



Managing Forests not Forestry:

*Law and Policy Recommendations
for Ecosystem-Based Management
of Alberta's Forests*

Environmental Law Centre
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Part 1: An Introduction to Ecosystem Based Management

With approximately 347 million hectares of forest, Canada is home to 9% of the world's forest.¹ About 90% of forest land in Canada is owned by the provinces and territories (with the remaining 10% being owned privately, federally or by Indigenous peoples).² In Alberta, forests cover approximately 35.2 million hectares, the majority of which is owned by the provincial government.³ And most of those publicly owned forests are subject to timber dispositions; meaning that, for most of the forest in Alberta, someone has rights to harvest for timber.⁴

Alberta's forest is primarily boreal forest located in the northern part of the province (77%)⁵ with a strip of subalpine and foothills forest running along the

¹ Natural Resources Canada, *The State of Canada's Forests, Annual Report 2017* (Ottawa: Minister of Natural Resources, 2017) [NRC Annual Report 2017].

² *Ibid.*

³ Canadian Council of Forest Ministers, *Fact Sheet: Forest Governance in the Province of Alberta* [CCFM Fact Sheet].

⁴ 23.4 million hectares of public forests subject to forest management agreements and an additional 4 million hectares subject to other types of timber dispositions, *ibid.*

⁵ *Ibid.*

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eastern slopes of the Rocky Mountains. As forest cover is reduced, there are negative impacts on biodiversity, soil and water quality, and wildlife habitat.⁶ Forests preserve soils, cycle nutrients, support biodiversity, filter air and water pollutants, reduce surface and air temperatures, and play a key role in the carbon cycle.⁷

Although it has undergone some amendments over time, Alberta's *Forests Act* dates from the early 1970's (and retains the tenure and quota framework from an even earlier date). Since that time, there have been fundamental shifts in understanding forests as ecosystems rather than mere stands of timber. Likewise, scientific knowledge and management practices have made significant leaps. It is time to modernize our legislation, moving from regulation of the forestry industry designed to ensure a sustainable supply of timber to ecosystem-based management of our forests.

Ecosystem-based management allows forests to be managed for a multitude of values rather than a primary focus on timber supply. Some important elements of ecosystem-based management include considerations of connectivity, linear and spatial thresholds, species at risk, and adaptive management. As well, opportunities for meaningful public consultation and participation, mechanisms for community management, and monitoring and enforcement tools play important roles in ecosystem-based management.

⁶ NRC Annual Report 2017, *supra*. note 1.

⁷ *Ibid*.

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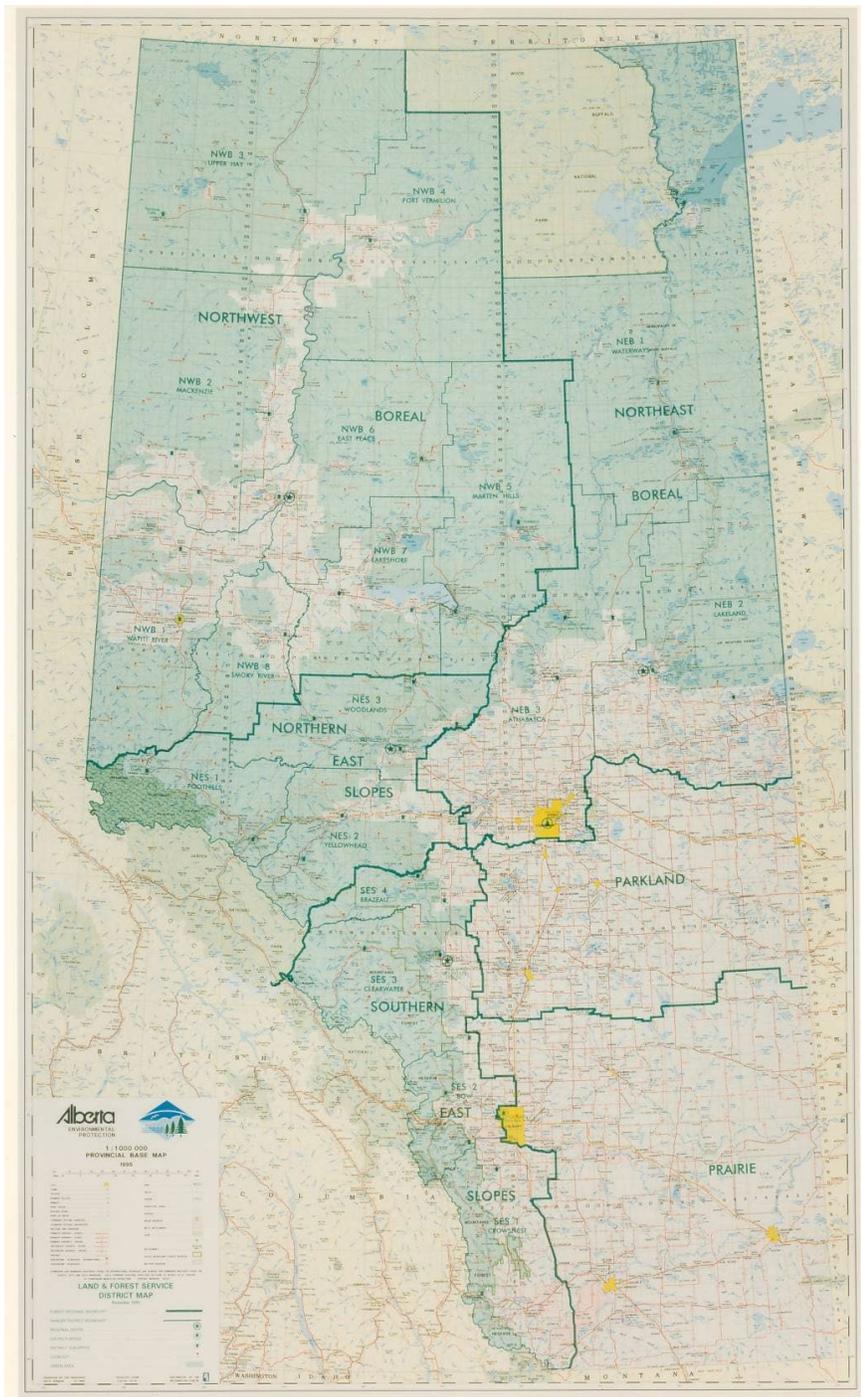


Figure 1:

Map of Forest Areas

From: Government of Alberta, Alberta Reforestation Standard (May 1, 2021), Figure 12-1 at page 298.

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This report consists of five parts:

- **Part 1** introduces the key components and principles of ecosystem-based management and provides a brief overview of Alberta's forest laws and policies.
- **Part 2** looks at the extent to which key components and principles of ecosystem-based management are adopted in Alberta's forest laws and policy.
- **Part 3** provides a review of the laws and policies that currently apply to Alberta's forests.
- **Part 4** reviews forest law and policies that apply in select jurisdictions (Montana; Oregon; Quebec; B.C.; Saskatchewan; Ontario) for lessons in applying an ecosystem-based management approach in Alberta's forests.
- **Part 5** provides a summary of recommendations to move Alberta toward ecosystem-based management of its forests.

Policy Goal

Ultimately, the goal of this project is to move the focus of Alberta's forest law and policy from regulation of the forestry industry to management of forests as ecosystems. This requires a shift from a primary focus on a sustainable timber supply to viewing timber supply as one of many forest values to be sustained.

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1. What is Ecosystem Based Management?

Ecosystem based management (EBM), as used in this report, reflects a fundamental shift in the forest management approach from a primary focus on sustaining timber supply to recognizing the value of forests as ecosystems. In other words, managing forests rather than forestry.

EBM manages forests as integrated functional systems rather than separately managing individual components of a forest.⁸ The general goal of EBM is to maintain ecological integrity with the specific goals of maintaining viable populations, ecosystem representation, protecting the evolutionary potential of species and ecosystems, and accommodating human use in light of the foregoing goals.⁹ This differs from the traditional management goals of maximizing goods and products for human consumption.¹⁰

There is a significant body of work looking at EBM (not just in the context of forestry law and policy). Although there is no scientific consensus on a single, decisive definition of EBM, there is a convergence of principles in the EBM literature including an emphasis on:¹¹

- ecosystem sustainability;
- the inclusion of humans within ecosystems;

⁸ J.P. (Hamish) Kimmins, *Ecosystem Management Tenures: Institutional Arrangements to Promote Stewardship and Sustainability*, prepared for the BC Forum Symposium on November 1, 2006: Creating New Opportunities: Forest Tenure & Land Management in BC (slidedeck).

⁹ R. Edward Grumbine, "What is Ecosystem Management?" (1994) 8(1) *Conservation Biology* 27 [Grumbine].

¹⁰ *Ibid.*

¹¹ Karen Price, Audrey Roburn & Andy MacKinnon, "Ecosystem-based management in the Great Bear Rainforest" (2009) 258(4) *Forest Ecology and Management* 495 at 495.

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- the consideration of multiple spatial and temporal scales;
- an acknowledgment of the dynamic nature of ecosystems and human communities;
- clearly defined management goals and objectives; and
- management strategies based on the best available knowledge of ecological systems.

Similarly, a review by Galindo-Leal and Bunnell found commonalities to the various definitions in the EBM literature which, in their view, are best treated as implications to management actions.¹² These commonalities include:¹³

- Management targets should be built around landform boundaries (such as watersheds) since some aspects of an ecosystem can be mobile and landform boundaries are slow to change.
- Ecologically sound human use (a.k.a. sustainability) is needed and should consider long term productivity, resilience to stress, adaptability to change, and options for the future. Galindo-Leal and Bunnell assert that by including humans, it is an acknowledgement of the social dimensions of management.
- Management should mimic natural disturbance regimes in a way that approximates the natural range of variation.
- Manage for viable populations of all native species.

¹² Carlos Galindo-Leal and Fred L. Bunnell, "Ecosystem management: Implications and opportunities of a new paradigm" (1995) 71 (5) *The Forestry Chronicle* 601 at 603 [Galindo-Leal and Bunnell].

¹³ *Ibid.*

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- Management should use a large spatial scale, including a regional scale, and acknowledge the reciprocal relationship between protected areas and adjacent managed areas (i.e., each influences the effectiveness and consequences of the other).
- Plan on a long-time horizon (more than 5 years).
- Interagency coordination and public communication is essential including integration of interdisciplinary teams of agencies and of research, planning and management.

Nie pointed out that some see EBM as a way to protect biodiversity and ecological processes, others see it as a matter of process (i.e., adaptive management and collaboration), and yet others see it as an enhanced multiple use approach.¹⁴ Nevertheless, the central components of EBM are adaptive management, collaboration, and landscape-scale restoration.¹⁵

After reviewing the historical development of EBM (to the mid-1990s), Grumbine found that there was no consensus on a definition of EBM.¹⁶ However, there were several dominant themes which form the basis of a working definition of EBM:

[e]cosystem management integrates scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward

¹⁴ Martin Nie, "Chapter 4: Whatever Happened to Ecosystem Management and Federal Land Planning?" in Kalyani Robbins, ed., *The Laws of Nature: Reflections on the Evolution of Ecosystem Management Law and Policy* (Akron, OH: University of Akron Press, 2013) [Nie].

¹⁵ *Ibid.*

¹⁶ Grumbine, *supra.* note 9.

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the general goal of protecting native ecosystem integrity over the long term.¹⁷

Even as recently as 2020, there remains no clear definition for EBM.¹⁸ However, EBM consistently emphasizes factoring complex linkages in social-ecological systems, dealing with adequate scales (both time and space wise), promoting adaptive management of complex and dynamic systems, and adopting integrated assessment and management frameworks.¹⁹ All definitions have in common the “acknowledgement of the complexity and inter species relationships within ecological systems, although broader governance elements are also of great importance in most definitions”.²⁰

2. Ecosystem Based Management as Forest Law and Policy

According to Grumbine, in order to implement EBM (not just in forests) policymakers need to strengthen key environmental legislation to make biodiversity protection paramount and consider new laws and policies to codify biodiversity protections.²¹ Although the ELC recognizes the importance of incorporating EBM into protected areas legislation, regional land use planning

¹⁷ *Ibid.* at 31.

¹⁸ Gonzalo Delacamara et al., “Ecosystem-Based Management: Moving from Concept to Practice” in T.G. O’Higgins et al. (eds.), *Ecosystem-based Management, Ecosystem Services and Aquatic Biodiversity* (2020), available at https://doi.org/10.1007/978-3-030-45843-0_3.

¹⁹ *Ibid.* at 40.

²⁰ *Ibid.* at 40.

²¹ Grumbine, *supra*. note 9.

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and general environmental legislation, this report is focused on incorporating EBM into Alberta's forest law and policy.

Obviously, shifting from a forest management approach primarily focused on timber supply to one grounded in EBM principles has implications for law and policy. Legal definitions need to be clear and common impediments - such as disparate agency missions and planning processes, shifting political priorities, and problematic budgets – need to be addressed.²² Planning itself needs to address restoration, ecological goods and services, fire management, motorized recreation, biomass and renewable energy, climate change and wildlife viability.²³ Setting clear goals is crucial to the success of EBM.²⁴

As stated by Andison:

the current system and tools for forest management planning in Canada were designed and built based on a value-based management model; the VOIT [values, objectives, indicators and targets] process, optimization model architecture, deterministic planning standards, and a series of uncoordinated management *silos* for each natural resource.²⁵

Moving to EBM is a “seismic shift” in perspective which requires substantial changes in institutions, philosophy, and operations.²⁶ As pointed out by DeFries and Nagendra, EBM requires multi-sector decision-making, management across administrative boundaries, adaptive management, markets that incorporate

²² *Ibid.*

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ David W. Andison et al., Final Report: Understanding EBM Through Dialogue (Edmonton: 2019, fRI Research [Andison] at 8.

²⁶ *Ibid.* at 8.

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natural capital and ecosystem services (i.e., provide incentives to value natural capital and ecosystem services), and collaborative processes to engage diverse stakeholders and address inequalities.²⁷ As stated by Delacamara et al.:

Enhanced governance is critical to make EBM happen. This is not just about transparency, accountability and meaningful social participation. It is also about using the right incentives, cooperating, coordinating decisions between sectors, improving our knowledge and information base, uptaking innovations, etc.²⁸

Inherent to the concept of EBM is managing cumulative effects within an ecosystem. The current approach to regulation tends to be sector-based, in that the impacts of activities/industries are managed as discrete events with little regard to other activities within the same ecosystem. This is not to say there is no consideration of cumulative effects, it is a feature of some regulatory systems such as impact assessment and ALSA regional planning. However, cumulative effects are easily overlooked or underestimated when regulating on a sector-by-sector approach. A shift to EBM can enable better consideration and management of cumulative effects but, as indicated above, this does require multi-sector decision-making and management across administrative boundaries.

²⁷ Ruth DeFries and Harini Nagendra, "Ecosystem management as a wicked problem" (2017) 356 *Science* 265 [DeFries and Nagendra].

²⁸ *Ibid.* at 40.

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3. Key Components and Principles of Ecosystem-based Management

Although there is not currently a precise scientific definition of EBM, as a concept EBM can be distilled into several key components and principles:

- The primary goal of management is ecosystem health and integrity.
- Science based decision-making - including implementation of adaptive management and the precautionary principle - is crucial.
- Natural ecosystem dynamics being used as a template for management.

Further, recognizing that humans and their activities are a part of the forest ecosystem, EBM forest management must include meaningful public consultation and participation; Indigenous consultation, participation, and management; and opportunities for community forest management. In addition, accountability mechanisms are crucial to successful implementation of EBM forest management (or any regulatory approach for that matter).

In order to elaborate on the principle of using natural ecosystem dynamics as a template for management, it is helpful to look at concepts that have been used to delimit sustainable forest management implementation practices. For instance, Foster et al. propose using:²⁹

- Best management practices (reduced impact logging) which include retention of non-target live trees, minimization of soil compaction within

²⁹ Bryan C. Foster et al., "Implementing Sustainable Forest Management Using Six Concepts in an Adaptive Management Framework" (2010) 29 J. Sustainable Forestry 79 [Foster et al.]. They also propose concepts such as community-based forestry and multi-scale planning, among others.

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road and trail areas, and protection of water quality via adequate buffers.

- Biodiversity conservation which requires coarse filter approaches (such as protected areas) and fine filter strategies for monitoring and ensuring population viability.

In order to support biodiversity conservation, Foster et al. propose emulating natural disturbance frequency, intensity and magnitude; developing of structural complexity including coarse woody debris retention; and retaining live trees as biological legacies.³⁰ Biological legacies are those biotic components that persist through a disturbance and are incorporated into the recovering ecosystem.³¹

These proposals by Foster et al. all gravitate around using natural ecosystem dynamics as a template for management. In order to implement EBM, we recommend that several management principles should be adopted into Alberta's forest law and policy:

- connectivity,
- retaining complex habitats,
- linear and spatial thresholds,
- watershed protection,
- species at risk,
- range of natural variation, including emulation of natural disturbances, and
- ecological boundaries.

³⁰ *Ibid.*

³¹ *Ibid.*

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Part 2 of this report looks at the extent, if any, to which these key components and principles of ecosystem-based management are adopted in Alberta's forest laws and policy.

4. Brief Overview of Alberta's Forest Law and Policy

Alberta's current forest law and policy is focused on public forests; there is no legislation in place for forest management on private lands although sustainable forest management is encouraged via Agroforestry and the Woodlot Extension Society.³²

The primary piece of legislation governing forests is the *Forests Act*³³ albeit with a focus on forests as a timber source rather than forests as ecosystems. There are other pieces of legislation which may also impact on forests and forest management practices such as the *Alberta Land Stewardship Act*, the *Water Act*, and the *Environmental Protection and Enhancement Act*.³⁴ See section 1.4 of Part 3 .

The *Forests Act* sets out the regulatory framework for forestry operations on Alberta's public lands. It broadly addresses matters such as forest administration, forest tenure, reforestation, and offences and penalties under the Act. There are several regulations under the *Forests Act* which provide more detail around forest administration and operations. However, the bulk of the guidance and

³² CCFM Fact Sheet, *supra*. note 3.

³³ *Forests Act*, R.S.A. 2000, ch. F-22 [*Forests Act*].

³⁴ *Alberta Land Stewardship Act*, S.A. 2009, ch. A-26.8 [ALSA]; *Water Act*, R.S.A. 2000, ch. W-3 [*Water Act*]; and *Environmental Protection and Enhancement Act*, R.S.A. 2000, ch. E-12 [EPEA].

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requirements for forestry operations is found in numerous standards, directive and policy documents. See Part 3 for details of Alberta's forest laws and policies.

Looking at Alberta's forest laws and policies from an EBM perspective, two key documents to be considered are the *Alberta Forest Management Planning Standard (Planning Standard)*³⁵ and the *Alberta Timber Harvest Planning and Operating Ground Rules Framework for Renewal (Operating Ground Rules Framework)*.³⁶ The *Planning Standard* sets out the standard for preparing and implementing forest management planning. The *Operating Ground Rules Framework* sets out the minimum requirements for practices used in forest planning and in timber harvesting operations. With their practical, on-the-ground implications, both of these documents are crucial in understanding the extent to which EBM principles have been adopted in Alberta's forests.

It should be noted that, in addition to legal and policy requirements, a forestry operator may voluntarily choose to adhere to standards set by a forest certification system. Forest certification is conducted by independent organizations that assess forestry operations against standards set by the relevant organization.

Currently, three forest certification systems are used throughout Canada: the Canadian Standards Association, the Forest Stewardship Council and the Sustainable Forestry Initiative.³⁷ Both the Canadian Standards Association and the Sustainable Forestry Initiative are endorsed by the international organization

³⁵ *Alberta Forest Management Planning Standard, Version 4.1* (Edmonton: 2006, Alberta Sustainable Resource Development, Public Lands and Forests Division, Forest Management Branch) [*Planning Standard*].

³⁶ *Alberta Timber Harvest Planning and Operating Ground Rules Framework for Renewal* (Edmonton: 2016, Alberta Government) [*Operating Ground Rules Framework*].

³⁷ Government of Canada website at <https://www.nrcan.gc.ca/our-natural-resources/forests/sustainable-forest-management/forest-certification-canada/17474>.

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Programme for the Endorsement of Forest Certification Schemes. The Sustainable Forestry Initiative is a Canadian based, non-profit organization. These programs set standards for forest management, as well as processes for program certification.

Detailed analysis and assessment of these forest certification systems falls outside the scope of this report (this report is focused on EBM as a legal, regulatory and policy requirement as opposed to voluntary standards). While forest certification systems have the potential to push forestry operators to high levels of ecological performance, whether they actually do so is another question for another time.³⁸

³⁸ Weald Rametsteiner and Markku Simula, "Forest certification – an instrument to promote sustainable forest management" (2003) 67 J. Envi. Mgmt. 87; and Lars. H. Gulbrandsen, "Overlapping Public and Private Governance: Can Forest Certification Fill the Gaps in the Global Forest Regime?" (2004) 4(2) Global Envir. Politics 75.

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Part 2: Ecosystem-based management as law and policy in Alberta

EBM, as used in this report, reflects a fundamental shift in the forest management approach from a primary focus on a sustainable timber supply to recognizing the value of forests as ecosystems. In other words, managing forests rather than forestry. The general goal of EBM is to maintain ecological integrity.

The key components and principles of EBM are:

- The primary goal of management is ecosystem health and integrity.
- Science-based decision-making – in particular, implementation of adaptive management and the precautionary principle – is crucial.
- Natural ecosystem dynamics should be used as a template for management.

