⁱⁱⁱ
- **Fuel Management Plans** are being prepared and implemented in some management units to target areas for enhanced management of forest fuels as part of wildfire prevention.

TACTICAL FOREST PLANNING – A TRANSFORMATIVE APPROACH TO FOREST RESOURCE PLANNING

WHAT IS “TACTICAL FOREST PLANNING”?

In the hierarchy of forest management, *tactical forest planning* is an approach to planning at an intermediate scale (between strategic and operational). Strategic planning establishes broad goals and land uses, and tactical forest planning determines how to achieve those broad goals.

It uses spatially-explicit decision support tools to predict the implications for forestry activities on multiple forest resources over space and time, and translates this into management targets to achieve a desired future condition for an area of forest and its resources.

Government is considering introducing a new level of planning into the *Forest and Range Practices Act* (FRPA). The Board sees this as an opportunity to use the learnings from in BC and other jurisdictions and benefit from advances in computer modelling to adopt an approach to planning that transforms how we manage forest resources in BC. We call this “tactical forest planning.”

The Board envisions tactical forest planning as a process of forest design that would require a mix of vision (*what do we want from our forests*) and execution (*how will we get there*).

The first step would be a forward looking, collaborative process to define a ‘desired future forest’. This would be based on the goals and objectives set out in a strategic plan, consideration of the ecosystem structure and functions, and consideration of other factors such as the likely future climate. A computerized model of forest management, explicit in space and time, would then be used to develop and test feasible management approaches to get us to the desired future forest over time.

As next steps, partners in the process would develop clear, measurable and achievable targets for the future forest and its resources. Targets for forest attributes such as age class, species composition, structure (patch size) and even *forest resilience* could be clearly defined, as could targets for non-timber values such as wildlife habitat, water and visual quality.⁴

As the plan is developed, targets would be tested to assess their effect on other forest resources, including timber supply. These targets would be applied in operational planning for activities such as fuel management, harvesting, or reforestation while preventing or mitigating effects on other resources.

The implementation of the final plan would be clearly linked to effectiveness monitoring, cumulative effects assessments and regional strategic assessments, in a true continuous improvement cycle.

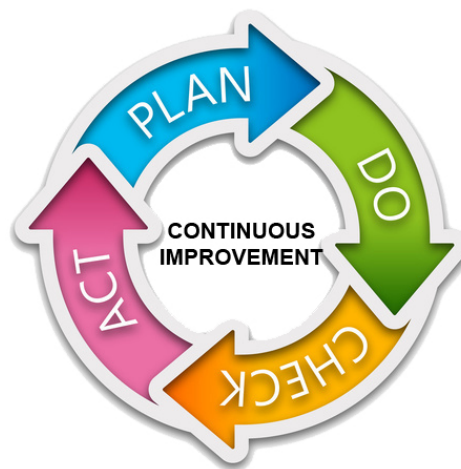
Once information for a planning area is assembled and the computer models built, changes and updates to the plan could be made in response to changed conditions, such as sudden transformation of a landscape due to wildfire, changed social values, or when important new information becomes available.

The Board envisions tactical forest planning as an integral part of BC's overall forest management framework. All of the three planning levels—strategic, tactical and operational—need to be robust for the overall framework to be effective.

Government has initiated a program of “modernized land use planning” to strengthen and fill gaps in strategic land use objectives and zoning across the province. Some existing strategic plans already provide specific, measurable direction, in which case, tactical forest planning can help to confirm existing direction or fill gaps that were not contemplated at a higher level (such as landscape level stocking standards or landscape fuel management). Land use plans that have been completed in partnership with Indigenous peoples will direct and greatly facilitate the completion of subsequent tactical forest plans.

RESILIENCE: AN ESSENTIAL PART OF THE DESIRED FUTURE FOREST

Resilience is the capacity of an ecosystem to absorb disturbance without collapsing into a qualitatively different state. Forest resilience is increasingly viewed as a property that is critical to address, given the high levels of uncertainty under climate change. If resilience is an overarching goal, then the desired future forest can, in part, be defined by the characteristics that promote or sustain its resilience.



⁴ Acknowledging that uncertainty increases the further one projects into the future.

The outputs of tactical forest planning provide clear, measurable and operationally feasible direction to forest management at a scale that is appropriate to protect forest resources. With this level of planning in place, operational forest planning would be more robust and provide better on-the-ground management of BC's forest resources.