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Recognizing that humans and their activities are a part of the forest ecosystem, EBM of forests must include meaningful public consultation and participation; Indigenous consultation, participation, and management; and opportunities for community forest management. In addition, accountability mechanisms are crucial to successful implementation of EBM. This part of the report looks at the extent (if any) to which these principles and components of EBM are incorporated into existing Alberta forest law and policy.

1. Primary Goal of Management is Ecosystem Health and Integrity

A legislative mandate to manage for ecological integrity is not completely unprecedented in Canada. The *Canada National Parks Act*³⁹ states that “maintenance or restoration of ecological integrity through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks”.⁴⁰ Ecological integrity is defined in the *Canada National Parks Act* as “a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of changes and supporting processes”.⁴¹

³⁹ *Canada National Parks Act*, S.C. 2000, c. 23 [*Canada National Parks Act*].

⁴⁰ *Ibid.* at s. 8(2).

⁴¹ *Ibid.* at s. 2(1).

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Providing a bit of additional context, the Panel on the Ecological Integrity of Canada's National Parks has defined ecological integrity as follows:⁴²

An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes. In plain language, ecosystems have integrity when they have their native components (plants, animals, and other organisms) and processes (such as growth and reproduction) intact.

While the newly added preambles to the *Forests Act* do make a couple of references to “ecosystems”, this concept is not carried into the body of the legislation (and the other preambles reflect a focus on the economic contribution of timber). The *Alberta Forests Act* makes reference to “sustainable forest management” and to “establishing, growing and harvesting timber in a manner designed to provide a yield consistent with sustainable forest management principles and practices”.⁴³ In other words, the goal set out in the *Forests Act* is focused on ensuring a sustainable yield of timber rather than sustaining forests as ecosystems. This is not to say that the various policy documents reveal absolutely no ecologically-based requirements – there are

⁴² Panel on the Ecological Integrity of Canada's National Parks, “*Unimpaired for Future Generations*”? *Conserving Ecological Integrity with Canada's National Parks, Volume I: A Call to Action* (Ottawa: 2000, Minister of Public Works and Government Services) [Panel on Ecological Integrity, I] at 2. See also Panel on the Ecological Integrity of Canada's National Parks, “*Unimpaired for Future Generations*”? *Conserving Ecological Integrity with Canada's National Parks, Volume II: Setting a New Direction for Canada's National Parks* (Ottawa: 2000, Minister of Public Works and Government Services) [Panel on Ecological Integrity, II].

⁴³ *Forests Act* at preamble and s.16.

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some – but the primary goal of Alberta's forest law and policy remains timber supply management and not management for ecological integrity.

The *Operating Ground Rules Framework* does indicate that forest operators are “expected to manage the forest cover in a manner that maintains biodiversity and ecological integrity”.⁴⁴ Ecological integrity is defined as the “quality of a natural, unmanned or managed ecosystem in which the natural ecological processes are sustained, with genetic, species and ecosystem diversity assured for the future”.⁴⁵ However, this is phrased as an expectation rather than a requirement. Furthermore, it is not legislated requirement.

Recommendation: Alberta's *Forests Act* should be amended to state that the goal of forest management is to allow timber harvesting only in a manner that maintains the ecological integrity of Alberta's forests. Furthermore, the *Forests Act* should be amended to include a definition of ecological integrity and ecosystem-based management.

2. Science Based Decision-Making

In deciding how forests should be managed, knowledge of the ecological and biodiversity of forests and associated values that are intended to be sustained should play a major role.⁴⁶ Furthermore, an understanding of ecological

⁴⁴ *Operating Ground Rules Framework* at 30.

⁴⁵ *Operating Ground Rules Framework* at 79.

⁴⁶ J.P. (Hamish) Kimmins, “Biodiversity, Beauty and the ‘Beast’: Are beautiful forests sustainable, are sustainable forests beautiful, and is ‘small’ always ecologically desirable?” (1999) 75(6) *The Forestry Chronicle* 955.

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diversity, the history of evolution, ecological role of disturbance, and ecological process of recovery from disturbance is needed to achieve specific biodiversity objectives.⁴⁷ These factors vary from one forest area to another and, as such, forest management needs be addressed on a region-specific, landscape-specific, and site-specific basis.⁴⁸

Science based decision-making is crucial to effective EBM. The importance of science based decision-making has been recognized in other legislative contexts such as the federal *Impact Assessment Act (IAA)*.⁴⁹ The IAA provides that one of its purposes is “to ensure that an impact assessment takes into account scientific information, Indigenous knowledge and community knowledge”.⁵⁰ Further, the IAA states that the “Government of Canada, the Minister, the Agency and federal authorities must, in the administration of this Act, exercise their powers in a manner that adheres to the principles of scientific integrity, honesty, objectivity, thoroughness and accuracy”.⁵¹

Recommendation: The *Forests Act* should be amended to include a provision requiring administration of and decision-making under the Act to adhere to the principles of scientific integrity, honesty, objectivity, thoroughness, and accuracy.

⁴⁷ J.P. (Hamish) Kimmins, “Biodiversity and its relationship to ecosystem health and integrity” (1997) 73(2) *The Forestry Chronicle* 229 [Kimmins, 1997].

⁴⁸ *Ibid.*

⁴⁹ *Impact Assessment Act*, S.C. 2019, c. 28 [IAA].

⁵⁰ *Ibid.* at s. 6(1)(j).

⁵¹ *Ibid.* at s. 6(3).

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Unfortunately, there are limitations on the ecological and biodiversity scientific knowledge pertaining to Alberta's forests. This is where the principles of adaptive management and the precautionary principle play a role in EBM. Echoing this, the Panel on Ecological Integrity considers adaptive management and the precautionary principle to be fundamental tools toward achieving the National Parks' mandate of ecosystem integrity.⁵²

2.1 Adaptive Management

Adaptive management is an approach to addressing scientific uncertainty and can be used for resources that are "responsive to management interventions but subject to uncertainties about the impacts of those interventions".⁵³

Adaptive management is a structured process of learning by doing and adapting based on lessons learned; management strategies are adjusted as understanding improves.⁵⁴ This differs from a "trial and error" approach in that adaptive management is structured and involves articulating objectives, identifying management alternatives, predicting management consequences, recognizing key uncertainties, and monitoring (i.e., careful design and testing is involved).⁵⁵

⁵² Panel on Ecological Integrity, II, *supra*. note 42.

⁵³ Byron K. Williams, "Adaptive management of natural resources – framework and issues" (2011) 92 J. Envir. Mgmt. 1346 [Williams]. See also Christopher J. Lemieux et al., "Evidence-based decision-making in Canada's protected areas organizations: Implication for management effectiveness" (2018) 3 FACETS 392; and DeFries and Nagendra, *supra*. note 27.

⁵⁴ Williams, *ibid*.

⁵⁵ *Ibid*.

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Adaptive management requires feedback between learning and management decision-making. The key components include: ⁵⁶

- stakeholder involvement,
- objectives (clear, measurable and agreed-upon such as species richness),
- a selection of management actions at each decision point (management alternatives that span a reasonable range of management activities), and
- monitoring plans (to compare model-based predictions against observed responses).

Monitoring is used to evaluate progress toward goals, to identify appropriate management actions, increase understanding of resource dynamics, and to develop and refine resource dynamics models.⁵⁷

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

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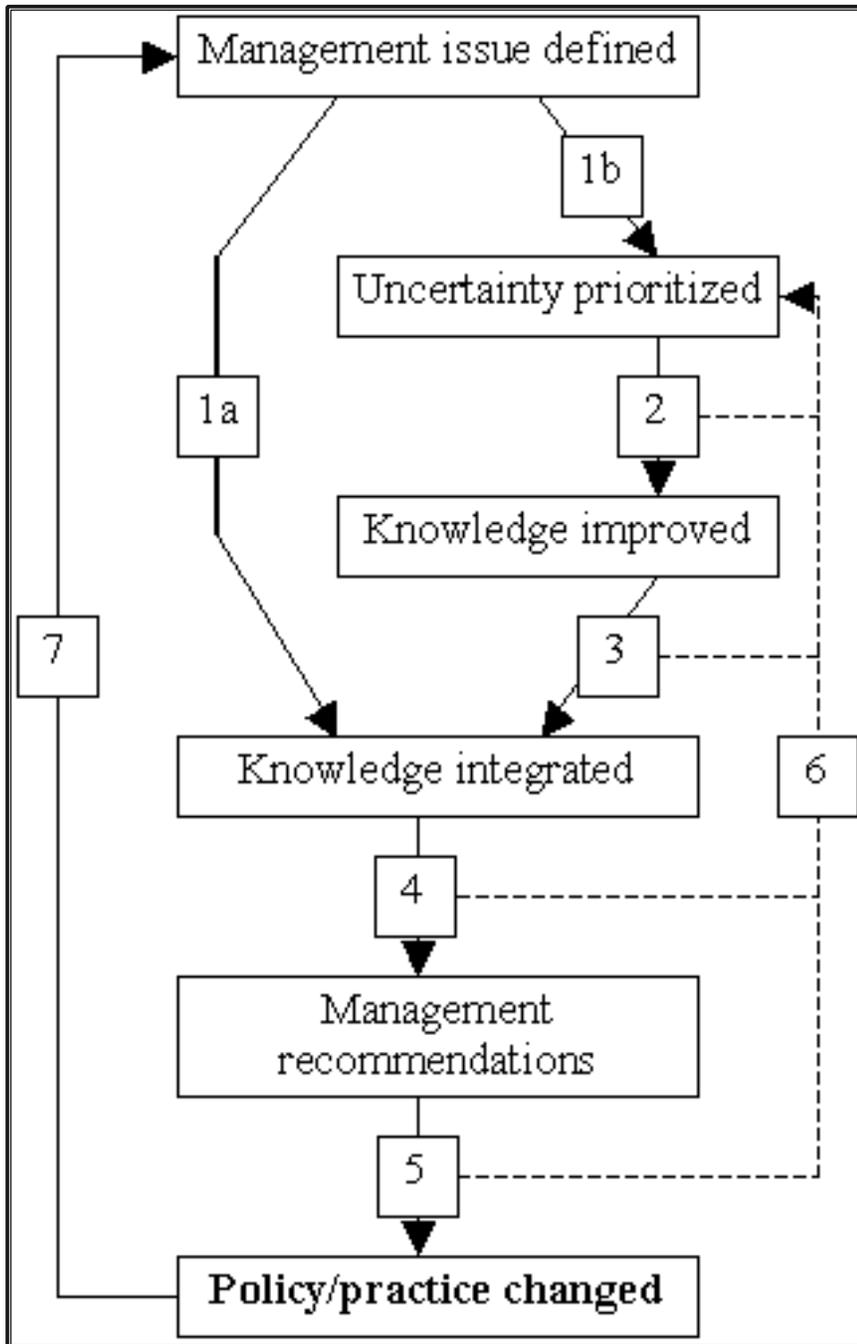


Figure 2:

Schematic of adaptive management process being implemented by the AME [Adaptive Management Experiment] Team. The rectangles are results, and each numbered box indicates the task required to progress towards the results. The tasks are: assimilation of existing knowledge into models (1a); identification of key uncertainties (1b); research to reduce uncertainty (2); integration of research results into models (3); policy analysis using models (4); knowledge transfer (5); identification of new uncertainties (6); and monitoring (7).

From: Matthew Carlson et al., "Implementing Active Adaptive Management in Alberta's Boreal Forest", 0559-C1, submitted to the XII World Forestry Congress, 2003, Quebec City, Canada available at <http://www.fao.org/3/XII/0559-C1.htm>, at Figure 2.

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It is important to acknowledge that adaptive management is not amenable to every natural resource problem. It is not needed or appropriate if there is little uncertainty about what management action to take and what outcomes will follow. It is also not appropriate if there is no way to develop an effective monitoring program, or no mechanism for feedback of monitoring and assessment into management strategy.⁵⁸

In terms of implementing adaptive management, it is important to be cognizant that legal limits on authorities can hamper flexibility of decision-making and to change policy approaches.⁵⁹ As well, it is typical for monitoring systems to suffer from lack of funding and leadership which needs to be addressed to effectively implement adaptive management.⁶⁰

Currently in Alberta, the *Planning Standard* provides a definition of adaptive management and mentions it in the context of monitoring biodiversity and FireSmart implementation. The *Planning Standard* defines adaptive management as the “process of planning activities, implementing activities, monitoring results and comparing against planned results, and taking corrective action where unplanned results occur”.⁶¹ However, there are no parameters set for ensuring that adaptive management is used and is used appropriately.⁶²

⁵⁸ *Ibid.*

⁵⁹ DeFries and Nagendra, *supra.* note 28.

⁶⁰ *Ibid.*

⁶¹ *Planning Standard* at 21.

⁶² Regarding appropriate use of adaptive management, see Martin Olszynski, “Failed Experiments: An Empirical Assessment of Adaptive Management in Alberta’s Energy Resources Sector” (2016) 50(3) UBC L. Rev. 697.

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As it stands now, the regulatory system in the *Forests Act* does not lend itself well to adaptive management. The current legislated and policy goal of forestry regulation is primarily to achieve sustainable yield which seems imply that management decisions should not reduce yield (although that may be what is needed to maintain ecological health and integrity). This goal is reflected in timber dispositions.⁶³ As an example, the most recent FMA – between the Government of Alberta and Crowsnest Forest Products Ltd. – requires the company to follow “sound forest management practices designed to provide a yield consistent with sustainable forest management principles and practices while not reducing the productivity of the land”.⁶⁴ Harvesting under the Crowsnest FMA is divided into four 5-year cut control periods each with an allowable cut, if the company undercuts within a control period then it is expected that the company will submit a plan to make up the undercut amount in the next control period (and conversely, the Minister may reduce the allowable cut in the next control period).⁶⁵ That is, there is limited flexibility in moving away from the set harvest allowances.

Furthermore, with long-term vested rights to timber (FMAs and quotas), the ability to change management approaches to adapt to changes in ecological condition may be limited. For example, the Crowsnest FMA does allow for withdrawals of land from the forest management area at the discretion of the Minister (after consultation with the company), but only for limited reasons.⁶⁶

⁶³ See for example, Memorandum of Agreement, FMA210 0047 between Her Majesty the Queen and Crowsnest Forest Products Ltd (July 17, 2021), available at <https://open.alberta.ca/dataset/ef8a7e1f-a658-45ff-9481-c24796bf437e/resource/4846d89c-7207-4b28-908a-0810f71c8c0e/download/af-crowsnest-forest-products-ltd.-fma-memorandum-of-agreement-fma2100047-2021-07.pdf> [Crowsnest FMA].

⁶⁴ *Ibid.* at cl. 9.

⁶⁵ *Ibid.* at cl. 17.

⁶⁶ *Ibid.* at cl. 6.

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These reasons include being unable to harvest without causing substantial harm to the water table, to waterbodies, or the margins of watercourses; being lands required for rights-of-way or water resource development; or lands required for any purposes deemed by the Minister to be required for human or physical resource development. The reasons do not include lands being required for ecological health and integrity (or something similar). The Crowsnest FMA also indicates that the Minister has rights to maintain and enhance forest resources including fish and wildlife resources; however, this right is limited in that it cannot significantly impair the company's right to establish, grow, harvest and remove timber.⁶⁷

If land is withdrawn from an FMA, then the FMA holder is entitled to compensation.⁶⁸ Similarly, if a timber quota holder, licensee or permittee is subject to an alteration, variation or cancellation of their authorization, then they may be paid compensation.⁶⁹ A quota holder may also seek compensation from a party that deprives them of their rights to cut and recover timber.⁷⁰

Another aspect of the current forest management approach which demonstrates a lack of adaptability is regeneration standards which “focus on replicating the stand type that was cut and projecting the growth of young stands forward using simple models based upon past growing conditions”.⁷¹ By

⁶⁷ *Ibid.* at cl. 8.

⁶⁸ *Ibid.* at cl. 6. Compensation also payable (except from the Crown) as per s. 16 of *Forests Act*.

⁶⁹ *Forests Act* at ss. 27 and 45.1.

⁷⁰ *Forests Act* at s. 28.

⁷¹ Victor J. Lieffers et al., “Reforestation policy has constrained options for managing risks on public forests” (2020) 50 *Can. J. For. Res.* 855 at 855.

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not prioritizing information about disturbances (such as insects and increased drought) in forest regeneration planning, current silvicultural practices may be exacerbating risk of disturbance rather than mitigating such risk.⁷² As climate change impacts are expected to increase drought and fire risk in boreal forests, excessive reliance of base-line data and assumptions may become problematic and more adaptability in approaching regeneration may become increasingly important.

Recommendation: Adaptive management should be adopted in legislation as a management principle to achieve ecological health and integrity in Alberta's forests. Adaptive management should be defined and set out as a guiding principle in the *Forests Act*. It is essential that sufficient funding and capacity be designated for monitoring impacts of management decisions and for feedback into the decision-making process. As well, there needs to be clearly defined situations in which adaptive management is an appropriate approach (to avoid the undesirable situation where there are no mitigation efforts to address known negative environmental impacts because “adaptive management” will be used at some time in the future). Actual implementation of adaptive management will occur at the management planning and monitoring stages.

⁷² *Ibid.*

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2.2 Precautionary principle

Similar to adaptive management, the precautionary principle is meant to address scientific uncertainty. In the context of natural resource system management uncertainties can include:⁷³

- environmental variation (such as random variability in climate),
- partial observation (uncertainty about resource status due to sampling variation in monitoring),
- partial controllability (differences between actions targeted by decision makers and actions actually implemented), and
- structural/process uncertainty (lack of understanding about structure of biological and ecological relationship that drive resource dynamics).

Another significant source of scientific uncertainty is the degree of ecosystem and biodiversity resiliency in the face of climate change. For example, with respect to species at risk, it has been demonstrated that climate change can exacerbate the impacts of other extinction drivers such as habitat loss.⁷⁴ Because Canada is a northern nation, it (and our forests) will experience the impacts of climate change more rapidly and markedly.⁷⁵

⁷³ Williams, *supra*. note 53 at 1347 to 1348.

⁷⁴ For a discussion in the context of oil and gas wells, see Jason Unger, *Reclaiming Tomorrow Today: Regulatory Timing for abandonment and reclamation of well sites in Alberta* (Edmonton: 2015, Environmental Law Centre).

⁷⁵ Laura E. Coristine and Jeremy T. Kerr, "Habitat loss, climate change, and emerging conservation challenges in Canada" (2011) 89 Can. J. Zool. 435. See also Maria Dickinson, Iain Colin Prentice and Georgina M. Mace, "Climate change and challenges for conservation",

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The precautionary principle provides that the absence of full scientific certainty should not be used as a reason to postpone decisions where there is a risk of serious or irreversible harm.⁷⁶ According to the Panel on Ecological Integrity, this principle is based on several premises including that nature has intrinsic value, governments must be willing to act in the absence of evidence of negative environmental effects, people proposing a change are responsible to demonstrate that there will be not be a negative environmental impact, today's actions are tomorrow's legacies, and all decisions have a cost (caution may mean some people forego economic or recreational opportunities).⁷⁷

Neither Alberta's *Forests Act* nor its regulations reference the precautionary principle. The *Planning Standard* does reference a "precautionary" annual allowable cut which is defined as a "level of harvest that minimizes the risk of negatively impacting forest resources from an inadequately justified management assumption or in the absence of a [detailed forest management plan] for the [defined forest area]."⁷⁸ Such a precautionary annual allowable cut may be set by Alberta in the event that forest management planning is terminated because the relevant government officials and the operator cannot reach an agreement-in-principle on technical details of the plan. This, however, does not reflect the precautionary principle rather it is a means to allow harvesting to proceed in the absence of a detailed forest management plan.

(2015) Imperial College London, Grantham Institute, Briefing Paper No. 13.

⁷⁶ See Privy Council Office, *A framework for the application of precaution in science-based decision making about risk* (Ottawa: 2003, Government of Canada).

⁷⁷ *Ibid.* at 1-18.

⁷⁸ *Planning Standard* at 25. The *Planning Standard* does not define the term **forest resources** but the word **resources** is defined as the "[p]hysical and intrinsic features of the land, including but not limited to timber, wildlife, water and soil" (at 26).

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Recommendation: The precautionary principle should be adopted in legislation as a fundamental tool for achieving ecological health and integrity in Alberta's forests. The precautionary principle should be defined in the *Forests Act* and set out as a guiding principle for management decisions.

3. Natural Ecosystem Dynamics used as Template for Management

Respect for nature in forest management requires that we understand the functioning of the forest ecosystem, the ecological role of disturbance, and the processes of ecosystem recovery from disturbance. It means that as we alter natural processes through management, we must replace the effects of those natural processes that we have altered by the ecological effects of management practices.⁷⁹

Using natural ecosystem dynamics as a template for management is a key component of EBM. In order to implement this aspect of EBM, several management principles should be adopted into Alberta's forest law and policy:

- connectivity,
- retaining complex habitats,

⁷⁹ Kimmins, 1997, *supra*. note 47 at 232.

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- linear and spatial thresholds,
- watershed protection,
- species at risk,
- range of natural variation, including emulation of natural disturbances, and
- ecological boundaries.

Recommendation: These are principles that should be incorporated into the legislation as guidance for decision-making and planning. In practical terms, these will need to be implemented in detail via regulation, standards and other policy documents. For each of these principles, it will be essential to set out goals and measurement parameters.

3.1 Connectivity

Connectivity is the “unimpeded movement of species and the flow of natural processes” including dispersal, seasonal migration and the connectivity present in large wild areas.⁸⁰ There are three aspects of connectivity: ecological, functional and structural:⁸¹

⁸⁰ Jodi Hilty et al., *Guidelines for conserving connectivity through ecological networks and corridors, Best Practice Protected Area Guidelines Series No. 30* (Gland, Switzerland: 2020, IUCN) [Hilty et al.] at xii.

⁸¹ *Ibid.* at 4.

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- Ecological connectivity is “the movement of populations, individuals, genes, gametes and propagates between populations, communities and ecosystems, as well as that of non-living material from one location to another”.
- Functional connectivity is “a description of how well genes, gametes, propagates or individuals move through land, freshwater and seascape”.
- Structural connectivity is “a measure of habitat permeability based on the physical features and arrangements of habitat patches, disturbances and other land, freshwater or seascape elements presumed to be important for organisms to move through their environment”.

Where measures of functional connectivity are lacking, structural connectivity can be used to restore or estimate functional connectivity.⁸²

Connectivity is essential to the conservation of species, ecosystems and habitats.⁸³ Scientific evidence overwhelmingly shows that interconnected areas are more effective for conservation of biological diversity than unconnected areas.⁸⁴ Where there is a lack of connectivity (i.e., habitat fragmentation), there is decreased dispersal success, increased mortality, and reduced genetic diversity.⁸⁵ In addition, lack of connectivity causes impediments to immigration

⁸² *Ibid.* at 4.

⁸³ *Ibid.*

⁸⁴ *Ibid.*

⁸⁵ Samuel A. Cushman et al., “Chapter 21: Biological corridors and connectivity” in David W. Macdonald and Katherine J. Willis, *Key Topics in Conservation Biology 2*, 1st ed. (Hoboken, N.J.: 2013, John Wiley and Sons, Ltd.)

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which may result in local populations declines and prevention of recolonization following a local extinction.⁸⁶

The purposes of maintaining connectivity include enabling genetic exchange, movement of individuals to meet life-cycle needs (including migration and seasonal dispersal), habitat for daily to multi-generational movement, maintenance of ecological processes, movement and adaptation responses to climate change, recovery and recolonization after disturbance, and prevention of undesirable processes (such as spread of fire).⁸⁷

According to Hilty et al., the loss of connectivity is “most often a consequence of policy and management decisions made by the development, transportation, agriculture and extraction sectors”.⁸⁸

The *Planning Standard* requires that landscape assessments provide information about forest landscape pattern and structure including the size, shape and connectivity of forest patches.⁸⁹ The *Planning Standard* defines connectivity as the:⁹⁰

measure of how well different areas (patches or a landscape are connected by linkages, such as habitat patches, single or multiple corridors, or “stepping stones” of like vegetation. The extent to which conditions among late successional/climax forest areas provide habitat for breeding, feeding, dispersal and movement of late successional – or climax-dependent wildlife or fish species. Natural landscapes often tend

⁸⁶ *Ibid.*

⁸⁷ Hilty et al., *supra.* note 80.

⁸⁸ *Ibid.* at 48.

⁸⁹ *Planning Standard* at 19.

⁹⁰ *Ibid.* at 22.

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to be better connected than those that have been heavily influenced and disturbed by human activities. Consequently, there is a body of opinion that the best way to avoid fragmentation of landscapes is to maintain, or re-establish, a network of landscape linkages. At a landscape level, the connectivity of ecosystem functions and processes is of equal importance to the connectivity of habitats.

While the *Planning Standard* requires information about connectivity as part of the landscape assessment in forest management planning, there are no requirements to ensure that forest management and harvesting activities are conducted in a manner that achieves a certain level of connectivity.

The *Operating Ground Rules Framework* adopts the same definition of connectivity as that in the *Planning Standard*. Connectivity is mentioned in connection with grizzly bear habitat, and key wildlife and biodiversity zones.⁹¹ The *Operating Ground Rules Framework* requires that, for grizzly bears, “retention areas should be used in harvest areas to provide hiding cover and connectivity to forest patches”.⁹² The *Operating Ground Rules Framework* recognizes that connectivity is important for ungulates for dispersal and escape cover and require that operating ground rules must reflect an understanding of the biology of relevant ungulates and the importance of their key winter ranges with the purpose of protecting long term integrity and productivity of these winter ranges.⁹³ However, there are no specific requirements set for connectivity.

⁹¹ *Operating Ground Rules Framework* at ss. 7.7.3 and 7.7.5, respectively.

⁹² *Ibid.* at s. 7.7.3.7.

⁹³ *Ibid.* at s. 7.7.5.

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Recommendation: Along with other scientific principles that guide planning and decision-making, connectivity should be included as a guiding principle in the *Forests Act*. Specific requirements, including goals and targets, for achieving connectivity should be set via a specific regulation or directive.

3.2 Retaining Complex Habitats

Retaining complex habitats is essential to biodiversity conservation. One harvesting practice used to enhance biodiversity conservation includes coarse woody debris retention and retention of live trees as biological legacies (a.k.a. structural retention).⁹⁴

Structural retention attempts to mimic natural disturbance patterns by increasing the number of trees left on the landscape post-harvest thereby promoting biodiversity.⁹⁵ This means “foresters need to develop forestry practices that maintain key structural complexity similar to that found in natural forests”.⁹⁶

Different retention levels in forest harvests have differing impacts on use of forest habitats by species reflecting individual habitat requirements.⁹⁷ For instance, a

⁹⁴ Foster et al., *supra*. note 30. Biological legacies are biological components of an ecosystem that persist through a disturbance and are incorporated into the recovering ecosystem.

⁹⁵ Louisa Moussaoui et al., “Can Retention Harvest Maintain Natural Structural Complexity? A Comparison of Post-Harvest and Post-Fire Residual Patches on Boreal Forest” (2016) 7 *Forests* 243.

⁹⁶ *Ibid.* at 13.

⁹⁷ Caroline M.A. Franklin, S. Ellen Macdonald and Scott E. Nielsen, “Can retention harvests help conserve wildlife? Evidence for vertebrates in the boreal forest” (2019) 10(3) *Ecosphere* e02632.

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study conducted in Alberta found that while use by some vertebrate species was not significantly affected by retention levels, use by other species increased with level of retention. Woodland caribou was detected only in stands with at least a 20% retention level.⁹⁸

Retention harvests reduce impacts of logging by increasing connectivity, enhancing structural complexity, and facilitating species recovery within harvested areas.⁹⁹ Seasonal differences in canopy cover and horizontal cover attenuate as retention level increases.¹⁰⁰

The *Planning Standard* does mention structure retention. Annex 1 of the *Planning Standard* addresses timber supply analysis requirements in forest management planning (these are landbase description, yield projection, forecasting, and harvest planning). The mention of structure retention arises in the context of forecasting which is the “analysis of a range of realistic forest management scenarios, and the selection of the preferred scenario representing the optimum result” with the key outputs of the preferred scenario being timber harvest levels and spatial harvest sequence.¹⁰¹ Structure retention is mentioned as part of one of the “managed assumptions” that must be addressed in the forecasting portion of the forest management plan, specifically with respect to strategies to address biodiversity and species of special management concern.¹⁰² Strategies to address biodiversity and species of special management concerns include structure retention, along with addressing habitat requirements and access

⁹⁸ *Ibid.*

⁹⁹ *Ibid.*

¹⁰⁰ *Ibid.*

¹⁰¹ *Planning Standard* at 48.

¹⁰² *Ibid.* at ss. 5.9 and 5.9.11 of Annex 1.

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management strategies for species of special concern. The *Planning Standard* indicates that the objective of retaining stand structure is to “leave sufficient structure with minimum impacts on timber supplies”.¹⁰³ However, aside from that general objective, there are no specific requirements for structure retention (such as percentage of area, species composition, location and so forth). Furthermore, it must be remembered that the mention of structure retention arises in the context of Annex 1 of the *Planning Standard* which addresses timber supply analysis (i.e., it is not primarily a matter of ecosystem concerns but timber supply concerns). Annex 4 sets out performance standards which include retaining stand level structure; however, again there are no level of structural retention is prescribed (rather it is determined through the planning process).¹⁰⁴

The *Operating Ground Rules Framework* also mentions structure retention.¹⁰⁵ The purpose of which is to:¹⁰⁶

- Create temporary refugium for forest biota to recolonize harvest areas;
- Maintain snags and live residual trees in harvested areas for biota that depend on these structures following natural disturbances;
- Provide wildlife thermal and hiding cover within harvest areas throughout the rotation; and
- Provide wildlife travel corridors within large harvest areas and compartments.

¹⁰³ *Ibid.* at 53.

¹⁰⁴ *Ibid.*, obj. 1.1.2.1 of Annex 4.

¹⁰⁵ *Operating Ground Rules Framework* at s. 7.4.

¹⁰⁶ *Ibid.* at s. 7.4.

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The specific forest management plan for a harvest area/operator may address the amount of structure, size of patches, species, composition, and distribution; however, if it does not do so, then the standards set out in the *Operating Ground Rules Framework* apply. The average number of patches of residual structure to be left within harvest areas is based on the harvest area size (ranging from 2 small patches per hectare in a 2-to-20-hectare harvest area to 1 small patch and 0.2 large patch per hectare in a harvest area larger than 100 hectares). A small patch is defined as less than 0.2 hectares of undisturbed canopy forest whereas a large patch is 0.2 to 2 hectares in size.¹⁰⁷ The *Operating Ground Rules Framework* also requires structure be retained to leave larger patches rather than multiple smaller patches, leave individual stems throughout the harvested areas, and leave as many individual stems of non-merchantable trees, shrubs and snags as operationally and silviculturally feasible. In addition, the *Operating Ground Rules Framework* provides guidelines for the spatial distribution of residual structure.

A Structural Retention Directive was proposed in 2016 but never finalized.¹⁰⁸ This was meant to be in addition to the provisions in the *Planning Standard* and the *Operating Ground Rules Framework*. The proposed Structural Retention Directive was meant to clarify expectations in setting structural retention objectives during forest management planning and to specify certain requirements including:

- Minimum allowable target for merchantable area retention at 10% of the harvested area over a five-year period.

¹⁰⁷ *Ibid.* at 82 and 85

¹⁰⁸ Alberta Agriculture and Forestry, *Structure Retention Directive* (March 24, 2016), online: <https://www.bckor.ca/structure-retention-directive.html> (Bragg Creek & Kananaskis Outdoor Recreation website).

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- Minimum level of merchantable area retention at 5% within any individual harvested area.
- The merchantable trees located in a riparian buffer may contribute to a structural retention target but no more than 25%. The same applies to proximal retention (i.e., merchantable trees located within a harvest area boundary and connected to a portion of the edge).

The proposed Structural Retention Directive references merchantable trees because these are the trees targeted by harvesting and therefore specific provisions to retain them (and their biologically beneficial attributes) is required. While the proposed Structural Retention Directive did set specific targets for structural retention, there was no indication of how those targets were derived (i.e., no scientific studies were cited).

Recommendation: Along with other scientific principles that guide planning and decision-making, structural retention should be included as a guiding principle in the *Forests Act*. Specific requirements, including goals and targets, for structural retention should be set via a specific regulation or directive. Where caribou habitat is involved, minimum structural retention targets should be at least 20%.

Working against the EBM principle of retaining complex habitats is the continued use of herbicides as a silviculture tool in Alberta. Herbicide applications are typically used in reforestation activities to control weeds; in other words, undesirable vegetation including tree species, such as aspen, with lower fibre/timber value. The result is that forest (a complex habitat) becomes replaced with something closer to a monoculture (albeit with a better timber harvest potential). There is some evidence to suggest that this approach is

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increasing wildfire risk in Alberta.¹⁰⁹ Furthermore, there is evidence that the herbicides (typically glyphosate) can remain present in forest plant tissues for a decade or more which is problematic for Indigenous/traditional food sources and for wildlife (not to mention lack of availability of some food sources due to herbicide kills).¹¹⁰

The *Herbicide Reference Manual*¹¹¹ indicates that it is required that Alberta Agriculture and Forestry review and approve herbicide applications for forest management purposes on public lands. The *Herbicide Reference Manual* does indicate that the program for herbicide application must address wildlife, fisheries and biodiversity values. In particular, components such as forest retention, live trees, retained understory vegetation, open bodies of water, buffers, and sensitive areas must be mapped and included in the application for approval of an herbicide application program. The *Herbicide Reference Manual* indicates that in the event herbicides are used routinely to meet silvicultural objectives, then operators are encouraged to develop a vegetation

¹⁰⁹ Elise Stolte, "Herbicide, killing of aspen likely shares blame for growing wildfire damage" (June 28, 2019) Edmonton Journal, online: <https://edmontonjournal.com/opinion/columnists/elise-stolte-roundup-sprayed-through-alberta-forests-could-be-increasing-wildfire-risks>. See also, Victor Lieffers et al., "Reforestation policy has constricted options for managing risks on public forests" (2020) 50 Can. J. For. Res. 855.

¹¹⁰ N. Botten, L.J. Wood and J.R. Werner, "Glyphosate remains in forest plant tissue for a decade or more" (2021) 493 Forest Ecology and Management 119259; and Lisa Wood, "The presence of glyphosate in forest plants with different life strategies one-year after application" (2019) 49(6) Can. J. For. Res. 586. See also Matt Simmons, "New research aims to uncover long-term effects of glyphosate spraying on forests" (August 20, 2020) The Narwhal, online: <https://thenarwhal.ca/research-long-term-effects-glyphosate-forests/>.

¹¹¹ *Forest Management Herbicide Reference Manual* (Edmonton: 2021, Government of Alberta) [*Herbicide Reference Manual*].

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management strategy which has a term of 10 years and explicitly links herbicide use to forest management planning.

Recommendation: Consistent, widespread use of herbicides may ultimately reduce forest habitat complexity. This practice needs to be re-examined and alternative vegetation management approaches pursued.¹¹² Furthermore, it should be a requirement (rather than an option) that an operator develop a long-term vegetation management strategy with the objective of minimizing or even eliminating herbicide use.

Another key component of retaining complex habitats is maintenance of healthy soil properties and processes.¹¹³ The importance of physical and chemical attributes of soil for forest productivity has been long recognized.¹¹⁴ However, soils also play a central role in carbon storage (on average, forests store 2/3 of their carbon in the soil) which involves “complex feedbacks

¹¹² Vincent Roy, Nelson Thiffault and Robert Jobidon, *Integrated Forest Vegetation Management in Quebec (Canada): An Effective Alternative to Herbicides, tabled at the XII World Forestry Congress – Quebec, Canada* (Sainte-Foy, QC: 2003, Ministère des Ressources naturelles, de la Faune et des Parcs du Québec); and Nelson Thiffault and Vincent Roy, “Living without herbicides in Quebec (Canada): historical context, current strategy, research and challenges in forest vegetation management” (2011), 130 *Eur. J. Forest Res.* 117.

¹¹³ S.H. Schoenholtz, H. Van Miegroet, and J.A. Burger, “A review of chemical and physical properties as indicators of forest soil quality: challenges and opportunities” (2000) 138 *For. Ecol. & Mgmt.* 336.

¹¹⁴ *Ibid.*

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between plants and soil organisms”.¹¹⁵ Soil microbial communities “drive nutrient cycling, soil carbon storage, and soil stability”.¹¹⁶

Soil quantity and quality is identified as value for the performance standards listed in the *Planning Standard*.¹¹⁷ In particular, the performance standards are concerned with minimizing the impacts from roads and bared areas, and soil erosion and slumping. Similarly, the *Operating Ground Rules Framework* addresses matters of soil erosion, soil entering watercourses, and capability of the site to support healthy tree growth. However, the focus is on minimizing soil displacement and compaction rather than soil health.

Recommendation: Along with other scientific principles that guide planning and decision-making, soil health should be included as a guiding principle in the *Forests Act*. Specific requirements, including goals and targets, for soil health should be set via a specific regulation or directive. The components of soil health need to be expanded beyond the physical aspects of erosion, displacement, and compaction to include scientifically important nutrient, chemical and microbial factors.

¹¹⁵ Suzanne W. Simard and Mary E. Austin, “The role of mycorrhiza's in forest soil stability with climate change” in Suzanne Simard (ed.) *Climate Change and Variability* (Rijeka, Croatia: 2010, InTech) at 275 and 276 [Simard and Austin]. See also Jennifer Skene and Michael Polanyi, *How carbon loopholes for logging hinder Canada's climate leadership* (Washington, D.C.: 2021, Natural Resources Defense Council) at 8.

¹¹⁶ Simard and Austin, *ibid.* at 276.

¹¹⁷ *Planning Standard*, criterion 3 of Annex 4.

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3.3 Watershed Protection

As forest cover is removed, there can be negative impacts on water quality and the hydrology of watersheds.¹¹⁸ This can be exacerbated by the presence of roads which impact water runoff, surface erosion and accompanying fish habitat.¹¹⁹ Because this is a long-recognized issue, there are provisions in both the *Planning Standard* and the *Operating Ground Rules Framework* addressing water and watershed protection. In addition, there are provisions in the *Water Act* and *EPEA* which are applicable and operate to protect watersheds.

The *Planning Standard* requires hydrography to be included as part of the landscape assessment conducted as part of forest management planning and the performance standards include retaining ecological values and functions associated with riparian zones.¹²⁰ Other performance standards include minimizing impacts of water crossings, maintaining habitat for high value species, water quality and quantity.¹²¹

More detail is found in the *Operating Ground Rules Framework* which requires a forest management plan to address watershed water quantity and flow issues.¹²² In addition, operating practices to protect water quality and riparian values are defined in the *Operating Ground Rules Framework*. The stated purposes of the watershed protection provisions in the *Operating Ground Rules*

¹¹⁸ NRC Annual Report 2017, *supra*. note 1.

¹¹⁹ Thomas A. Spies et al., "Chapter 3: The Ecological Basis of Forest Ecosystem Management in the Oregon Coast Range" in Thomas A. Spies et al., *Forest and Stream Management in the Oregon Coast Range* (Corvallis, OR: 2002, OSU Press) [Spies et al.].

¹²⁰ *Planning Standard* at s. 1.2 of Appendix A and obj. 1.1.1.6 of Annex 4.

¹²¹ *Ibid.* at obj. 1.1.2.3 and 1.2.1.1 and values 3.2.1 and 3.2.2 of Annex 4.

¹²² *Operating Ground Rules Framework* at s. 6.0.

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Framework are to minimize potential for sedimentation; prevent deposition of soil, logging debris and deleterious substances; maintain aquatic and terrestrial habitat; and comply with the *Water Act*.¹²³ The *Operating Ground Rules Framework* requires classification of watercourses based on size, permanence, and fisheries/wildlife values. Based on the classification of the watercourse, specific requirements will apply regarding:

- roads, landings and bared areas;
- watercourse protection areas; and
- operating conditions within riparian areas for tree felling and equipment operation.

Setbacks for road construction range from 30 to 200 metres from the high water mark of the watercourse and is not permitted within an ephemeral watercourse or water source area. In addition, buffers must be established around watercourses ranging up to 100 metres. In general, tree felling must be conducted so as not to enter a watercourse and there may be proximity or seasonal limitations of equipment use. Variance from the specific requirements may be approved by the Forestry Program Manager (an Alberta Government official) as part of the forest harvest plan review. It should also be noted that the requirements under the *Code of Practice for Watercourse Crossings* also apply to forestry operations.¹²⁴

¹²³ It should be noted that when addressing matters of water, the federal Fisheries Act, R.S.C. 1985, c. F-14 [*Fisheries Act*] is relevant and may impose additional operational constraints on forestry activities.

¹²⁴ Alberta Government, *Code of Practice for Watercourse Crossings (made under the Water Act and Water (Ministerial) Regulation)*.

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While the stated goals of watershed protection in the *Operating Ground Rules Framework* include maintaining aquatic and terrestrial habitat, there are not any targets or specific requirements tied to this goal. The requirement for buffers assists in maintaining habitat and limiting forestry impacts on water; however, these may not be sufficient if species of concern are present. For instance, the State of Montana has general watershed protection rules in place on state forest lands but there is an additional requirement to design forest management activities to protect bull trout, westslope cutthroat trout, and Columbia redband trout and their respective habitats.¹²⁵

The *Operating Ground Rules Framework* does provide some goals relating to fisheries and the aquatic environment.¹²⁶ Forestry activities and operations are to have minimal effects on:

- health, diversity and natural distribution of aquatic biota;
- quantity and productive capacity of the aquatic environment, including fish habitat; and
- fisheries management objectives identified in the forest management plan.

If an activity will disturb or alter bed and banks of a fish-bearing waterbody, then an assessment of potential impacts on fish and fish habitat must be conducted.¹²⁷

¹²⁵ Montana Administrative Rules [MAR] at § 36.11.427.

¹²⁶ *Operating Ground Rules Framework* at s. 7.7.

¹²⁷ *Ibid.* at s. 7.6.2.

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Recommendation: Along with other scientific principles that guide planning and decision-making, watershed protection should be included as a guiding principle in the *Forests Act*. The forest-water linkage should be expressly articulated and tied to existing applicable standards for water quantity, quality, and temperatures. Specific requirements, including goals and targets, for watershed protection should be set via a specific regulation or directive (addressing water quantity, quality, and temperatures). This includes a minimum 100m buffer from all native fish-bearing waterbodies, and no logging or infrastructure within any riparian buffers.

3.4 Linear and Spatial Thresholds

It is well established that “[h]abitat loss and degradation as the primary cause of terrestrial species loss” which “points to the imperative of area-based conservation as a major cornerstone of action”.¹²⁸ Sustainable development in unprotected areas requires recognition of biodiversity needs and integration across all sectors.¹²⁹

Obviously, removal of vegetation from forests (i.e., logging) results in habitat loss detrimental to wildlife species but habitat fragmentation – which results in small,

¹²⁸ Justina C. Ray, Jaime Grimm and Andrea Olive, “The biodiversity crisis in Canada: failures and challenges of federal and sub-national strategic and legal frameworks” (2021) 6 *Facets* 1044 at 1059.