Characteristics of Robust Tactical Forest Planning

In the Board's view, a tactical forest planning process for BC would involve two interacting components:

- A *social component* in which partners in the process define a desired future forest. This involves ensuring all values are being considered and converting existing strategic objectives to specific targets for indicators that can be measured and modeled. Tradeoffs among targets for objectives would be made, where required, to identify feasible approaches to achieving the desired future forest.
- A *technical component* in which a model of the forest management system is developed. This involves data collection and preparation, developing a computer model of all components of the system (for example, hydrology and forest harvesting) and simulating scenarios showing the implications of possible desired future forest states and targets to get there.

The following are some suggested characteristics of robust tactical forest planning for BC.

The Planning Area

The area for each tactical forest plan would be the "management unit," the area over which allowable annual cut determinations are made. Anything larger would be too big for meaningful stakeholder involvement. Anything smaller would make it difficult to assess the feasibility of achieving the timber value. In some situations, several management units could be combined for efficiency and to form better ecological planning units (for example, where small area based tenures are embedded in a larger timber supply area).

Spatial Scale

Spatial scales appropriate to the values must be considered; for example, water quantity and flow at the watershed scale, biodiversity at the landscape scale, wildlife at the population scale. With modern planning tools (i.e., computer models), multiscale planning is feasible and efficient.

Temporal Scale

The modeling of the system, and reporting on the output, would be done at multiple scales of time and space. Projections of the long-term future (150 or more years) implications of management decisions are needed and we need to be able to see where forestry activities (roads and cutblocks) are likely to occur in the near future (5 to 20 years).

Values to be Considered

The values and issues that need to be considered in tactical forest planning will vary based on local circumstances. However, they would normally include, at a minimum, all of the values identified in FRPA, as well as access management, fuel management, and carbon storage. Looking forward, planning for ecosystem resilience will be an essential step for adapting to a changing climate.

Information

A foundation for any planning process is to have relevant and reliable information available. The concept of using best available information is widely adopted in planning. This requires a well thought out strategy to identify information needs for planning, to assess current data gaps, and to prioritize information collection based on risk and cost effectiveness. Information for resource management will always be imperfect, so the planning process also needs to recognize uncertainty and incorporate adaptive management. In some areas of the province this information strategy can be based on trusted data that has been collected collaboratively with First Nations through initiatives such as the Environmental Stewardship Initiative or Collaborative Stewardship Framework.

Who are the Partners in the Process?

The Board envisions partnerships in planning between the province and Indigenous peoples. This would be consistent with the provincial government's commitment to implement the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

JOINTLY DEVELOPED LAND USE PLANS

There are many examples of jointly developed land use plans, including the plan completed between the Gitanyow Nation and the Province, which provides zoning, objectives, measures/indicators and targets for multiple forest resources, including water, biodiversity, pine mushrooms, wildlife, fisheries, cultural heritage and timber. The Great Bear Rainforest Agreement covers 6.4 million hectares and was completed in a partnership between Coastal First Nations, Nanwakolas Council and other individual First Nations.

Good examples of how to undertake shared planning with Indigenous peoples can be found in the government to government land use plans developed in BC and in other emerging reconciliation and engagement frameworks. To date, there are limited examples in BC of plans developed in partnership with Indigenous peoples using the tactical forest planning approach; pilot projects to develop these processes may be useful.

Tactical forest plans would also enable meaningful consultation with members of the public and stakeholders. They would 'see' what might happen and when and where it might happen; enabling them to understand, and provide their perspective on, the potential future of the forests.

Overall, with tactical forest planning, planning in partnership with Indigenous peoples and in consultation with members of the public and stakeholders is likely to be more effective because it occurs at the level above operational plans, where the landscape context can be contemplated and when there is greater flexibility to explore and find solutions.

LESSONS LEARNED FROM OTHER TACTICAL FOREST PLANS

BC can benefit from the lessons learned in tactical forest planning done in other jurisdictions (Canadian examples; Alberta,^{iv} Model Forest Network^v). For readers unfamiliar with the principles of tactical forest planning, Chapter 12 of the book "Towards Sustainable Management of the Boreal Forest"^{vi} lays out the theory and practice. There are also lessons to be learned from developing Landscape Unit Plans^{vii} and Integrated Stewardship Strategies^{viii} in BC. The Board has identified the Fort St John Code Pilot as a good example of the technical aspects of a tactical forestry plan, however it was not undertaken as a partnership with Indigenous peoples.^{ix}

MAKING THIS HAPPEN

To be truly transformative in how forest resources are managed in BC, tactical forest planning should be done everywhere that forestry occurs.