¹²⁹ *Ibid.*

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disconnected islands of habitat - is also a concern. In Alberta's forests, natural resource exploration and extraction activities have created an extensive network of linear disturbances.¹³⁰ These linear disturbances have cumulative environmental effects on vegetation communities, microclimate, wildlife, hydrology, and carbon dynamics.¹³¹ As well, habitat fragmentation (which is associated with linear disturbances) may have negative impacts such as increased predation and brood parasitism, harsher microclimate, decreased food, and decreased ability of animals to move across the landscape.¹³²

Important to understanding the impacts of habitat loss and fragmentation is the concept of “critical threshold” which is defined as an “abrupt, non-linear change that occurs in some parameter across a small range of habitat loss”.¹³³ The parameter may be individual behaviour, abundance of a species, community composition, or something else.¹³⁴ As an example: “the abundance of a species in a landscape may decrease more steeply with habitat loss once the amount of remaining habitat falls below some proportion of the total landscape area” and that proportion is referred to as “critical threshold level”.¹³⁵

In the context of EBM of forests, linear and spatial thresholds are used to limit habitat loss and fragmentation with the objective of not reaching critical thresholds for wildlife species in the region. This is not an altogether

¹³⁰ Gustavo Lopes Queiroz et al., “The Forest Line Mapper: A Semi-Automated Tool for Mapping Linear Disturbances in Forests” (2020) 12(24) *Remote Sens.* 4176.

¹³¹ *Ibid.*

¹³² Trisha L. Swift and Susan J. Hanson, “Critical thresholds associated with habitat loss: a review of the concepts, evidence, and applications” (2010) 85(1) *Biological Reviews* 35.

¹³³ *Ibid.*

¹³⁴ *Ibid.*

¹³⁵ *Ibid.* at 35.

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unprecedented approach in Alberta as demonstrated by the *Moose Lake Access Management Plan*¹³⁶ which places limits on the footprint for industrial resource development at 15% of a specified 10km zone near Moose Lake (15,537 hectares). Disturbance limits are allocated to each resource sector and each developer is required to manage their developments within acceptable parameters by measuring interior habitat along with sector specific components of land and footprint management action. As specific recovery milestones are met, the buffer is reduced and eventually the footprint is removed which is designed to incentivize reclamation and recovery by giving new footprint to work into. In the case of forestry operations, reforestation milestones are set.

Current forest law and policy does not directly reference the concept of thresholds (never mind establish any). While there could be habitat disturbance thresholds set by regional plans under the *Alberta Land Stewardship Act (ALSA)* and associated environmental management frameworks, there are not currently.¹³⁷ Alternatively, under the *Public Lands Administration Regulation*, the Minister may establish disturbance standards setting a maximum acceptable footprint that activities, uses or dispositions may have on public land (this is done using a Ministerial Order).¹³⁸ In the event that such habitat disturbance thresholds are set, compensation for lost access to timber may become an issue.

¹³⁶ *Moose Lake Access Management Plan* (Edmonton: 2021, Government of Alberta) [*Moose Lake Access Management Plan*].

¹³⁷ However, the *Livingstone-Porcupine Hills Land Footprint Management Plan* (Edmonton: 2018, Government of Alberta) which is a sub-regional plan under the *South Saskatchewan Regional Plan 2014-2024* (Edmonton: 2018, Government of Alberta) set out limits on motorized access disturbance limits which are regulatory and enforceable components of the plan at i and 15. The subordinate *Livingstone-Porcupine Hills Recreation Management Plan* (Edmonton: 2018, Government of Alberta) mentions triggers and thresholds.

¹³⁸ *Public Lands Administration Regulation*, A.R. 187/2011 at s. 3.

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Recommendation: Along with other scientific principles that guide planning and decision-making, linear and spatial thresholds should be included as a guiding principle in the *Forests Act*. Specific thresholds should be set on a regional basis and this can be accomplished via regional planning under ALSA (within regional plans, subregional plans or environmental management frameworks). Alternatively, more targeted thresholds could be set via plans such as the *Moose Lake Access Management Plan* which is currently adopted as policy with the intention that it will be granted status as a subregional plan under LARP.

It should be noted that given that regional planning reflects social and economic concerns, as well environmental concerns, a regional plan is less likely to reflect scientific and ecological determinations of appropriate thresholds. In addition, regional planning is a long process without regular review (usually on a 10-year cycle) meaning that regional plans are not responsive to new scientific and ecological knowledge. As such, it may be more desirable to set thresholds in environmental management frameworks or under the *Public Lands Administration Regulation*.

3.5 Species at Risk

Maintaining forests as habitat (above critical thresholds) is essential for conservation of biodiversity and ecological services but it is particularly critical for species at risk, many of which are at risk as a result of habitat loss. Outside of forest law and policy, there are both federal and provincial laws in place to protect and recover species at risk (whether they do so adequately is a question

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outside the scope of this project).¹³⁹ It is important to note that in terms of protecting species at risk habitat from degradation or loss, the provincial legislation provides no mechanism to do so and the federal legislation offers limited protection. Under both the federal and provincial legislation addressing species at risk, there may be requirements to put recovery plans, recovery strategies and action plans into place for a particular species.

An example that has received much attention in Alberta and is greatly impacted by deforestation is woodland caribou. The *Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, In Canada (Federal Caribou Recovery Strategy)* is a federal plan which applies throughout the boreal caribou ranges in Canada including parts of Alberta.¹⁴⁰ The *Federal Caribou Recovery Strategy* identifies 65% undisturbed habitat in a range as the minimum disturbance management threshold.¹⁴¹ Several areas in Alberta are identified as critical habitat which need to be increased to a minimum of 65% undisturbed habitat.¹⁴² Furthermore, the *Federal Caribou Recovery Strategy* found that anthropogenic disturbances are not equivalent to fire with the former having stronger negative impacts on caribou populations.¹⁴³ The *Federal Caribou Recovery Strategy* identifies both landscape

¹³⁹ See Environmental Law Centre, *Habitat Law in Alberta* (Edmonton: 2019, Environmental Law Centre).

¹⁴⁰Environment and Climate Change Canada, *Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, In Canada* (Ottawa: 2020, Government of Canada) [*Federal Caribou Recovery Strategy*].

¹⁴¹ *Ibid.* at 34 to 37.

¹⁴² *Ibid.* at Figure 5.

¹⁴³ *Ibid.* at 40.

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level planning and habitat management to meet current and future habitat requirements of boreal caribou as essential to recovery planning.

While the *Federal Caribou Recovery Strategy* provides broad strategies and approaches to reach population and distribution objectives for boreal caribou, provincial action is also necessary. In this regard, Alberta has developed a *Draft Provincial Woodland Caribou Range Plan (Caribou Range Plan)*.¹⁴⁴ The *Caribou Range Plan* does set out requirements relevant to forestry, typically pertaining to designing spatial harvest sequences to “align with the sequence of undisturbed caribou habitat development found in the *Caribou Range Plan* with range-specific details” and to be considerate of caribou goals and objectives.¹⁴⁵ Further, forest harvest plans and annual operating plans must incorporate any additional requirements deemed necessary by the forest management branch. However, to date, no range-specific details have been developed (which renders the requirements to design spatial harvest sequences in accordance with such details currently meaningless). Furthermore, rather than setting thresholds and targets, the *Caribou Range Plan* indicates that “the extent and rate of harvesting over time will be assessed to ensure there are no significant negative implications for caribou biophysical habitat”.¹⁴⁶ There is no indication of the manner and frequency of such assessments.

Other species at risk have not received as much attention as woodland caribou. However, there are provincial recovery plans and conservation management

¹⁴⁴ *Draft Provincial Woodland Caribou Range Plan* (Edmonton: 2017, Government of Alberta) [*Caribou Range Plan*]. There is also a *Woodland Caribou Policy for Alberta* (Edmonton: 2011, Government of Alberta) which is a 2-page document outlining a policy statement, parameters, and implementation.

¹⁴⁵ *Caribou Range Plan*, *ibid.* at 52.

¹⁴⁶ *Ibid.* at 52.

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plans in place for a variety of species such as bull trout,¹⁴⁷ Athabasca rainbow trout,¹⁴⁸ westslope cutthroat trout,¹⁴⁹ long-toed salamander,¹⁵⁰ barred owl and other bird species,¹⁵¹ and limber pine, whitebark pine and other plants.¹⁵² Conservation management plans are meant to provide guidance for land and resource management decisions affecting species of concern. Recovery plans

¹⁴⁷ Sustainable Resource Development, *Bull Trout Conservation Management Plan: 2012-2017* (Edmonton: 2012, Government of Alberta).

¹⁴⁸ Alberta Environment and Sustainable Resource Development, *Alberta Athabasca Rainbow Trout Recovery Plan 2014-2019* (Edmonton: 2014, Government of Alberta).

¹⁴⁹ Alberta Environment and Sustainable Resource Development, *Alberta Westslope Cutthroat Trout Recovery Plan 2012-2017* (Edmonton: 2013, Government of Alberta).

¹⁵⁰ Sustainable Resource Development, *Long-Toed Salamander Conservation Management Plan* (Edmonton: 2016, Alberta Government).

¹⁵¹ These include: Sustainable Resource Development, *Barred Owl Conservation Management Plan: 2016-2021* (Edmonton: 2016, Alberta Government); Sustainable Resource Development, *Alberta Burrowing Owl Recovery Plan: 2012-2017* (Edmonton: 2012, Alberta Government); Sustainable Resource Development, *Black-Throated Green Warbler, Bay-Breasted Warbler and Cape May Warbler Conservation Management Plan: 2014-2019* (Edmonton: 2014, Alberta Government); Sustainable Resource Development, *Alberta Ferruginous Hawk Recovery Plan: 2009-2014* (Edmonton: 2009, Alberta Government); Sustainable Resource Development, *Alberta Greater Sage-grouse Recovery Plan: 2013-2018* (Edmonton: 2013, Alberta Government); Sustainable Resource Development, *Harlequin Duck Conservation Management Plan: 2010-2015* (Edmonton: 2010, Alberta Government); Alberta Environmental and Parks, *Alberta Peregrine Falcon Recovery Plan* (Edmonton: 2021, Alberta Government); and others.

¹⁵² These include: Alberta Environment and Sustainable Resources Development, *Alberta Limber Pine Recovery Plan: 2014-2019* (Edmonton: 2014, Alberta Government); Alberta Environment and Sustainable Development, *Alberta Whitebark Pine Recovery Plan: 2013-2018* (Edmonton: 2014, Alberta Government); Sustainable Resource Development, *Alberta Porsild's Bryum Recovery Plan: 2011-2016* (Edmonton: 2010, Alberta Government), Alberta Environment and Sustainable Resources Development, *Alberta Small-flowered Sand-verbena Recovery Plan: 2012-2017* (Edmonton: 2012, Alberta Government); Alberta Environment and Sustainable Resource Development, *Alberta Soapweed and Yucca Moth Recovery Plan: 2012-2022* (Edmonton: 2013, Alberta Government); and others.

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provide strategies to address threats and actions for maintaining and restoring at risk species. The effectiveness of these conservation and recovery plans to actually achieve species' conservation and recovery is an important question which falls outside the scope of this particular report.

However, the question remains to what extent are these management and recovery plans incorporated into forest management? The *Planning Standard* references both species at risk and species of management concern. A species at risk is defined as “[a]ny species known to be ‘at risk’ after formal detailed status assessment and designation as ‘Endangered’ or ‘Threatened’ in Alberta”.¹⁵³ A species of management concern is defined to be species “within the forest management planning area that have an identified value (social, economic, ecological) and are managed to ensure their continued protection/use. This includes species that are hunted or trapped, as well as those that are endangered or threatened”.¹⁵⁴

The forecasting standards set by the *Planning Standard*, forecasting being the analysis of a range of forest management scenarios, requires consideration of habitat requirements for species of special management concerns in determining projected forest structure.¹⁵⁵ Further, the spatial harvest sequence must consider several key issues including maintenance of effective habitat for species of special concern.¹⁵⁶ The management assumptions made in forecasting must include strategies to address biodiversity and species of special management concern including habitat requirements and access

¹⁵³ *Planning Standard* at 26.

¹⁵⁴ *Ibid.* at 27.

¹⁵⁵ *Ibid.* at s. 5.6.

¹⁵⁶ *Ibid.* at s. 5.7.

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management strategies.¹⁵⁷ The performance standards set out in Annex 4 reiterate the objective of maintaining habitat for “high value species” (which includes species at risk and of management concern).¹⁵⁸ Indicators for this are either area of habitat within the defined forest area or specific population parameters. The performance standards reference recovery plans for species at risk under the federal *Species at Risk Act* as being relevant legal requirements; provincial recovery or management plans are not highlighted.¹⁵⁹

In its provisions relating to habitat management, the *Operating Ground Rules Framework* addresses species of special management concern.¹⁶⁰ The habitat requirements of species at risk and of management concern are recognized to impact upon harvest area design and layout and must be addressed in planning of harvest areas.¹⁶¹ There are specific ground rules for woodland caribou, grizzly bears and trumpeter swans which apply if not addressed in an approved forest management plan or spatial harvest sequence. For woodland caribou, new harvest areas in caribou habitat must be less than 1,000 hectares and a “sufficient” amount of habitat must be maintained at all times (with no clear description of what is “sufficient”). For grizzly bears, the amount of roads must be minimized in identified grizzly bear habitat (but no linear thresholds are set) and there must be a 100m buffer between harvest areas and den sites. Finally, for trumpeter swans, there must be no timber harvesting within 200m and no long-term infrastructure (i.e., roads and camps) within 500m of the high water mark of identified swan water bodies. Aside from these specific requirements,

¹⁵⁷ *Ibid.* at s. 5.9.11.

¹⁵⁸ *Ibid.* at obj. 1.2.1.1 of Annex 4.

¹⁵⁹ *Species at Risk Act*, S.C. 2002, c. 29 [*Species at Risk Act*].

¹⁶⁰ *Operating Ground Rules Framework* at s. 7.7.

¹⁶¹ *Ibid.* at s. 7.2.

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operating ground rules are required to “reflect an understanding of the biology of [ungulates] and the importance of their key winter ranges”.¹⁶² This includes avoiding placing access roads on key ungulate habitat features “where possible”. There are buffer requirements in place for other specific species ranging from 20 to 100 metres (including salamander, amphibian, reptiles, and bat hibernacula; breeding sites and hibernacula of species at risk; raptor nest trees, and others). As can be seen, there are no targets or thresholds set for parameters such as undisturbed habitat area or population size.

Recommendation: The importance of forests as habitat for species at risk should be expressly acknowledged in the *Forests Act*. Further, management, conservation, and recovery of species at risk should be integrated into forest management planning and decision-making. Specifically, forestry operations within forest management areas should be required to adhere to requirements in both federal and provincial recovery plans, recovery strategies, actions plans, conservation plans, and management plans. It should be required that roads and harvesting activities avoid sensitive and critical habitat, as well as areas prone to soil loss and uncertain reforestation success. Disturbance thresholds – set on a scientific, precautionary and transparent basis – are required for EBM forest management and decision-making (including for determination of annual allowable cuts).

¹⁶² *Ibid.* at 47.

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3.6 Natural Range of Variation, including Emulation of Natural Disturbances

Natural range of variation (NRV) – also called natural variability, historical range of variation, natural forestry or disturbance-based management - is “the use of historical patterns and processes to help manage ecosystems”.¹⁶³ The use of a NRV strategy reflects the shift from managing issues to managing overall ecosystem health and integrity,¹⁶⁴ and is a key component of EBM.

The theory is that “by aligning management activities as closely as possible to the natural range, the risk of losing biological function is minimized since the rate, intensity, and magnitude of the processes are familiar to the landscape”.¹⁶⁵ A NRV strategy:¹⁶⁶

- Recognizes ecosystems as values unto themselves thereby providing a coarse-filter complement to fine filter approaches (the latter uses the needs of one or more species to guide planning and management).
- Uses quantifiable measures or indicators of the state of ecosystems as a whole (as opposed to relying on models of individual species).
- Shifts the planning process away from one that is reactive and divisive to a proactive approach that represents a broader range of values.

¹⁶³ Andison et al., *Towards a Natural Range of Variation (NRV) Strategy for the CBFA* (Ottawa: 2016, Canadian Boreal Forest Agreement) [Andison et al.] at 4.

¹⁶⁴ *Ibid.*

¹⁶⁵ *Ibid.* at 4 to 5.

¹⁶⁶ *Ibid.*

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An NRV strategy should not focus only on disturbance rather it can use a variety of indicators each of which is “any quantity that changes over time or space, which can be measured or estimated with replication so as to define a range or some other aspect of variability such as a variance”.¹⁶⁷ Closely related, and sometimes used interchangeably, is the concept of emulation of natural disturbance (END).

Much like the term EBM, there is no clear scientific consensus on the meaning of END.¹⁶⁸ As described by Klerk et al.:¹⁶⁹

Some of the ecological premises of the END are (i) that periodic disturbances are inherent to dynamic forest ecosystems, (ii) that natural disturbances are strong determinants of species composition as well as ecosystems' structure and function, and (iii) that forest ecosystems and their species composition have adapted to the disturbances. In other words, it is thought that by maintaining stand and landscape compositions and structures similar to those resulting from natural disturbances, we can reduce the negative impacts of timber harvest on biodiversity and maintain essential ecological functions. In practice, a common objective of the END is to design a forest management practices that fit within a historical range of variability of “natural” disturbance regimes.

¹⁶⁷ *Ibid.* at 6.

¹⁶⁸ Nicole Klerk, Gary Bull and Dave Cohen. “What is the “END” (emulation of natural disturbance) in forest ecosystem management? An open question” (2008) 38 Can. J. For. Res. 2159 [Klerk et al.].

¹⁶⁹ *Ibid.* at 2159.

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One important aspect of ecosystem recovery post-disturbance which should be reflected in END is the concept of ecosystem memory (a.k.a. ecological memory).¹⁷⁰ Ecosystem memory means that past events influence present and future ecosystem characteristics and consists of the “biological legacies (including biodiversity) left on-site or reintroduced from the surrounding environment via mobile link networks... that promote self-reorganization of ecosystems toward pre-disturbance ecosystem structure and composition”.¹⁷¹

While natural disturbance (in particular wildfire) is a key component of the boreal forest ecosystem, it is important to note that traditional logging methods (i.e., clearcuts) have little similarity to wildfire.¹⁷² Fire partially combusts biomass into CO₂, volatile compounds, ash and biochar so that most pre-fire biomass (boles and coarse roots) is unaffected and remains on site.¹⁷³ In addition, soil organic matter is consumed by fire which exposes variable proportions of mineral soil.¹⁷⁴ In contrast, harvesting is a mechanical process that removes only boles of trees, creates limited mineral soil exposure, and limits or slows the transfer of nutrients from the trees to soil.¹⁷⁵ Similar differences between harvesting and other types of natural disturbance – insects, disease and wind – are noted as natural disturbances leave most biomass behind.¹⁷⁶ In addition,

¹⁷⁰ J.A. Colin Bergeron et al., Ecosystem memory of wildfires affects resilience of boreal mixed wood biodiversity after retention harvest (29 April 2017) 126 *Oikos* 1738, doi: 10.1111/oik.04208.

¹⁷¹ *Ibid.* at 1738.

¹⁷² Spies et al., *supra.* note 119. Methods such as maintaining riparian buffers (watershed protection), leaving living and dead trees (structural retention), and thinning young stands are meant to mimic wildfire.

¹⁷³ Andison et al., *supra.* note 163.

¹⁷⁴ *Ibid.*

¹⁷⁵ *Ibid.*

¹⁷⁶ *Ibid.*

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unlike natural disturbance, forestry operations creates a road network which provides access for people, increases weed invasion, and creates a permanent footprint not seen within the natural range of variation (NRV).¹⁷⁷ Andison et al. state that:¹⁷⁸

Because of these differences [between harvesting and natural disturbances], an NRV strategy does not attempt to “emulate,” but rather “move closer” or “remain closer” to natural conditions. Not all aspects of the NRV can be implemented to the same degree or on the same time scale. Thus, the Biological Consequences of management are important to monitor and manage.

The elements of an NRV strategy, especially applied as EBM options, have implications for forest law and policy. For instance, an NRV strategy essentially turns traditional planning on its head as harvesting becomes one of many filters in the NRV foundation (rather the primary focus).¹⁷⁹ Further, the focus of management becomes the whole ecosystem which requires integration of all land and water elements, as well as multiple regulators and forest users.¹⁸⁰ Monitoring, especially that done in support of adaptive management, requires implementation of multiple management actions to learn, monitor outcomes and inform management decisions.¹⁸¹

¹⁷⁷ *Ibid.*

¹⁷⁸ *Ibid.* at 17.

¹⁷⁹ *Ibid.*

¹⁸⁰ *Ibid.*

¹⁸¹ *Ibid.*

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Because protected areas are a cornerstone of EBM, there needs to be clear linkages between the NRV strategy and protected areas.¹⁸² Information about the NRV can be used to help identify the appropriate proportion of landscape to be put into protected areas, provide benchmarks, identify the size and composition of candidate protected areas, and define the spatial and temporal spacing of “floating” reserves.¹⁸³

Recommendation: Disturbance via fire is a natural occurrence in the boreal forest but it must be recognized that harvesting is not equivalent to fire. If an emulation of natural disturbance approach is to be adopted, it is essential that biological legacies be left on site after harvesting.

Recommendation: Along with other scientific principles that guide planning and decision-making, natural range of variation should be included as a guiding principle in the *Forests Act*. In particular, natural range of variation should be used to guide decisions about appropriate harvesting levels and regional habitat-based thresholds.

¹⁸² *Ibid.*

¹⁸³ *Ibid.*

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3.7 Ecological boundaries

A key component of EBM is respect for ecological boundaries. However, it seems obvious to say that ecosystems do not respect legislative and jurisdictional boundaries. A single ecosystem can be subject to numerous legislative and policy regimes which may have diverse and even conflicting objectives.¹⁸⁴

Within a single forest ecosystem, in addition to forestry operations, there may be a multitude of activities such as oil and gas, recreation, hunting, and trapping subject to separate regulatory regimes. In addition, there will be environmental requirements both provincially (e.g., *Water Act*, *Public Lands Act*, *ALSA*) and federally (e.g., *Species at Risk Act*, *Fisheries Act*).¹⁸⁵

As such, EBM of Alberta's forests requires commitment to integrated land planning on a regional basis. The *ALSA* has the potential to provide the framework for EBM of forests as one of *ALSA*'s goals is to provide for the coordination of decisions concerning land, species, human settlement, natural resources and the environment. Under an *ALSA* regional plan, a forest could be managed as an ecosystem with forestry operations as one aspect managed within the region.

Unfortunately, this potential has not been realized. Only 2 of 7 planning regions have completed plans in place which severely hampers the potential to address cumulative effects and resolve issues associated with jurisdictional overlap and conflict. Furthermore, the regional plans which are in place do not

¹⁸⁴ For more discussion on this issue, see Brenda Heelan Powell, *Habitat Law in Alberta, Volume 2: Barriers to Habitat Management and Protection in Alberta* (Edmonton: 2019, Environmental Law Centre).

¹⁸⁵ *Public Lands Act*, R.S.A. 2000, ch. P-40.

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establish enforceable habitat-based thresholds. See [Part 3, Section 4.4](#) of this Report for further discussion around ALSA and regional plan contents.

Recommendation: A key component of EBM is management on an ecosystem scale. This could be accomplished using the ALSA framework by creating sub-regional plans that set clear, enforceable goals, objectives and thresholds relating to forestry operations, as well as monitoring requirements. In the interim until necessary regional plans are developed, these sub-regional plans can be developed and adopted as policy (as has been done with the *Moose Lake Access Management Plan*).

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4. Meaningful Public Consultation and Participation

One key component of EBM of forests is meaningful public consultation and participation. This stems from a recognition that humans are embedded in nature and play a key role in ecosystems. As stated by Brown and Nie:¹⁸⁶

Forest management – and planning – is not a technical problem to be solved by expert foresters, wildlife habitat models, sustained yield calculations, or adaptive management. Instead, it is a social problem to be resolved in a transparent and participatory process – one informed by science and other values – with affected stakeholders. Stakeholders want to know that forest managers hear and understand their views and desired outcomes, and to see their views reflected in the resulting forest plan and the subsequent projects that implement it.

The *Forests Act* does not require public participation in decision-making around forest tenure, forest management or forest operations. However, there is some scope for public participation in forest management planning as set out in the *Planning Standard*. The standards set out in *CSA Z809-02: Sustainable Forest Management: Requirements and Guidance* apply in Alberta subject to the clarifications and exceptions noted in the *Planning Standard*.¹⁸⁷

¹⁸⁶ Susan Brown and Martin Nie, "Making Forest Planning Great Again? Early Implementation of the Forest Service's 2012 National Forest Planning Rule" (2019) 33(3) *Natural Resources & Environment* 1 at 4.

¹⁸⁷ *Planning Standard*, Section 1 – Interpretation of CSA Z809-02 Standards. It should be noted that CSA Z809 has undergone several revisions (published in 1996, revised in 2002, 2008 and 2016). The *Planning Standard* references the 2002 version and indicates that it will be reviewed

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CSA Z809-02 indicates that a high degree of public involvement is required in the development of its standards and emphasizes the need for public participation in identifying forest values and in forest management planning.¹⁸⁸

The *Planning Standard* interprets this requirement by CSA Z809-02 as follows:¹⁸⁹

The public involvement process shall describe how decisions will be made. Alberta has sole decision-making authority and will strive to ensure that issues raised in the public involvement process are addressed. Alberta's objective is for stakeholders and participants in the forest management process to reach a high degree of agreement. Alberta shall arbitrate disagreements where, in Alberta's opinion, agreement is not feasible.

In terms of the public participation requirements set out in CSA Z809-02,¹⁹⁰ the *Planning Standard* clarifies that organizations must have Alberta's approval for a public participation program that addresses the standards in section 5 of the CSA Z809-02. If participants cannot agree to the basic operating rules, then Alberta will arbitrate. Further, FMA-holders must prepare forest management plans and demonstrate that affected volume-based tenure-holders have been given opportunities to participate. Further interested parties (i.e., Indigenous forest users and communities) must have opportunities for meaningful consultation concerning forest management. Meaningful consultation means consultation conducted "in good faith, with honest communication and an open exchange of relevant information before decisions are made. The

when the CSA Z809 is reviewed; however, the current version of the *Planning Standard* is dated 2006.

¹⁸⁸ CSA Z809-02 at 0.2.

¹⁸⁹ *Planning Standard* at 11.

¹⁹⁰ CSA Z809-02 at 5.

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mechanisms for this shall be outlined in the Terms of Reference for the forest management plan".¹⁹¹

It should be noted that the *Planning Standard* references the 2002 version of CSA Z809 which has been most recently updated in 2016. While the *Planning Standard* indicates that it will be reviewed when the CSA Z809 is reviewed, the current version of the *Planning Standard* is dated 2006 and does not appear to be updated to the 2016 version of the CSA Z809. By and large, the standards set out in 2002 and 2016 version of CSA Z809 in terms of public participation are very similar. However, the commentary on each standard differs between the two versions and the 2016 version has much expanded standards around public communication.

In addition to what CSA Z809 says about public participation, the *Planning Standard* expressly recommends public participation in the development of preliminary forest management plans which are required for a new FMA and requires public participation in the development of detailed forest management plans.¹⁹²

¹⁹¹ *Planning Standard* at 12.

¹⁹² *Ibid.* at 17.

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Recommendation: The *Forests Act* should be amended to recognize the important role of public consultation and participation in forest management. In particular, the *Forests Act* should require participation in decisions relating to:

- tenure allocations and renewals, especially FMAs;
- setting Annual Allowable Cuts, especially increases; and
- all aspects of forest management planning (operating ground rules, preliminary, detailed, compartment assessments, general development plans, forest harvest plans, and annual operating plans).

In addition, the *Forests Act* should provide for public access to information which is an essential requirement for meaningful public consultation and participation. This includes information pertaining to:

- all forest management planning documents (operating ground rules, preliminary, detailed, compartment assessments, general development plans, forest harvest plans, and annual operating plans) including records of public participation;
 - maps illustrating buffers around riparian areas and other habitat, roads and other disturbances (facilities etc.);
 - maps and reports on harvested areas, and all Alberta Vegetation Inventory information;
 - contraventions, audits and inspections; and
 - reforestation and reclamation monitoring data.
-

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Recommendation: The *Planning Standard* should be updated to reflect that CSA Z809 has been revised since 2006 (the publication date of *Planning Standard*). Further, the *Planning Standard* should incorporate by reference the most recent version of the CSA Z809 rather than adopting a particular version which can become dated.

5. Fiduciary Duty for Indigenous Consultation and Accommodation, and Management

Thorough discussion of the Crown's fiduciary duty to consult and accommodate Indigenous peoples, as well as the opportunities for management is outside the scope of this report. However, we would be remiss to not address it at all. The Alberta Government does have two policies - *Guidelines on Consultation with First Nations on Land and Natural Resource Management*¹⁹³ and *Policy on Consultation with Métis Settlements on Land and Natural Resource Management*¹⁹⁴ – which apply to forestry operations. The level of consultation required ranges from streamlined to extensive and varies with the particular type of decision being made.

¹⁹³ *Government of Alberta Guidelines on Consultation with First Nations on Land and Natural Resource Management*, as amended (Edmonton: 2014, Government of Alberta).

¹⁹⁴ *Government of Alberta's Policy on Consultation with Métis Settlements on Land and Natural Resource Management, 2015*, as amended (Edmonton: 2020, Government of Alberta).

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Aside from consultation as a fiduciary obligation of the Crown, incorporation of traditional knowledge and values, and active participation and management by Indigenous peoples should become more significant in the future.

Looking at forest management plans in Labrador, Wyatt et al. found that indigenous participation in forest management planning led to changes in plan content especially around ecological and cultural values.¹⁹⁵ There are examples of co-management in Canada, although not necessarily restricted only to forest management, where control over natural resources is shared between First Nations and provincial/federal governments.¹⁹⁶ Wyatt has argued that “Aboriginal forestry” in which “First Nations peoples have re-established their own institutions for managing the use of forest lands” should be enabled.¹⁹⁷

The recent B.C. Supreme Court decision in *Yahey*,¹⁹⁸ may have implications for increased Indigenous authority and management of land. This decision is significant because it is the first time that the Court has found a treaty infringement based on cumulative effects of development.¹⁹⁹ In this case, the Blueberry River First Nations claimed that the cumulative effects of industrial

¹⁹⁵ Stephen Wyatt, Stephanie Merrill, and David Natcher, “Ecosystem management and forestry planning in Labrador: how does Aboriginal involvement affect management plans?” (2011) 41 Can. J. For. Res. 2247; and Stephen Wyatt, Jean-Francois Fortier and Catherine Martineau-Delisle, “First Nations’ involvement in forest governance in Quebec: The place for distinct consultation processes” (2010) 86(6) The Forestry Chronicle 730 looking at Quebec.

¹⁹⁶ Stephen Wyatt, “First Nations, forest lands, and ‘aboriginal’ forestry in Canada: from exclusion to comanagement and beyond” (2007) 38 Can. J. For. Res. 171 [Wyatt]. See also Donna Craig, “Recognizing Indigenous Rights through Co-Management Regimes: Canadian and Australian Experiences” (2002) NZ J Env’tl L 199.

¹⁹⁷ Wyatt, *ibid.* at 178.

¹⁹⁸ *Yahey v British Columbia*, 2021 BCSC 1287 (CanLii).

¹⁹⁹ *Ibid.*, para. 1894

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development significantly diminished their ability to hunt, fish and trap in their territory. The Court found that the Crown's taking up of land for development purposes meaningfully diminished the First Nations' exercise of its Treaty 8 rights. The Court declared that the Province was prohibited from authorizing further activities which infringe on the First Nations' rights (although that declaration was suspended for 6 months to allow negotiations for regulatory changes designed to ensure recognition and protection of the Treaty 8 rights). The Attorney General of B.C. confirmed that it would not be appealing the decision in order to develop "provincial processes that assess and manage the cumulative impact of industrial development, and recognize and respect Blueberry River First Nations' Treaty rights".²⁰⁰ An initial agreement has been reached between the Blueberry River First Nations and B.C. to "support healing the land, and [help] provide stability and certainty for forestry and oil and gas permit holders in Blueberry's traditional territory".²⁰¹

There is at least one case proceeding in Alberta raising similar issues of cumulative effects on the exercise of treaty rights.²⁰² Depending upon adoption of the *Yahey* principles into Alberta law, these principles may have significant impacts on Indigenous land management within traditional territories. In particular, it may be that new industrial developments will require negotiation with and agreement from affected First Nations. Time will tell as to the full implications of the *Yahey* decision and its application in Alberta.

²⁰⁰ *Attorney general's statement on Yahey v. British Columbia* (July 29, 2021), online: <https://news.gov.bc.ca/releases/2021AG0117-001488>.

²⁰¹ *B.C., Blueberry River First Nations reach agreement on existing permits, restoration funding* (October 7, 2021) online: <https://news.gov.bc.ca/releases/2021IRR0063-001940>.

²⁰² *Fort McKay First Nation v Prosper Petroleum Ltd.*, 2020 ABCA 163 (CanLii).

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Recommendation: The *Forest Act* should expressly recognize the duty to consult Indigenous peoples in the context of forest management. The concepts of co-management and Aboriginal forestry are important policy approaches to be contemplated by the provincial government and First Nations on a nation-to-nation basis.

6. Community Forest Management

According to Foster et al., one key aspect of sustainable forest management implementation practices is community-based forestry which requires vesting forest management responsibility to those living in close proximity to the forest for their own socio-economic benefit.²⁰³ To be successful, community-based forestry needs: clear and well defined property rights, effective community institutions and developed community capacity, motivating incentives which align with community interests, and stocked and productive lands.²⁰⁴

Community forestry practices include: participation of relevant stakeholders in planning, implementing, and monitoring; and empowering governance (clear and firm rules on resource use under group ownership).²⁰⁵

²⁰³ Foster et al., *supra*. note 29.

²⁰⁴ *Ibid.*

²⁰⁵ *Ibid.*

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The *Forests Act* does not provide a community-based form of tenure; however, the *Timber Management Regulation (TMR)* does provide for community timber permits.²⁰⁶ Community timber permits are issued to local small operators – either community loggers or community timber manufacturers - to allow harvesting up to 21,000 m³ of coniferous and deciduous timber annually (although permits are issued for either coniferous or deciduous timber).²⁰⁷ Over a 5 year period, total production for all coniferous and deciduous community timber permits cannot exceed 2,500,000 m³.²⁰⁸ Typically, rather than conducting reforestation activities, a community timber permit holder pays a reforestation levy.

The TMR does not provide much detail about community timber permits. The *Coniferous Community Timber Permit Program and Commercial Timber Program Management Directive* provides more detail (but it should be noted the directive predates changes made to the TMR effective May 1, 2021).²⁰⁹ The directive sets out the eligibility criteria for community loggers and community timber manufacturers one of which is residing within the historical program boundary. The directive also sets out basic operational requirements, noting that additional requirements may be set out in the specific community timber permit. The directive indicates that community timber permits are typically issued for 1 to 2 year terms.

²⁰⁶ *Timber Management Regulation*, A.R. 60/73 [TMR] at 74.1 to 74.4. See also

²⁰⁷ TMR at s. 74.6. See also Government of Alberta website at <https://www.alberta.ca/timber-permits-coniferous.aspx>.

²⁰⁸ TMR at s. 74.7(2).

²⁰⁹ *Coniferous Community Timber Permit Program and Commercial Timber Program Management Directive*, AF-FDP-2017-05 (August 1, 2017).

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While the TMR provisions do enable a more local aspect to forestry operations, it is short-term and small-scale, and not necessarily reflective of community-based forestry which enables forest management by a community. Fundamental elements of community forestry include:²¹⁰

- Community control over the management of the forest. This differs from public participation in that the community members have a substantive influence over decisions that result from the management process (i.e., community members as principal decision-makers not merely in a consultative role).
- Efforts are made to keep benefits of the forest – economic and social – within the community.
- Often, but not always, there is commitment to sustainable forest management to maintain long-term ecological health. As well, multiple-use management is often (but not always) adopted to manage for a variety of locally preferred values such as recreation, aesthetics and water quality.

The objectives of community forestry – such as stewardship, multiple forest use and public participation – require a consistent landbase as opposed to volume-based timber allocations.²¹¹

²¹⁰ Sara Teitelbaum, Tom Beckley, and Solange Nadeau, “A national portrait of community forestry on public land in Canada” (2006) 82(3) *The Forestry Chronicle* 416.

²¹¹ *Ibid.* at 418.

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Recommendation: The *Forests Act* should be amended to include community management as a form of land-based tenure. Community tenure agreements should be issued on a long-term basis (20 years) and provide a right to harvest timber and other products from the forest. Associated regulations should set out the goals of community forestry including to provide long-term opportunities to achieve community social, economic, and environmental objectives. The regulations should also set the qualifications for participants in community tenure agreements and obligations of participants. We note that a form of community tenure has been adopted in Ontario and in B.C.

7. Accountability Mechanisms

A variety of accountability mechanisms which can be used to enable the goals of forest EBM. These include information sharing (for public participation and for monitoring and enforcement), a range of monitoring and enforcement tools, third party audits, and use of environmental assessment.

As mentioned above, information sharing is essential to meaningful public consultation and participation. Information which should be freely accessible includes:

- all forest management planning documents (operating ground rules, preliminary, detailed, compartment assessments, general development

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plans, forest harvest plans, and annual operating plans) including records of public participation;

- maps and reports on harvested areas, and all Alberta Vegetation Inventory information;
- contraventions, audits and inspections; and
- reforestation and reclamation monitoring data.

A centralized location for this information, such as an online registry, would assist with accessibility and transparency. Currently, information about *Forests Act* contraventions is available on the Government of Alberta website but there is no centralized registry for forestry related information. Often, relevant information is in the care and control of individual forestry operators.

Recommendation: Create a centralized online registry for the collection and sharing of relevant information such as forest management planning documents; harvest maps and reports; Alberta Vegetation Inventory data; watershed relevant data; habitat objectives, thresholds, and footprint data; contraventions, audits, and inspections; and reforestation and reclamation data.

With respect to monitoring and enforcement mechanisms, the existing tools are set out in the *Forests Act*, the regulations and various policy documents. Forest officers are allowed to enter, inspect and seize evidence for the purposes of administering the Act and its regulations.²¹² The right of entry enables a forest

²¹² *Forests Act* at ss. 43 to 44.4.

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officer to conduct an inspection, investigation or survey, to review and obtain copies of records, or to require the production of records.²¹³

In the event of non-compliance, a timber disposition may be suspended, cancelled, or have its terms altered (although the latter does not apply to FMAs).²¹⁴ A non-compliance is considered to be any failure to pay Crown charges, or to comply with approved operating plans or terms of the timber disposition.²¹⁵ There are also provisions allowing realization on security deposits, placement of liens on timber, and seizure of timber.²¹⁶ Contraventions of reforestation obligations are addressed in *Directive 97-20: Continuing Contraventions of Reforestation Obligations* and may result in monetary penalties.²¹⁷ The director may undertake whatever work is considered necessary to mitigate or rectify unsatisfactory conditions arising from non-compliance relating to reforestation obligations.²¹⁸ As well, administrative penalties may be levied for contravention of certain provisions of the Act or regulations.²¹⁹ It should be noted that, to a great extent, enforcement often relies upon operator self-reporting or public complaints (rather than systematic inspections by enforcement officers).

Monitoring plays a central role in enforcement and in adaptive management based decision-making which is a key component of EBM of forests. As pointed

²¹³ *Ibid.* at ss. 43 to 44.5.

²¹⁴ *Ibid.* at s. 25

²¹⁵ *Ibid.* at s. 25.

²¹⁶ *Ibid.* at ss. 25, 32 to 33, and 34 to 39.

²¹⁷ *Directive 97-20: Continuing Contraventions of Reforestation Obligations* (September 23, 1997).

²¹⁸ TMR at s. 143.

²¹⁹ *Forests Act* at s. 59 and TMR, s. 171 to 173.1 and Schedule 6.

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out by the Panel on Ecological Integrity assessing and understanding ecological integrity requires inventory, research and monitoring.²²⁰ Monitoring requires repeated observation over time of specified parameters which are used to determine the state of a system and the effects of disturbances. The results of monitoring may be used to trigger certain management responses or research.

Although the *Forests Act* is silent on the issue of monitoring and reporting,²²¹ the *Timber and Reforestation Operations Monitoring Directive* requires monitoring and reporting regarding compliance with operating ground rules and annual operating plan by FMA-holders and large quota-holders.²²²

The *Timber Management Regulation* sets out some reporting requirements for reforestation activities.²²³ Under the *Reforestation Standard of Alberta*,²²⁴ forest regeneration monitoring is required.

The *Operating Ground Rules Framework* requires monitoring and annual reporting on silviculture and harvesting activities.²²⁵ As well, under the *Operating Ground Rules Framework*, watercourse crossings are subject to monitoring while in use and after reclamation.²²⁶

²²⁰ Panel on Ecological Integrity II, *supra*. note 42 at 1-9.

²²¹ Section 44.6 of the *Forests Act* enables the Minister to establish programs to promote the reporting of contraventions under the Act and regulations.

²²² *Directive No. 2006-04: Timber and Reforestation Operations Monitoring* (May 1, 2006).

²²³ TMR at s. 143.2.

²²⁴ Alberta Agriculture and Forestry, *Reforestation Standard of Alberta effective May 1, 2021* (Edmonton: 2021, Government of Alberta) [*Reforestation Standard of Alberta*].

²²⁵ *Operating Ground Rules Framework* at s. 12.0.

²²⁶ *Ibid.* at s. 11.4.

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The *Planning Standard* “encourages” operators to participate in “long-term, scientifically rigorous biodiversity monitoring to assess achievement and effectiveness of objectives”.²²⁷ As well, the Detailed Forest Management Plan is required to provide a description of the monitoring program and associated evaluation of outcomes (reporting on some indicators is required annually and a stewardship report is required every 5 years).²²⁸ Monitoring and reporting is tied to the performance standards and indicators listed in Annex 4 of the *Planning Standard*.²²⁹

Generally speaking, the monitoring and enforcement mechanisms provided by the *Forests Act*, the regulations and various policy documents are primarily focused on ensuring regeneration of timber supply. The monitoring and enforcement provisions do not reflect an EBM ethos. Where there are references to biodiversity monitoring, these activities are “encouraged” but not required, and in the case of the performance standards set out in Annex 4 of the *Planning Standard* objectives, goals and thresholds are not always clearly stated. Although the *Planning Standard* mentions biodiversity monitoring in conjunction with the concept of adaptive management, there is no framework outlining the key components of adaptive management and the essential role of monitoring therein.