The Board is aware that implementing the process would neither be simple nor inexpensive. However, the benefits are significant enough to justify proceeding.

Tactical forest planning has numerous benefits because it could:

- ensure that all land managers in government, First Nations, and industry understand their landbase more fully and how the pieces fit together, as opposed to piecemeal management of individual cutblocks;
- streamline planning by integrating multiple values into a single process
- be forward-thinking, that is, it is about planning proactively for the future and not just the immediate short-term;
- hold government accountable for creating legal and policy direction that can be feasibly implemented through operational planning;
- hold licensees accountable for achieving government's objectives and harvesting their timber profile; and
- involve government, Indigenous peoples and stakeholders in planning to promote reconciliation efforts as well as knowledge transfer and a shared understanding of issues and outcomes.

Once implemented, tactical forest plans could streamline or eliminate some of the current requirements of operational planning, satisfying the demand for many single issue tactical forest plans. There would be economies of scale obtained by including all tactical planning 'under a single roof.'

Tactical forest planning should be a government responsibility. To succeed, it requires a permanent program supported by adequate and sustained resourcing of staff and budget. Government needs to ensure that all the right partners are included, that the best available information is being used and that acceptable protocols and standards for both the technical and social components of the process are developed. Government will need to identify who is accountable to undertake plans, determine who approves the plans and who monitors implementation and effectiveness of the plans.

WHAT ABOUT RANGE?

The Board's focus in this report is on tactical planning in the context of forest management. In places where livestock range is a significant value, it would need to be included in the planning process like all other 'non-timber' values.

The field of tactical planning is most developed in forestry, however, some of the concepts (planning for future climates) may also benefit range. Further discussion on the benefits of tactical planning for range resources would be valuable.

There should be a legal requirement in FRPA to develop and implement comprehensive tactical forest plans everywhere in the province. Those plans must be consistent with approved higher level plans and government to government agreements, and should set local objectives that trigger specific requirements for operational plans.⁵

Due to the importance of this level of planning to good forest practices, the Forest Practices Board believes the public interest would be served by ensuring the oversight functions that the Board has under FRPA include this planning level.

Tactical forest planning is focused on providing direction to forest management. Nevertheless, to be successful, the process would need to consider the cumulative effects of all resource use, including uses not related to forestry such as mining, oil and gas, hydroelectric power and recreational developments, as well as urban and agricultural expansion. The provincial cumulative effects framework, when implemented, should be a platform to facilitate this, as well as regional strategic assessments.

Managing Complexity

**“Forestry is not rocket science;
it is much more complex”**

Dr. Fred Bunnell
(1999)

One of the challenges of any planning process is managing the tension between being thorough and comprehensive planning, and completing a process in a timely manner. Tactical forest planning could become overwhelming because of the number of values and issues to be considered, and the potential for the process to be bogged down in the details of the analysis. Some approaches that can be used to address this issue are:

Ensure the plan is dynamic – design the planning cycle (plan, do, check) so that there are opportunities to plan again in a reasonable timeframe;

Apply a risk-based approach – to identify and direct most of the planning effort to issues that are most important;

Scope and target information assembly – Develop an information and data strategy that focuses resources on the most critical gaps. Ensure information is current and meets defined data quality standards and periodically conduct and/or update inventories as needed to promote confidence that we are using the best available information;

Develop multiple scenarios – by exploring the possible implications of different ‘desired future forests’, there is less pressure to reach one “ideal solution.” This is also a reminder to participants that the computer models only project our assumptions about the future; we cannot predict the future;

⁵ As introduced in Bill No. 21 *Forest and Range Practices Amendment Act*, 2019.

Manage timelines – enough time must be available to develop a durable and enduring plan, however processes also need to have clear timelines so that the results can be implemented on the ground. Timely completion of a good plan will be of more benefit than slow completion of a perfect plan.

Because of the potentially transformative nature of implementing tactical forest planning, consideration should be given to using pilots to test the processes and technical tools required for its effective delivery.

CONCLUSION

Planning for forest management in BC is currently missing a critical level between strategic processes for setting direction (such as land use planning) and operational planning. This tactical level of planning is essential if we are going to move towards a desired future forest for all values. It is particularly critical as a mechanism to create resilient forests that can respond to cumulative effects and the potential effects of climate change. Tactical planning done in partnership with Indigenous peoples could breathe life into the UNDRIP article of “free, prior, and informed consent.”