As stated by Noss, goals are necessary to create context and a sense of purpose for monitoring.²³⁰ Well accepted goals for conservation of biodiversity

²²⁷ *Planning Standard* at 12.

²²⁸ *Ibid.* at s. 2.2.6.

²²⁹ Annex 4 contains performance standards related to biological diversity, ecosystem productivity (reforestation and control of invasive species), soil and water, global ecological cycles (carbon uptake and forest land conversion), and timber and non timber benefits.

²³⁰ Reed F. Noss, “Assessing and monitoring forest biodiversity: A suggested framework and

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include, among others: maintaining or restoring viable populations of all native species in natural patterns of abundance and distribution; sustaining key geomorphical, hydrological, ecological, biological, and evolutionary processes within NR; and encouraging compatible human uses.²³¹ In terms of ecological indicators, Noss recommends identifying a suite of focal species which are related to different attributes of the landscape:²³²

- Area limited species: require largest patch size;
- Dispersal limited species: require patches in close proximity, corridors or crossings;
- Resource limited species: require specific resources (often in critically short supply);
- Process limited species: sensitive to the level, rate, spatial characteristics or timing of ecological processes (like fire, flooding);
- Keystone Species: ecologically pivotal species;
- Narrow endemic species: restricted to a small geographic range; and
- Special cases: other important species not in previous categories.

indicators" (1999) 115 *Forest Ecology and Management* 135 [Noss].

²³¹ *Ibid.*

²³² *Ibid.*

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Recommendation: Currently, monitoring and enforcement in Alberta's forest law and policy is primarily focused on reforestation and regeneration. This reflects the primary focus on sustainable timber supply rather than EBM of forests. Requirements to monitor ecosystem components beyond timber - such as water, soil and biodiversity - should be stated with clear objectives, goals and thresholds. Monitoring programs should be designed within the context of an adaptive management approach which allows management decisions to be responsive to results of monitoring.

Third-party audits provide a mechanism for independent review of forest management plans. As well, third-party audit can also be used to provide an independent check on monitoring approaches and accuracy. The current CSA Z809 requires that an operator undergo a third-party audit of its forest management plans to become certified under the standard.²³³ However, the *Planning Standard* indicates that third-party independent audits are not compulsory nor is there any indication that such audits must be published.²³⁴

Recommendation: Require third-party audits of forest management plans and monitoring activities as an independent check that EBM principles are being adopted and implemented by forestry operators. In particular, there should be third-party review of operators' EBM plans with monitoring of on-the-ground operations to ensure adherence to the EBM plan.

²³³ CSA Z809-16: *Sustainable Forest Management* (Toronto: 2016, Standards Council of Canada).

²³⁴ *Planning Standard* at 11.

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In addition, there should be regular audits of harvest sites every two years by multi-disciplinary teams. As is done in Montana, audits could be focused in areas where timber harvesting may cause greater soil and water damage.

Currently, dispositions of timber do not trigger environmental assessment requirements. Although much of Alberta's forest landbase is already allocated for timber harvesting, environmental assessment could be used for renewals of existing allocations and for new allocations. As well, changes in the Annual Allowable Cut should be subject to environmental assessment.

Recommendation: Decisions to issue new or to renew timber allocations, particular on a large scale and long-term basis (such as FMAs) should be subject to environmental assessment under the *Environmental Protection and Enhancement Act*. As well, the current Annual Allowable Cut (and decisions to increase) should be subject to environmental assessment to ensure the goals of EBM are being met (i.e., ensure annual allowable cut is scientifically based on EBM requirements).

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Part 3: Forest Law and Policy in Alberta

Before getting into the details of forest law and policy in Alberta, some review of the administrative division of forest lands is useful.

The province of Alberta is divided into two main areas: the White Area and the Green Area. The White Area consists of the settled portions of the province (central, southern and Peace River areas) whereas the Green Area consists of the forested portion of the province (most of Northern Alberta and the mountain and foothills areas along the western border).²³⁵ The Green Area, along with some adjacent portions of the White Area, are subdivided into forest management units (FMUs).

²³⁵ *Sustainable Forest Management: 2015 Facts & Statistics* (Edmonton: Government of Alberta, 2017).

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An FMU is an area of forested land which is designated as an administrative unit to manage timber.²³⁶ These are designations only for administrative purposes (i.e., they do not reflect ecosystem or other landscape considerations).

As of 2015, the total land area divided into FMUs was just over 35,000,000 hectares (ha), with the majority of the FMUs falling into a type of forest disposition called forest management agreements (about 23,000,000 ha).²³⁷ About 4,000,000 ha of FMUs are subject to non-forest management agreement timber disposition, with only about 7,000,000 ha of FMUs not subject to any timber dispositions.²³⁸

From a historical perspective, forestry law and policy has undergone several stages of development moving from unregulated exploitation to forest management designed to maintain a sustainable supply of timber.²³⁹ The next stage is likely to be a shift to sustainable forest management with a goal of sustaining forest ecosystems rather than just a continuous timber supply.²⁴⁰

²³⁶ *Ibid.*

²³⁷ *Ibid.*

²³⁸ *Ibid.*

²³⁹ Monique M. Ross, *A History of Forest Legislation in Canada 1867-1996*, CIRL Occasional Paper #2 (Calgary: Canadian Institute of Resources Law, 1997).

²⁴⁰ *Ibid.*

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1. Basic Legal Scheme

It should be noted that Alberta's current forest law and policy is focused on those forests located on public land. There is no legislation in place for forest management on private lands although sustainable forest management is encouraged via Agroforestry and the Woodlot Extension Society.²⁴¹

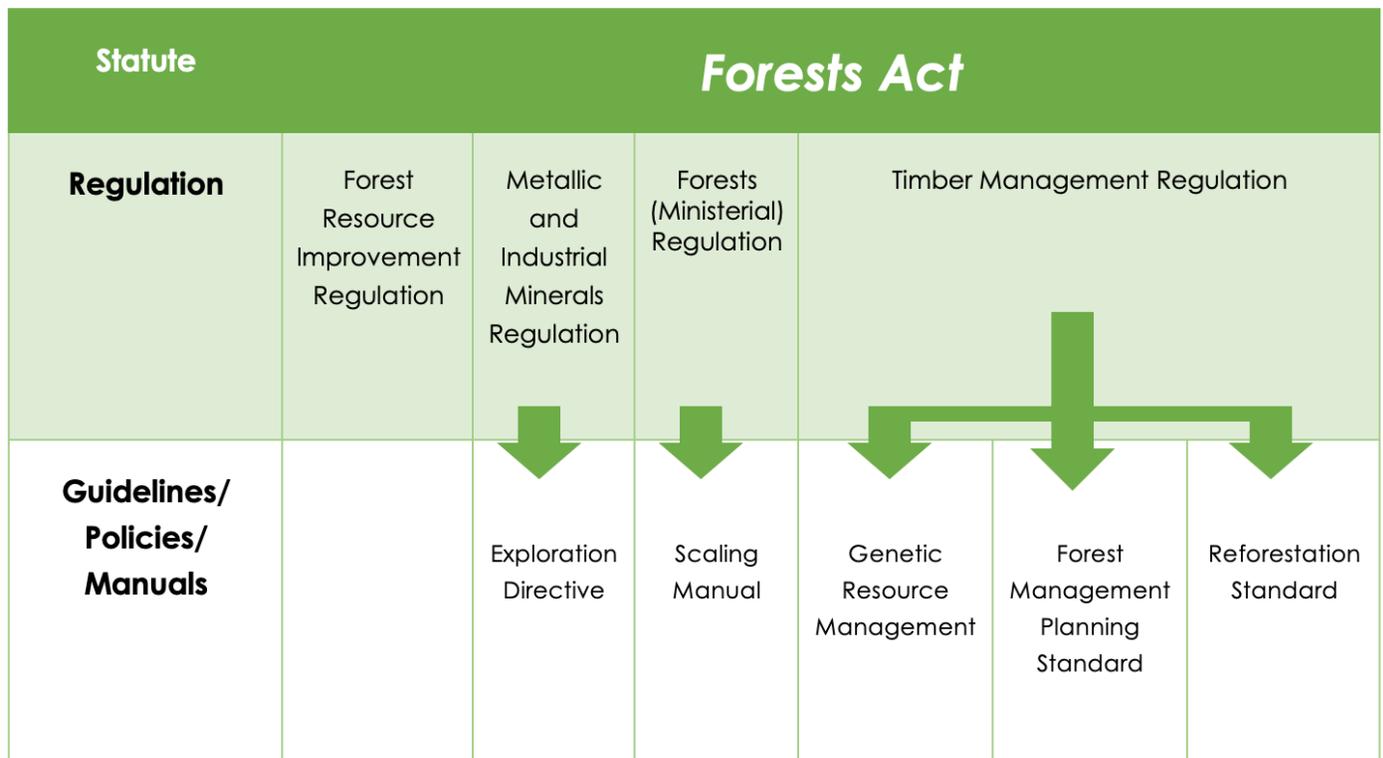


Figure 4: Basic Scheme of Alberta's Forest Laws and Policies

While the main legislation addressing forestry activities is the *Forests Act* and its regulations, there are other pieces of legislation which may also impact on forests and forest management practices such as the *Alberta Land Stewardship*

²⁴¹ CCFM Fact Sheet, *supra*. note 3.

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Act, the *Water Act*, and the *Environmental Protection and Enhancement Act*. See [section 1.4 of this Part](#).

1.1 Forests Act

The *Forests Act* is the primary piece of legislation dealing with forests in Alberta albeit with a focus on forests as a timber source rather than forests as ecosystems. The Act is divided into several parts:

Preamble

Effective May 2021, several preamble statements were added to the *Forests Act*:²⁴²

- Alberta's vast and abundant forests are an important part of the province's diverse ecosystem that contribute to biodiversity and clean air and water for the benefit of current and future generations of Albertans, including Indigenous peoples;
- Alberta is a world leader in environmentally sustainable forest policies and practices that are grounded in science and based on the principles and practices of sustainable forest management;
- the forest industry is a significant contributor to Alberta's economy, and the Government of Alberta and the forest industry work together to ensure that the forest industry remains innovative, productive and competitive;

²⁴² See *Bill 40: Forests (Growing Alberta's Forest Sector) Amendment Act* available at <https://www.assembly.ab.ca/assembly-business/bills/bill?billinfoid=11874&from=bills> [Bill 40].

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- security of access to a sustainable timber supply is the basis of the forest industry's ability to contribute to Alberta's economic prosperity;
- Government of Alberta recognizes the threat from a changing climate to Alberta's forests, including the increased risk of wildfires and pests, and the potential of forests to mitigate climate impacts;
- Alberta seeks to manage threats from forests from wildfires and pests, to find opportunities to reduce risks from wildfires to human life and communities, and to promote healthy ecosystems.

While preamble statements may provide some guidance for interpretation of the Act, they do not have legal effect in themselves.²⁴³ The concepts expressed in the preamble statements must be carried into the provisions of the Act itself to have the force of law.

Part 1: Administration

This part contains provisions addressing matters such as the appointment of forest officers, regulation making powers held by the provincial Cabinet and by the Minister, and administration of public land. It also contains provisions prohibiting the cutting, damage or destruction of forest growth on forest land (i.e., public land with forest cover) except in accordance with the Act. As well, there are provisions allowing orders directing compliance with the Act and its regulations which may be enforced by application to the Court of Queen's Bench.

²⁴³ Kent Roach, "The Uses and Audiences of Preambles in Legislation" (2001) 47 McGill L.J. 129.

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Part 2: Crown Timber

This part contains provisions allowing the division of forest land into forest management units, and regulating the disposition of Crown timber for harvesting purposes (via forest management agreements, timber licences, timber permits and timber quotas).

It should be noted that, effective May 1, 2020, some amendments were made to allow, in some cases, a quota holder to harvest without a licence (whereas previously both a quota and license were required).²⁴⁴ These amendments include expanding the definition of “timber disposition” to include timber quotas issued under 17(5) and changing the definition of “timber quota”.²⁴⁵ As well, the distinction between coniferous and deciduous quotas has been eliminated, and the quota harvesting period may now be 5 or 10 years (previously just 5 years).²⁴⁶

There are also some amendments, which although passed, are not yet in effect. These relate to requiring certain standard clauses to be incorporated into forest management agreements.²⁴⁷

Other provisions in Part 2 of the *Forests Act* grant enforcement powers such as rights to search, enter and inspect, seize evidence, and dispose of seized property. Further, section 44.7 of Part 2, is a privative clause which states that “no decision, order, direction, ruling or proceeding of the director or the Minister shall be questioned or reviewed in any court, and no order shall be made or process entered or proceedings taken in any court to question, review, prohibit

²⁴⁴ *Forests Act* at ss. 17(5) and 17(6). Amendments made by *Bill 40*.

²⁴⁵ *Forests Act* at s. 1.

²⁴⁶ *Ibid.* at s. 18(5).

²⁴⁷ *Bill 40* at ss. 6(b), 11 and 23.

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or restrain the director of Minister from doing the thing". While the privative clause purports to not allow review of decisions made under the authority of the *Forests Act*, such decisions may in fact be subject to judicial review and the existence of a privative clause is just one factor considered in determining the appropriate degree of deference offered to the director or Minister by the courts.²⁴⁸

Part 2.1: Alberta Land Stewardship Act (ALSA) Regional Plans

This part addresses potential conflicts between timber dispositions or timber quotas and an applicable ALSA regional plan (in which case, the ALSA regional plan prevails). Any timber disposition or timber quota must be consistent with applicable ALSA regional plans. Similarly, a director may only approve a general development plan or annual operating plan where it is consistent with an ALSA regional plan.

Part 4: Offences and Penalties

This part establishes offences and penalties for violation of the Act. This includes cutting, damaging or destroying forest growth without authorization under the Act or regulations.²⁴⁹ The maximum penalty under the Act is \$100,000 for an individual or \$1,000,000 for a corporation.²⁵⁰ In addition to penalties, the court may make orders such as prohibiting or directing certain actions, requiring

²⁴⁸ There is a significant amount of case-law on the appropriate standard of review in a judicial review application. See for example, *Canada (Minister of Citizenship and Immigration) v Vavilov*, 2019 SCC 65 (CanLii); *Dunsmuir v New Brunswick*, 2008 SCC 9 (CanLii); and *Moffat v Edmonton (City) Police Service*, 2021 ABCA 183 (CanLii).

²⁴⁹ *Forests Act* at ss. 10 and 50.

²⁵⁰ *Ibid.* at s. 54.

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publication of the facts relating to the conviction, performing community service, providing accounting of proceeds derived from the offence, compensating the Minister for cost of remedial or preventative actions necessitated by the offence, and paying money or posting a bond to ensure compliance with an order.²⁵¹ A person may also be required to pay compensation for loss of or damage to property suffered by the Crown or another person.²⁵²

Aside from offences for violations of the Act (which are prosecuted via the courts), there are a variety of administrative penalties which may be imposed by the director (i.e., a government official). The director may impose administrative penalties for contravention of an ALSA regional plan, the Act or regulations, or a term or condition of a timber quota or timber disposition.²⁵³ The director may require a person who harvests, cuts, damages or destroys timber from forest land (without authority) to pay money in addition to the regular rate for that use.²⁵⁴ In addition, a person who received proceeds from unauthorized harvesting, cutting, damaging or destroying of timber can be required by the director to provide a full accounting of those proceeds and to hold those proceeds in trust for the Crown for payment.²⁵⁵

Part 5: Appeals

This part enables the provincial Cabinet to make regulations respecting appeals from decisions made under the Act or its regulations. There are provisions

²⁵¹ *Ibid.* at s. 55.

²⁵² *Ibid.* at s. 56.

²⁵³ *Ibid.* at ss. 59-61.

²⁵⁴ *Ibid.* at s. 58.

²⁵⁵ *Ibid.* at s. 58.

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regarding notices of appeal, hearings and powers of appeal body (which can be established by regulation). To date, there is no appeal board created pursuant to these provisions.

In the event that an appeals process is created, then there is a privative clause which provides that, where the Minister has power to do anything respecting an appeal, then no decision, order, direction, ruling, proceeding, report, or recommendation of the Minister or the appeal body may be questioned or reviewed by any court. Like section 44.7, while this privative clause purports to not allow review by the courts, there may still be judicial review allowable by virtue of administrative law principles.

1.2 Regulations

There are several regulations under the *Forests Act*: the *Timber Management Regulation*, *Timber (Ministerial) Regulation*, *Forest Resource Improvement Regulation*, *Exploration Regulation*, and *Metallic and Industrial Minerals Exploration Regulation*. It should be noted that effective May 1, 2021, two long-standing regulations were repealed (the *Timber Regulation* and the *Scaling Regulation*).²⁵⁶

The *Timber Management Regulation* (TMR) sets out the process for obtaining timber dispositions including security requirements. It also sets out the parameters for crown charges (rates and calculation of timber dues).

Importantly, the TMR also sets the requirement of timber disposition holders to carry out reforestation within 2 years after the end of the year of cut.²⁵⁷

²⁵⁶ *Timber Repeal Regulation*, A.R. 78/2021 repealed the *Timber Regulation*, A.R. 404/92. The *Forests (Ministerial) Regulation*, A.R. 77/2021 repealed the *Scaling Regulation*, A.R. 195/2002.

²⁵⁷ TMR at Part 6.

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Reforestation is any “operation involving seed management, seedling production, site preparation, tree planting, seeding, regeneration or reforestation surveying, stand cleaning, stand tending, stand thinning, tree improvement, fertilization, drainage, pruning or site analysis that is carried out in the course of forest renewal”.²⁵⁸ The standard for determining the level of reforestation success relative to approved forest management plans is the *Reforestation Standard of Alberta*.

The *Forests (Ministerial) Regulation (Forests Regulation)*²⁵⁹ requires anyone who scales timber to do so in accordance with the *Scaling Standards*.²⁶⁰ Scaling of timber is the measurement or estimation of the volume of felled timber and is used to determine crown dues payable, allowable harvest level monitoring, and research and development.

The *Forest Resource Improvement Regulation (FRIR)*²⁶¹ establishes the Forest Resource Improvement Association of Alberta (FRIAA) as a delegated authority under the *Environmental Protection and Enhancement Act (EPEA)*. The FRIAA is meant to establish programs or initiatives for the enhancement of Alberta's forest resources, to promote enhanced management and to improve the sustained yield of Alberta's forest resources, to promote integrated resource management and for reforestation of public land.²⁶²

²⁵⁸ TMR at s. 2(16.1).

²⁵⁹ *Forests (Ministerial) Regulation*, A.R. 77/2021 [*Forests Regulation*].

²⁶⁰ Government of Alberta, *Scaling Standards of Alberta* (Edmonton: May 2021, Alberta Agriculture and Forests) [*Scaling Standards*].

²⁶¹ *Forests Resources Improvement Regulation*, A.R. 152/1997 [FRIR].

²⁶² *Ibid.* at s. 3.

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The reforestation activities of FRIAA are funded via reforestation levies it collects, and by cash and securities transferred to it pursuant to the TMR. Where a person is required to pay timber dues under the TMR, that person must also pay dues to the FRIAA (known as FRIAA dues which are payable in addition to the timber dues owed to the Crown).²⁶³ In addition, when a reforestation levy is required under the TMR, that levy must be paid to the FRIAA.²⁶⁴

The *Exploration Regulation* is promulgated under several acts - the *Forests Act*, *Mines and Minerals Act*, *Public Highways Development Act*, and *Public Lands Act* - and is primarily concerned with geophysical exploration activities associated with oil and gas resources.²⁶⁵ It incorporates by reference the *Exploration Directive* as part of the regulation.²⁶⁶ The regulation requires notification be provided to any relevant FMA holder or forest licence holder.²⁶⁷

Similarly, the *Metallic and Industrial Minerals Exploration Regulation (MIMER)*²⁶⁸ is promulgated under the *Forests Act*, the *Mines and Minerals Act*, and the *Public Lands Act*, and is primarily concerned with metallic and industrial mine mineral exploration activities. Section 28 requires that a licensee for a program of exploration ensure that a FMA holder be notified of the program.

²⁶³ *Ibid.* at s. 5.

²⁶⁴ *Ibid.* at s. 5.1.

²⁶⁵ *Exploration Regulation*, A.R. 284/2006.

²⁶⁶ *Exploration Directive* (Edmonton: 2021, Alberta Environment and Parks).

²⁶⁷ *Exploration Regulation* at ss. 34, 35, 38, and 39.

²⁶⁸ *Metallic and Industrial Minerals Exploration Regulation*, A.R. 213/1998 [MIMER].

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1.3 Guidelines and Policies

The *Forests Act* and its regulations provide the framework for regulation of forestry activities and operations. However, much of the detail and specific requirements are found in a variety of guidelines, policies, and directives.

Many of these requirements are discussed in detail under the topic headings: dispositions of crown timber, scaling, forest management planning, reforestation, enforcement, public participation, and indigenous consultation. However, there are numerous guidelines, policies, and directives that address a variety of other topics related to forestry operations and activities:

- *Directive - Timber Forms*²⁶⁹ which provides the minimum record or form reporting requirements for forest management and harvest reporting (many of which were previously prescribed in the now repealed *Timber Regulation*²⁷⁰).
- Numerous directives setting out technical requirements for forest harvesting operations and measurement:
 - AF-FDP-2017-07 Debris Management Standards for Timber Harvest Operations(January 3, 2018)
 - 2016-01 Offsite Timber Storage Sites (May 1, 2016)
 - 2015-05 Endangered Pine Directive – Mountain Pine Beetle Infested Stands(October 7, 2015)

²⁶⁹ *Directive – Timber Forms* (Alberta Agriculture and Forestry, Forest Policy, 2021, No. 02).

²⁷⁰ *Timber Regulation*, A.R. 404/1992.

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- 2015-06 Approval of Exceptions to General Rate of Timber Dues (October 7, 2015)
- 2013-01 Mountain Pine Beetle Level 2 Harvest Priorities and Approval Process(April 11, 2013)
- SD 2011-03 Integration of Grazing and Timber Activities (April 15, 2011)
- 2011-02 Export of Unmanufactured Crown Timber and Wood Fibre, Revision 6 (May, 2021)
- 2008-03 Industrial Timber Salvage Chargeability (November 01, 2008)
- 99-02 Timber Production Monitoring (August 16, 1999)
- 98-07 Timber on Government Road Allowances and Rights-of-Way (November 19, 1998)
- 98-03 Quota Production Chargeability (May 01, 1998)
- 97-18 Release of Timber Information (July 29, 1997)
- 97-11 Checking Weigh Scale Operations (September 23, 1997)
- 97-10 Timber Harvesting Rights Within Non-Timber Land Dispositions (July 29, 1997)
- 97-09 Off Shore Lumber Volume Calculation (July 29, 1997)
- 97-08 Use of Forms TM 9, TM 9A, TMPL 1 and TMPL 2 (July 29, 1997)

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- 97-06 Marginal Timber for Sales Based Timber Operators (March 19, 1997)
- 97-02 Quadrant Over-Production – Exceeding Authorized Quadrant Volume(February 6, 1997)
- There are several directives addressing forest pests:
 - 2013-01 Mountain Pine Beetle Level 2 Harvest Priorities and Approval Process(April 11, 2013)
 - 2011-04 Mountain Pine Beetle Log Management (April 15, 2011) See also, Information Letter – Best Management Practices for Hauling and Milling MPB-Infested Pine (February 01, 2010)
 - 2011-01 Importation of Conifer Logs and Forest Products With Bark Attached, Revision 7 (May, 2021)
 - 2013-02 Pesticide, Bark Beetle Pheromone and Biological Control Use Guidelines for Forest Pest Management (May 21, 2013)
 - 2013-03 Forest Pest Management Product Development Guidelines (May 21, 2013)
 - 2001-06 Weed Management in Forestry Operations (May 24, 2001).
- There are several directives clarifying the requirements for spatial digital data submissions:
 - AF-FP-2015-01– Standards for Spatial Digital Data Submissions (November 30, 2020)

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- AF-FP-2015-02 – Forest Harvest Plan/Annual Operating Plan/As-Built Spatial Digital Data Submissions (May 6, 2016)
- AF-FP-2015-03 – Final Harvest Area Digital Data Submissions (November 4, 2020)
- AF-FP-2015-04 – Silvicultural Activities Digital Data Submissions (November 4, 2020)
- *Directive 2007-01— Fire Salvage Planning and Operations* (November 21, 2007) provides guidance on fire salvage to use as much of fire-killed timber as possible within 2 years of the fire event.
- *Directive 97-12 – verification of Disposition Holder Forest Inventories* (September 23, 1997) is designed to ensure that forest inventories meet or exceed provincial inventory standards as set out in the Alberta Vegetation Inventory.

1.4 Other Legislation which may impact forests and forestry operations

Aside from the *Forests Act* and its regulations, other pieces of legislation can impact upon forests and forestry operations as a matter of general environmental regulation (including wildlife, species at risk and protected areas), land use planning and management, or regulation of natural resource activities that may occur in forests. The following provides a very brief overview of this legislation (rather than a detailed review and analysis of its application to forests).

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1.4.1 General Environmental Legislation

In Alberta, the main pieces of general environmental legislation are the *Environmental Protection and Enhancement Act* (EPEA) and the *Water Act*. The EPEA establishes a system of approvals, registrations, and notices for activities (as listed in the EPEA's Schedule of Activities); establishes the provincial environmental assessment process; and prohibits the release of substances that may cause a significant adverse effect or in contravention of an approval, code of practice or regulation. With respect to forestry operations, only the construction, operation and reclamation of pulp and paper facilities, and wood or wood product processing or manufacturing facilities falls into the Schedule of Activities (meaning these activities may require an EPEA authorization and/or environmental assessment).

The *Water Act* sets out the licensing and priority regime for the allocation of water, its diversion, and its use throughout the province via water licenses. In addition, *Water Act* approvals are needed for activities specified in the Act such as maintaining, removing or disturbing ground, vegetation or other material that:

- alters, may alter or may become capable of altering the flow or legal of water, whether temporarily or permanently;
- changes, may change or may become capable of changing the location of water or the direction of flow of water;
- causes, may cause or may become capable of causing the situation of water or the erosion of any bed or shore of a water body; or
- causes, may cause or may become capable of causing an effect on the aquatic environment.²⁷¹

²⁷¹ *Water Act* at s. 1(1)(b). Exceptions to approval requirements are made for certain activities as outlined in the *Water (Ministerial) Regulation*, A.R. 205/98.

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In terms of wildlife and species at risk, both federal and provincial legislation plays a role and may impact upon forests and forestry operations. The provincial *Wildlife Act*, which primarily deals with management of wildlife, contains provisions for the designation and protection of endangered species and enables habitat conservation areas and migratory bird lure sites.²⁷² The federal *Species at Risk Act* is focused on the prevention of extirpation and extinction of species, the recovery of species at risk, and management of species of special concern.

The federal *Migratory Birds Convention Act, 1994* imposes restrictions on hunting certain migratory birds, and regulations under the Act prohibit the disturbance, destruction or taking of a nest, egg, or nest shelter, or the possession of a live or dead migratory bird, nest or egg.²⁷³ Activities may incidentally result in violation of the regulations which is referred to as “incidental take”. The Canadian Wildlife Service has published a guide for avoiding incidental take.²⁷⁴

The federal *Fisheries Act* contains several provisions relating to fish and fish habitat protection, and pollution protection. For instance, the *Fisheries Act* prohibits the harmful alteration, disruption or destruction of fish habitat, and the

²⁷² *Wildlife Act*, R.S.A. 2000, ch. W-10. See also Shaun Fluker & Jocelyn Stacey, “The Basic of Species at Risk Legislation in Alberta” (2012) 50:1 AB L Rev 95 at 97.

²⁷³ *Migratory Birds Convention Act, 1994*, S.C. 1994, c. 22 and *Migratory Birds Regulations*, C.R.C., c. 1035. It should be noted that amendments have been proposed, including changes that will impact upon incidental take, and revised regulations are expected to be released Spring 2021 and to come into force July 2021: see <https://www.canada.ca/en/environment-climate-change/services/migratory-game-bird-hunting/status-update-modernization-regulations.html>.

²⁷⁴ Canadian Wildlife Service, Environment Canada, *Incidental Take of Migratory Birds in Canada* (Ottawa: Environment Canada, 2014).

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deposition of deleterious substances into fish habitat.²⁷⁵ Fish habitat is water frequented by fish (includes all life stages of fish, shellfish, crustaceans and marine animals) and other areas on which fish depend to carry out their life processes.²⁷⁶ As well, obstructing the free passage of fish is prohibited, as are activities that may result in the death of fish (unless otherwise authorized).²⁷⁷

Protected areas are governed by several pieces of legislation: the *Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act*, the *Provincial Parks Act*, and the federal *Canada National Parks Act*.²⁷⁸ The level of protection provided to a “protected” area varies greatly with the type of protected area designation, with some types of protected areas being subject to high levels of development and disturbance.

1.4.2 Land Use Planning and Management Legislation

The key pieces of land use planning and management legislation are the ALSA which enables regional planning within the province (as well as land stewardship tools) and the *Public Lands Act* which regulates administration and management of provincial public lands. The *Forests Act* provides that, if there is a conflict between a timber disposition (including a quota) and an ALSA regional plan, then the regional plan prevails.²⁷⁹ Furthermore, the provisions of a

²⁷⁵ *Fisheries Act* at ss. 35, 35.1, 35.2 and 36.

²⁷⁶ *Ibid.* at s. 2.

²⁷⁷ *Ibid.* at ss. 34.3(4) and 34.4.

²⁷⁸ *Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act*, R.S.A. 2000, ch. W-9, *Provincial Parks Act*, R.S.A. 2000, ch. P-35, and *Canada National Parks Act*, S.C. 2000, c. 32.

²⁷⁹ *Forests Act* at s. 45.1.

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timber disposition (including a quota), a general development plan, or an annual operating plan cannot be inconsistent with an applicable ALSA regional plan.²⁸⁰

1.4.3 Natural Resource Development Legislation

Natural resource development legislation includes the *Responsible Energy Development Act*, and the *Oil and Gas Conservation Act* as some examples.²⁸¹ Generally speaking, these pieces of legislation are concerned with regulation of resource exploration and extraction activities which may occur within forests or elsewhere.

1.4.4 Other Legislation

Other legislation that may impact upon forests and forestry operation includes the *Weed Control Act* which requires control of noxious weeds and removal of prohibited noxious weeds on land that a person owns or occupies.²⁸² As well, the *Forest and Prairie Protection Act* is meant to protect Alberta's forest and prairies from fire.²⁸³ It applies to all lands in Alberta (except those within an urban municipality and federal lands without a fire control agreement), establishes a fire season, and enables cost recovery and fire control orders.

²⁸⁰ *Ibid.*

²⁸¹ *Responsible Energy Development Act*, S.A. 2012, ch. R-17.3; and *Oil and Gas Conservation Act*, R.S.A. 2002, ch. O-6.

²⁸² *Weed Control Act*, S.A. 2008, ch. W-5.1.

²⁸³ *Forest and Prairie Protection Act*, R.S.A. 20000, ch. F-19.

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2. Disposition of Crown Timber

Most forests in Alberta are owned by the provincial Crown. A disposition is required to acquire rights to harvest timber located on Crown lands. There are four types of timber dispositions:²⁸⁴

1. Forest management agreement (FMA).
2. A timber licence (issued to the holder of a timber quota certificate).
3. Timber Quota issued in accordance with section 17(5).
4. Timber permit.

In terms of area and duration, the most significant type of timber disposition is the FMA. For in depth discussion and examples of FMAs, see *Demystifying Forestry Law: An Alberta Analysis*.²⁸⁵

It should be noted that the decision to issue a timber disposition is made by the Government of Alberta. Neither the *Forests Act* or its regulations set out any process for seeking public input on whether or not a timber disposition should be granted. Further, the decisions around grants of timber dispositions are not made within a planning framework. Many of the long-term timber allocations were made in the 1980s and recent renewals have not been subject to public consultation which has raised concerns.²⁸⁶

²⁸⁴ *Forests Act* at s. 15.

²⁸⁵ Brenda Heelan Powell, *Demystifying Forestry Law: An Alberta Analysis*, 2nd ed. (Edmonton: 2003, Environmental Law Centre).

²⁸⁶ For example, see the Crowsnest FMA, *supra*. note 63. See also, Eloise Therien, "Concerns

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2.1 Timber Quotas Certificates and Timber Licences

Once a forest management unit has been established and an annual allowable cut specified, the director may allocate a timber quota (which is a specified share of the annual allowable cut within a forest management unit).²⁸⁷ Timber quotas may pertain to coniferous timber or deciduous timber on a volume or area basis. In the case of a coniferous timber quota, some incidental harvest of deciduous timber may be authorized (and vice versa).²⁸⁸ A timber quota may be issued for a specified period not longer than 20 years but may be renewed upon expiration.²⁸⁹

Until the recent amendments, a timber quota holder could not commence harvesting until a timber licence was obtained.²⁹⁰ It is now possible for a timber quota holder to receive authorization from the director to harvest timber without obtaining a timber licence, although all provisions in the Act and regulations pertaining to timber licences still apply.²⁹¹

In order to obtain a timber licence, a timber quota holder must comply with requirements set by regulation, deposit security to ensure performance of licensee obligations, and pay any assessed fees and costs (in relation to cruising

raised over new forest management agreement in Alberta" (July 21, 2021) Global News, online: <https://globalnews.ca/news/8047059/concerns-alberta-forest-management-agreement-crowsnest/>.

²⁸⁷ *Forests Act* at s. 17.

²⁸⁸ *Ibid.* at s. 17.

²⁸⁹ *Ibid.* at ss. 18 and 20.

²⁹⁰ *Ibid.* at s. 18.

²⁹¹ *Ibid.* at ss. 17(5) and 17(6).

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and issuance of the licence).²⁹² A timber licence holder is required to prepare an operating plan, which must be approved by the director, for each year of operation.²⁹³ The timber licence will include terms such as the land on which timber may be harvested, the period of time for harvesting, the timber to be harvested, and other relevant terms and conditions.²⁹⁴

In addition to paying timber dues specified in the licence, a timber licence holder must either pay a reforestation levy or progressively reforest.²⁹⁵ If the quota holder's total combined annual allowable cut under the quota is 10,000 m³ or more, then the quota holder must undertake reforestation activities (payment of the reforestation levy is only an option for those less than 10,000 m³).²⁹⁶

A quota holder also must prepare (if requested) a general development plan for the relevant forest land and is liable to pay holding and forest protection charges.²⁹⁷ The harvesting must be conducted in consecutive 5 or 10 year harvest periods (each called a quadrant)²⁹⁸ although this may be altered by the director to attain a "proper balance between growth and depletion of timber".²⁹⁹ Failure to harvest the authorized amount of timber in one quadrant

²⁹² *Ibid.* at s. 21.

²⁹³ *Ibid.* at s. 21.

²⁹⁴ *Ibid.* at s.21.

²⁹⁵ *Ibid.* at s. 21.

²⁹⁶ TMR at s. 142.3 (2.4).

²⁹⁷ *Forests Act* at s. 18.

²⁹⁸ *Ibid.* at s. 18.

²⁹⁹ *Ibid.* at s. 19.

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does not entitle the quota holder to an increased authorized cutting volume or area in the other quadrants.³⁰⁰

With respect to a timber quota and/or licence, the director may suspend, cancel, reduce the terms, or realize on the security deposit for non-compliance.³⁰¹ Non-compliance includes failure to cut the authorized amount of timber during a quadrant, harvesting more than the authorized amount of timber during a quadrant, failure to pay Crown charges, failure to comply with approved operating plan, or failure to comply with terms and conditions of the quota/licence, the Act, the regulations or a director's order.³⁰²

A suspended or canceled timber quota may be reinstated, on application by the holder within 6 months, if the Minister is satisfied that the holder has complied with any Ministerial order made for the purposes of reinstatement.³⁰³

If the director considers it to be in the public interest, the terms of a timber quota and/or licence may be amended or the timber quota and/or licence cancelled.³⁰⁴ Compensation is payable to the quota holder/licensee for such a variation or cancellation.³⁰⁵

A timber quota holder does not acquire any right or interest in the forest land that is the subject of the timber quota/licence other than authority to enter onto

³⁰⁰ *Ibid.* at s. 19.

³⁰¹ *Ibid.* at s. 25.

³⁰² *Ibid.* at 25.

³⁰³ *Ibid.* at s. 25.

³⁰⁴ *Ibid.* at s. 26.

³⁰⁵ *Ibid.* at s. 27.

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the land for the purposes of the permitted activities.³⁰⁶ Once the timber is actually cut, then the licensee owns that timber.³⁰⁷ Furthermore, if anyone (other than the Crown) deprives the licensee of the right to cut and recover timber, then the permittee is entitled to compensation.³⁰⁸

No timber quota or licence may be assigned to another person without the prior written consent of the director.³⁰⁹ Nor can any person buy, sell, trade or barter access to any forest land (which means Crown land) for the purpose of establishing, growing, harvesting or removing timber on that land.³¹⁰

A timber licensee is required to keep accurate records of the quantity of timber harvested, manufactured and disposed of, as well as of reforestation operations.³¹¹ Operations must be conducted in accordance with provincial or FMA specific forest management plan and operating ground rules. A timber licensee must also submit for approval an annual operating plan (and once approved, must comply with its terms).³¹²

Additional information about quotas can be found in the *Alberta Timber Quota Policy* which sets out the legislative framework, along with some interpretation and detail.³¹³

³⁰⁶ *Ibid.* at s. 28.

³⁰⁷ *Ibid.* at s. 28.

³⁰⁸ *Ibid.* at s. 28.

³⁰⁹ *Ibid.* at s. 28.

³¹⁰ *Ibid.* at s. 28.1.

³¹¹ *Ibid.* at s. 29.

³¹² *Ibid.* at s. 21 and TMR at s. 98. See also *Alberta Timber Quota Policy* (Edmonton: Government of Alberta, 2013) [*Alberta Timber Quota Policy*] at s. 6.1.2.

³¹³ *Alberta Timber Quota Policy*.

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2.2 Timber Permits

An applicant for a timber permit must, as prescribed by the regulations, deposit security with the director to ensure compliance with permittee requirements.³¹⁴ The director may request that a timber permittee prepare an operating plan for each year of operations.³¹⁵ The timber permit sets out the land on which timber may be harvested, the period of time for harvesting, the timber to be harvested, and any other relevant terms and conditions.³¹⁶ A timber permittee must pay timber dues as prescribed in the permit.³¹⁷ In addition, the timber permittee must either pay a reforestation levy based on the volume harvested or progressively reforest.³¹⁸

With respect to a timber permit, the director may suspend, cancel, reduce the terms, or realize on the security deposit for non-compliance.³¹⁹ Non-compliance includes failure to pay Crown charges, failure to comply with approved operating plan, or failure to comply with terms and conditions of the permit, the Act, the regulations or a director's order.³²⁰

³¹⁴ *Forests Act* at s. 22.

³¹⁵ *Ibid.* at s. 22.

³¹⁶ *Ibid.* at s. 22.

³¹⁷ *Ibid.* at s. 22.

³¹⁸ *Ibid.* at s. 22.

³¹⁹ *Ibid.* at s. 25.

³²⁰ *Ibid.* at 25.

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If the director considers it to be in the public interest, the terms of a timber permit may be amended or the timber permit cancelled.³²¹ Compensation is payable to the permittee for such a variation or cancellation.³²²

A timber permittee does not acquire any right or interest in the forest land that is the subject of the permit other than authority to enter onto the land for the purposes of the permitted activities.³²³ Once the timber is actually cut, then the permittee owns that timber.³²⁴ Furthermore, if anyone (other the Crown) deprives the permittee of the right to cut and recover timber, then the permittee is entitled to compensation.³²⁵

No timber permit may be assigned to another person without the prior written consent of the director.³²⁶ Nor can any person buy, sell, trade or barter access to any forest land (which means Crown land) for the purpose of establishing, growing, harvesting or removing timber on that land.³²⁷

A timber permittee is required to keep accurate records of the quantity of timber harvested, manufactured and disposed of, as well as of reforestation operations.³²⁸

³²¹ *Ibid.* at s. 26.

³²² *Ibid.* at s. 27.

³²³ *Ibid.* at s. 28.

³²⁴ *Ibid.* at s. 28.

³²⁵ *Ibid.* at s. 28.

³²⁶ *Ibid.* at s. 28.

³²⁷ *Ibid.* at s. 28.1.

³²⁸ *Ibid.* at s. 29.

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There are several types of timber permits that may be issued: commercial timber permits, community timber permits, local timber permits, and personal use forest products permits.

Commercial timber permits, either coniferous or deciduous, are issued for a 1 to 5 year term based on volume (usually under 5,000 m³). Reforestation is not done by the timber permit holder rather a reforestation levy is paid to FRIAA (unless the timber permit holder is also a quota holder or FMA holder).³²⁹ Operations must be conducted in accordance with provincial or FMA specific forest management plan and operating ground rules.³³⁰ As well, an annual operating plan is required from the timber permit holder (as requested by the director).³³¹

Community timber permits (either coniferous or deciduous) are issued for terms up to 5 years and are direct allocations to eligible historic sawmills and loggers that produce less than 21,000 m³ annually.³³² Unless the community timber permit holder is also a quota holder or FMA holder, then there is a requirement to pay a reforestation levy to FRIAA (rather than perform reforestation activities).³³³ Operations must be conducted in accordance with provincial or FMA specific forest management plan and operating ground rules.³³⁴ As well, an annual operating plan is required (as requested by the director) and a certified statement of operation (the latter to maintain eligibility for the program).

³²⁹ TMR at s. 142.4.

³³⁰ *Ibid.* at s. 100.

³³¹ *Forests Act* at s. 22 and TMR at s. 98.

³³² TMR at ss. 74.1 to 74.8.

³³³ *Ibid.* at s. 142.4

³³⁴ *Ibid.* at s. 100.

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Additional details on both commercial timber permits and coniferous community timber permits are found in the *Directive AF-FDP-2017-05: Coniferous Community Timber Permit Program and Commercial Timber Program Management Directive*.

Local timber permits are typically issued to allow harvesting of up to 50 m³ for personal, non-commercial use (there are some other limited specific reasons to issue a local timber permit).³³⁵ Local timber permits are issued for 1 year terms which can be renewed. Rather than requiring reforestation activities, a local timber permit holder is required to pay reforestation levies to the FRIAA before issuance of the permit.³³⁶

Personal use forest products permits (a.k.a. forest products tags) are issued for a period of 30 days, and only for personal use.³³⁷ These can be issued for 20 transplants (less than 2.5m height), 3 Christmas trees (less than 2.5 m height) or 5m³ roundwood. There is no requirement to undertake reforestation activities or pay reforestation levies. Additional context around issuance and use of forest product tags is found in *Directive – Personal Use Forest Products Permit*.³³⁸

³³⁵ *Ibid.* at s. 49 to 64.