Tactical forest planning, as envisaged by the Board, rests on the following principles:

1. **Inclusive** – it is a platform for collaboration. The process facilitates shared decision making with Indigenous people. The process allows for meaningful consultation with the public where concerns about their values can be addressed.
2. **Integrative** – the process simultaneously considers all values and all natural resource management activities, issues and opportunities in the design area.
3. **Place based and forward looking** – plans are explicit in space and time. The plan shows where and when forestry activities might happen and where and when objectives for values might be achieved on the land.
4. **Embedded in the forest management system** – plans are consistent with strategic land use plans and government to government agreements, and they provide direction to operational plans under FRPA.
5. **Continuous improvement** – monitoring of plan implementation and effectiveness is fundamental and is built into the process design to provide feedback to adapt and continuously improve plan outcomes over time.

In this special report, the Board has outlined the advantages and principles of tactical forest planning—why we should do it and what it consists of.

The Forest Practices Board strongly supports the concept of “landscape-level planning” proposed by government, to fill the missing link between strategic planning and operational planning. Tactical forest planning would fill this gap, and to be effective, should be based on the principles identified in this report.

The Board recommends that:

The provincial government amend FRPA to include tactical forest planning. The implementation of this planning level should be consistent with five principles:

- Inclusive
- Integrative
- Place based and forward looking
- Embedded in the forest management system
- Continuous improvement

In addition, the mandate of the Forest Practices Board should extend to tactical forest planning.

As important as “why” and “what” of tactical forest planning is the “how” it is done. Effective implementation requires a permanent program, supported by adequate and sustained resourcing of staff and budget. Government needs to develop protocols and standards to guide planning, create an information strategy to support this planning level, ensure the plans are completed in a reasonable timeframe, and ensure there is timely monitoring of their implementation and effectiveness.

Filling in this missing planning gap will likely take several years, but the Board is confident this would provide a strong platform to improve forest practices now and into the future.

THE FOREST PRACTICES BOARD VISION FOR STEWARDSHIP OF BC'S FOREST RESOURCES

1. Planning is comprehensive and based on the best available information while acknowledging future uncertainties.
2. Planning and decision-making are transparent and responsive to input from the public.
3. Practices on the ground sustain ecological, economic and social values.
4. Management incorporates monitoring and continuous learning and is adaptive to new information.
5. Managers demonstrate accountability for outcomes.

Incorporating tactical forest planning at the landscape level embodies all five of the Forest Practices Board stewardship principles.^x The Board believes that implementing tactical forest planning would strengthen public confidence in forest management and contribute to improved stewardship of BC's forest resources.

ENDNOTES

- i Tittler, R., C. Messier, and P. Burton. 2001. "Hierarchical Forest Management Planning and Sustainable Forest Management in the Boreal Forest." *The Forestry Chronicle* 77 (6): 998–1005. <https://doi.org/10.5558/tfc77998-6>.
- ii For example; <https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use/planning/regions/skeena/westbaine-srmp>
- iii <https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/silviculture/silviculture-strategy>
- iv <https://www.alberta.ca/forest-management-plans-overview.aspx>
- v LaPierre, Louis. 2003. "Canada's Model Forest Program." *The Forestry Chronicle* 79 (4): 794–98. <https://doi.org/10.5558/tfc79794-4>.
- vi Burton, Philip Joseph, Christian Messier, Daniel W. Smith, and Wiktor Adamowicz. 2003. *Towards Sustainable Management of the Boreal Forest*. NRC Research Press.
- vii <https://www.for.gov.bc.ca/hfp/publications/00206/Planning10.pdf>
- viii <https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/silviculture/silviculture-strategy-areas>
- ix <https://www.bcfpb.ca/wp-content/uploads/2016/04/009-Volume-9-Information-Bulletin.pdf>
- x BC Forest Practices Board. 2016. *Stewardship – A Forest Practices Board Perspective*. Board Bulletin Volume 17. Available at www.bcfpb.ca/wp-content/uploads/2016/04/Volume-17-Stewardship-A-FPB-Perspective.pdf



**Forest
Practices
Board**

PO Box 9905 Stn Prov Govt

Victoria, BC V8X 9R1 Canada

Tel. 250.213.4700 | Fax 250.213.4725 | Toll Free 1.800.994.5899

For more information on the Board, please visit our website at: www.bcfpb.ca