³³⁶ *Ibid.* at s. 142.5.

³³⁷ *Ibid.* at ss. 67 to 69.

³³⁸ *Directive – Personal Use Forest Products Permit* (Alberta Agriculture and Forestry, Forest Policy, 2021, No. 01).

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2.3 Forest Management Agreements

A forest management agreement (FMA) enables a person to “enter on forest land for the purpose of establishing, growing and harvesting timber in a manner designed to provide a yield consistent with sustainable forest management principles and practices”.³³⁹ During the term of the FMA, ownership of all Crown timber on the land is vested in the FMA holder (whether standing or harvested).³⁴⁰ If any person causes loss or damage to the timber or improvements made by the FMA holder, then the FMA holder is entitled to compensation.³⁴¹

An FMA is entered into by the Minister, with Cabinet approval.³⁴² Prior consent of the Minister is required for an assignment of the FMA to another person.³⁴³

With respect to an FMA, the director may suspend, cancel (with prior approval of cabinet), or realize on the security for non-compliance.³⁴⁴ Non-compliance includes contravention of the Act or regulations, failure to comply with a term or condition of the FMA, or failure to comply with any order of the director.³⁴⁵

The FMA document itself contains details on the type of management planning that is required. FMA holders are required to prepare a detailed forest management plan, a general development plan, and annual operating plans.

³³⁹ *Forests Act* at s. 16.

³⁴⁰ *Ibid.* at s. 16.

³⁴¹ *Ibid.* at s. 16.

³⁴² *Ibid.* at s. 16.

³⁴³ *Ibid.* at s. 16.

³⁴⁴ *Ibid.* at s. 25.

³⁴⁵ *Ibid.* at s. 25.

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All operations must comply with the terms of the FMA and the annual operating plans.³⁴⁶

It should be noted that some amendments to the *Forests Act* provisions concerning FMAs have been passed but are not yet in effect (as at publication date). These amendments include an addition to section 16 which provides that all FMAs are deemed to include standard clauses set out in regulations, must include clauses addressing matters set out in regulations, and may include other clause negotiated between the government and the FMA holder.³⁴⁷ The necessary regulations in this regard are not yet in place (as at publication date).

3. Scaling

Scaling of timber is the direct measurement or estimation of the volume of harvested timber and is used to determine crown dues payable, allowable harvest level monitoring, and research and development. The *Forests Regulation* requires anyone who scales timber to do so in accordance with the *Scaling Standards*.

The *Scaling Standards* which contain the procedures for scaling (which are designed to ensure timber scaling in Alberta meets the Canadian Standards Association's *Scaling Roundwood/Measurement of Woodchips, Tree Residues, and Byproducts (0302.1-00/0302.2-00)*). Scaling data is used to determine crown dues payable, allowable harvest level monitoring, and research and development.

³⁴⁶ TMR at s. 100.

³⁴⁷ *Bill 40* at ss. 6(b), 11 and 23.

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Scaling can be done via direct measurement or sample scaling. Given that direct measurement is not usually practicable, mass scaling is typically used. This involves using weight to volume ratios to determine timber volumes. Every load is weighed but only a random sample is scaled. The known weight and volume of the sample loads is used to calculate a weight to volume ratio which is applied to the loads that have only been weighed.

The *Scaling Standards* set out scaling standards and methods. With respect to scaling standards, there are requirements for obtaining a scaling permit along with specific requirements for scaling tools, timing of scaling, checking scaling (by government), measurement of logs, utilization standards, and codes for species, condition and products. There are very detailed and technical requirements set out for the acceptable scaling methodology.

4. Forest Management Planning

Forest management planning is a key consideration in much of the policy direction and guidance in the forestry realm. In areas covered by FMAs, the bulk of the responsibility for forest management planning falls upon the FMA holder (with government oversight). In FMUs not allocated under FMAs, the responsibility for forest management planning is carried by the government. The requirements for forest management planning are set by the *Forests Act*, its regulations and numerous policy documents.

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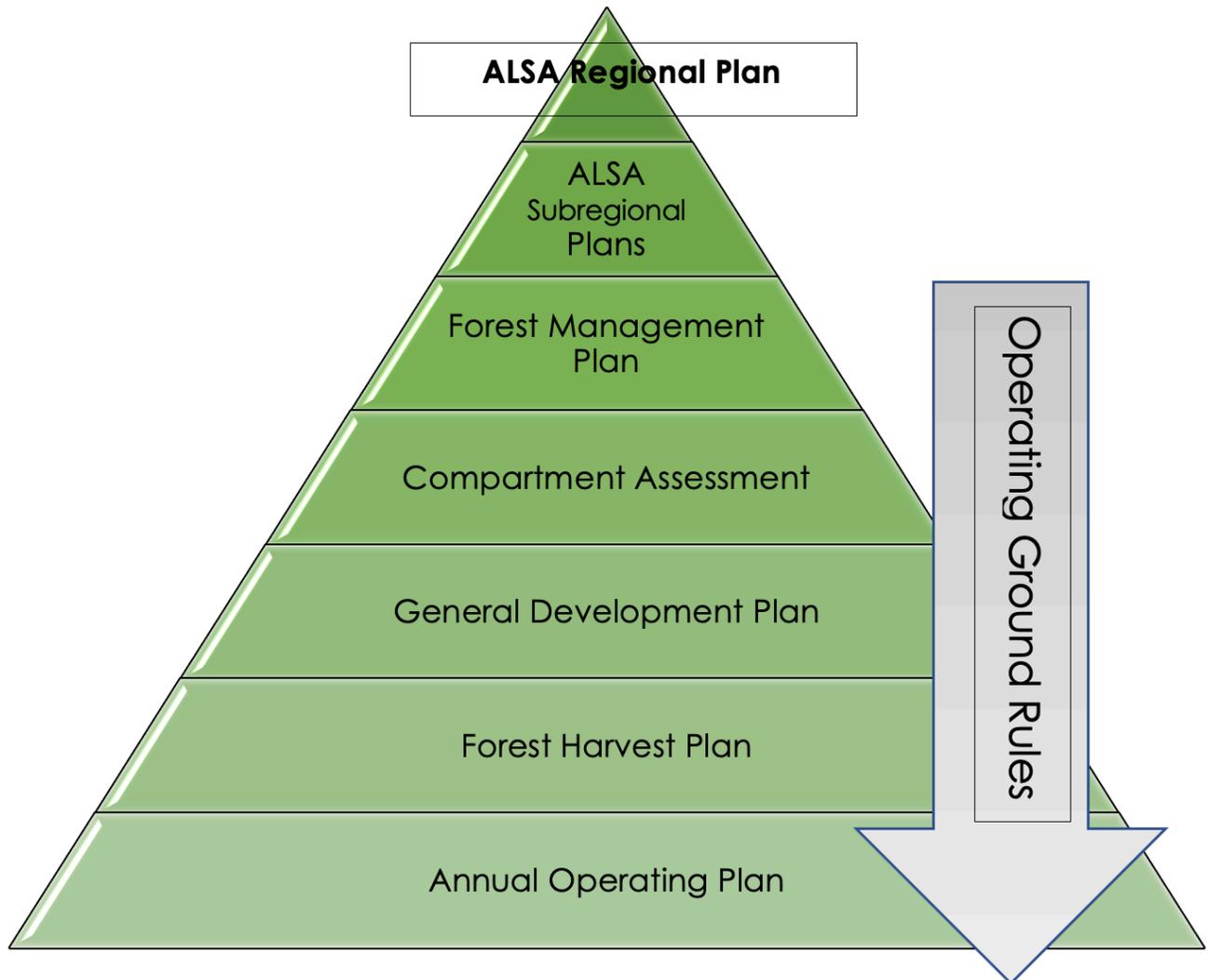


Figure 5: Schematic of Forest Management Planning Documents in Alberta.

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4.1 ALSA Regional Plans

Forest management planning must be consistent with applicable ALSA regional plans.³⁴⁸ Under ALSA, the province is divided into 7 regions for planning purposes. To date, only the Lower Athabasca Regional Plan (LARP) and the South Saskatchewan Regional Plan (SSRP) are completed.³⁴⁹ Numerous FMUs fall into the scope of the LARP and several fall into the scope of the SSRP. It is important to note that for each regional plan, there may also be relevant sub-regional plans and environmental management frameworks.

4.1.1 Lower Athabasca Regional Plan

The LARP indicates that, on public lands, its direction will “be delivered through existing legislation such as... the *Forests Act* ... and through existing tools such as integrated resource plans, access management plans and forest management planning”.³⁵⁰ The vast majority of the area covered by the LARP is boreal forest with wildfire as the dominant ecosystem disturbance agent.

The LARP recognizes that forestry is a significant industry in the region with about 40% of the region managed under FMAs with embedded timber quotas and community timber permits. With the expansion of oil sands activity in the region, a growing portion of timber for the region's mills comes from salvage connected to oil sands and other non-renewable resource development. There are also reductions in the forestry land base in the region due to the long-time horizon for

³⁴⁸ *Forests Act* at Part 2.1 and ALSA at s. 15.

³⁴⁹ *Lower Athabasca Regional Plan, 2012-2022* (Edmonton: 2012, Government of Alberta) [LARP] and SSRP.

³⁵⁰ LARP at 8.

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reclamation of oil sands developments and, as such, timber shortfalls are projected for the region.

One of LARP's 7 outcomes for the region is diversification of the region's economy which includes specific objectives for forestry (along with other industries). The LARP's objective for forestry in the region is to "maintain and diversify the region's forest industry".³⁵¹ Strategies for this include using an integrated land management approach which includes planning common major access corridors and infrastructure, and progressive reclamation of disturbed land no longer needed for oil sands development. As well, the forest industry is to identify opportunities to improve growth rates by enhancing management of forest stands and regeneration. Other strategies include wildfire management planning initiatives (including FireSmart), and diversification of the forest industry through new markets and products. The indicators for this objective is the area of public land actively managed for enhanced forestry, and the area of land disturbance on productive land base (on public land).

Other regional outcomes include:

- Management of landscapes to maintain ecosystem function and biodiversity.
- Manage air and water to support human and ecosystem needs.
- Inclusion of aboriginal peoples in land use planning.

In terms of the landscape management outcomes, objectives include enhancing the regional network of conservation areas to support biodiversity and ecosystem function, developing objectives for indicators of terrestrial and

³⁵¹ *Ibid.* at 42.

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aquatic biodiversity, avoiding and mitigating land disturbance impacts to biodiversity, and increasing reclamation rates and reducing tailing ponds.

Schedule F of the LARP indicates that in specified existing conservation areas, forestry activities are not permitted.³⁵² In specified new conservation areas, the only permissible forestry activities are wildfire, insect and disease management activities. Within the Birch River Conservation Area Public Land Use Zone, ecosystem forestry is allowed.³⁵³ Ecosystem forestry is described as being “low impact forest practices with the primary goal being protection of natural ecosystem and using forest resources sustainably, when conservation and sustainable use can be mutually beneficial. The intent is to meet the International Union for Conservation of Nature criteria for a Category VI protected area: protected area with sustainable use of natural resources.”³⁵⁴ There is also no forestry activity allowed in specified new or existing provincial recreation areas.³⁵⁵ Except for the specified areas where it is prohibited, forestry is permitted on other public lands in the Green Area and White Area with the LARP region.³⁵⁶

There are regulatory details supporting the conservation areas as detailed in Schedule F of the LARP.³⁵⁷ A statutory consent (i.e., approval, license or approval) may be renewed in a conservation area if it is consistent with the LARP or if it is an existing statutory consent under the *Mines and Minerals Act* or

³⁵² *Ibid.* at Sched. F: LARP Land Uses.

³⁵³ *Ibid.*

³⁵⁴ *Ibid.* at Schedule F: LARP Land Uses, Note 4 at 88-89.

³⁵⁵ *Ibid.*

³⁵⁶ *Ibid.*

³⁵⁷ *Ibid.* at Regulatory Details Plan, Part 2: Conservation Areas at 47.

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Public Lands Act (i.e., this does not apply to forestry dispositions which occur under the *Forests Act*).³⁵⁸

As mentioned, there may be environmental management frameworks and/or subregional plans made pursuant to a regional plan. The *Moose Lake Access Management Plan* was recently completed and is intended to be adopted into LARP as a subregional plan for the larger Moose Lake watershed and in the interim, it has been adopted as policy.³⁵⁹ The plan applies to all Crown lands in a specified Moose Lake 10km zone (10KZ) and includes portions of the Birch Mountains Wildland Provincial Park and portions of the Red Earth Caribou Range.

While the primary activity in the 10KZ and surrounding area is bitumen extraction, forestry operations are also important (there is a FMA with an embedded conifer timber quota that covers 48% of the 10KZ). The plan limits the total amount of buffered footprint for industrial resource development to 15% (15,537 ha) with disturbance limits allocated by resource sector. Developers are required to manage their development footprints within acceptable parameters by measuring **interior habitat** along with sector-specific components of land and footprint management actions with interior habitat being the percentage of native terrestrial and aquatic cover that is a specified distance from development footprint (i.e., specified distance is the buffer).

³⁵⁸ *Ibid.* at Regulatory Details Plan, Part 2: Conservation Areas, s. 16.

³⁵⁹ It should be noted that there was some litigation around approval applications which were pending prior to finalization plan but these did not consider the plan itself: *Prosper Petroleum Ltd. v Her Majesty the Queen in Right of Alberta*, (2020) ABCA 85 (CanLii), *Fort McKay First Nation v Prosper Petroleum Ltd.*, (2020) ABCA 163 (CanLii), and *Fort McKay First Nation v Prosper Petroleum Ltd.*, (2019) ABCA 14 (CanLii).

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The forestry industry is allocated a 1,500 ha buffered footprint within the 10KZ. Within each sector, individual companies are granted an allocation during the application stage. There is an overage credit of 2,303 ha for the sectors of forestry, oil and gas and aggregate (combined) which **may be** allocated to a sector by Alberta Environment and Parks (which determines whether overage credits can be allocated, how much a sector can receive and the duration for which credits are allocated).

Aside from the buffered footprint allocation, there are specific requirements for the forestry industry within the 10KZ:

- The forestry industry is accountable for forest harvest areas and related roads (i.e., used to calculate the footprint under the disturbance limit). Forest management activities not related to timber harvest (such as forest health and fire prevention) are not counted toward the sector allocation.
- The footprint associated with forest harvest will not be attributed to forestry where it overlaps with buffered footprint from more permanent activities (like persistent access roads).
- The forestry industry must adhere to management objectives identified in the applicable forest management plan. As well, commercial forest harvesting must align with the forest management plan's spatial harvest sequence, general development plans, and the *Northeast Alberta Timber Harvest Planning and Operating Ground Rules*.
- The forestry operators must engage with overlapping and/or adjacent energy sector companies during the oil sands planning phase to align operations, manage footprints, and ensure effective use of merchantable timber that will be removed for oil sands operations.

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The *Moose Lake Access Management Plan* sets out recovery milestones which, as they are met, reduces the buffer and eventually the footprint is removed. This is meant to incentivize reclamation and recovery by giving new footprint to work into.³⁶⁰ For the forestry industry, the recovery milestones are:

1. Reforestation complete as per *Reforestation Standard of Alberta* = 50% buffer reduction.
2. Establishment survey complete as per *Reforestation Standard of Alberta* = 100% buffer reduction.
3. Performance survey complete as per *Reforestation Standard of Alberta* = footprint removal.

4.1.2 South Saskatchewan Regional Plan

The SSRP indicates that forested lands in the Green Area makes up 16% of the region. The SSRP references a strong forestry economy within the region and notes that 48% of those forested lands are actively managed for timber including under two FMAs.³⁶¹

One of the SSRP's implementation plan outcomes is that "the region's economy is growing and diversified" which includes the forestry industry.³⁶² Strategies to maintain and diversify the forest industry include:³⁶³

³⁶⁰ *Moose Lake Access Management Plan* at s. 4.9.

³⁶¹ *Crowsnest FMA*, *supra*. note 63 and *Spray Lake Sawmills (1980) Ltd. FMA* dated February 27, 2015, online: <https://open.alberta.ca/dataset/26e573b0-2374-4261-aab8-d01af7dfed90/resource/ee165fef-2f40-472b-99e0-44b02bd15c90/download/af-fmaspraylake-oc013-2015-apr.pdf>.

³⁶² SSRP at 43 and 49.

³⁶³ Paraphrasing LARP at 49.

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- Promote diversification through implementation of the *Alberta Forest Products Roadmap to 2020*.
- Delivery of a forest health management program to mitigate risk to timber supply and forest health.
- Incorporate wildfire management planning into forest management initiatives and activities (including FireSmart).

Indicators for growth and diversification of the forestry industry are annual allowable cut versus timber production, and a wildfire risk indicator.

The part of the SSRP's implementation plan addressing management approaches on public lands (both the Green and White Areas) indicates that:³⁶⁴

Forest management planning is an essential part of sustainable forest management in the region. These plans will be adjusted to align with the *Alberta Forest Strategy* which is under development and with other planning as part of an integrated approach to subregional planning.

The SSRP notes that commercial forestry is not considered compatible with conservation areas.³⁶⁵ In wildland provincial parks, commercial forestry practices will not be permitted although wildfire, insect and disease management practices are permitted.³⁶⁶ In the Castle Wildland Provincial Park and Castle Provincial Park, **new** commercial forestry operations are not

³⁶⁴ SSRP at 61.

³⁶⁵ *Ibid.* at 64.

³⁶⁶ *Ibid.*

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considered compatible.³⁶⁷ In the Eastern Slopes, landscape management planning and recreation management planning will be aligned with forest management planning, species recovery planning and other initiatives.³⁶⁸

Appendices L and M of the SSRP specify areas in which forestry operations are not permitted (conservation areas, recreation and parks).³⁶⁹ However, management for wildfire, insect and disease control are still allowed in those areas.³⁷⁰ Otherwise, commercial forestry activities are permitted on public lands. Part 6 of the SSRP's Regulatory Details support this by not permitting new or renewal of *Forests Act* dispositions in the specified areas (i.e., Castle Provincial Park, specified provincial parks and provincial recreation areas).³⁷¹

The SSRP indicates that, in the event of a conflict between Appendix L and the SSRP's Regulatory Details, the Regulatory Details prevail.³⁷² In the event of a conflict between Appendix M and the existing parks legislation or existing management plan, the latter shall prevail.³⁷³

³⁶⁷ *Ibid.* at 143.

³⁶⁸ *Ibid.* at 137.

³⁶⁹ *Ibid.* at Appendix L: New and expanded Conservation, Recreation and Park Areas regulated under SSRP, Appendix M: Conservation, Recreation and Park Areas regulated under Parks Legislation.

³⁷⁰ *Ibid.* at Note A at 209.

³⁷¹ *Ibid.* at Regulatory Details, ss. 44, 47.1, and 49.

³⁷² *Ibid.* at General Note at 208.

³⁷³ *Ibid.*

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4.2 Alberta Forest Management Planning Standard

The standard for preparing and implementation forest management planning is found in the *Planning Standard* along with any interpretative bulletins and updates that may be issued. The *Planning Standard* adopts, with some specific exclusions, the *CAN/CSA-Z809-2002 Sustainable Forest Management: Requirements and Guidance Document*.³⁷⁴ The *Planning Standard* applies to forest management planning in Alberta unless otherwise directed in a particular FMA.

Section 1 of the *Planning Standard* provides guidance on which standards from the *CAN/CSA-Z809-2002* apply and on how Alberta will interpret the standards. Section 2 sets out the forest management planning process and content requirements. Technical and process standards are provided in Annexes to the *Planning Standard*.

As outlined in section 2 of the *Planning Standard*, there are 2 components to forest management planning: the terms of reference and the forest management plan. The terms of reference describe the process for developing a forest management plan and address matters such as content, goals, timelines, participants, and decision-making methods. There two levels of forest management plans: preliminary FMP and detailed FMP.

³⁷⁴ The *CAN/CSA-Z809-2002* document was most recently updated in 2016 (published in 1996; revised in 2002, 2008 and 2016). As mentioned previously, the *Planning Standard* references the 2002 version and indicates that it will be reviewed when the *CSA Z809* is reviewed; however, the current version of the *Planning Standard* is dated 2006.

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The preliminary FMP is a simplified plan which establishes the AAC,³⁷⁵ sets the terms of reference for preparation of the detailed FMP, and some initial management strategies. The preliminary FMP must contain a description of the area, a current timber supply analysis, initial VOITs (values, objectives, indicators, and targets), and a spatial harvest sequence (SPS). While public participation is advised in preparing the preliminary FMP, it is not mandatory. Because the preliminary FMP is just that (preliminary), no harvest level increases will be granted based upon it.

The detailed FMP, as the name suggests is more detailed and is prepared for a 10 year term. The detailed FMP must address all components of CAN/CSA-Z809 as outlined in the *Planning Standard*. This includes, among other things:

- Describing the forest management approach to be taken.
- Conducting a landscape assessment (as per Appendix A of the *Planning Standard*).
- Providing a statement of VOITs, along with providing the current status and forecasts for each indicator (as per Annex 4 of the *Planning Standard*). As well, as indicating the chosen strategy to address VOITs.
- Demonstrating the linkages between operational plans and the forest management plan. The primary linkage mechanisms are spatial harvest

³⁷⁵ The provincial AAC is set and allocated to individual timber disposition holders by the Government of Alberta. The general approach is to not have the AAC exceed annual growth. See Summary of Timber Quotas (July 2021), online: <https://open.alberta.ca/dataset/ad5200e2-6636-4520-aa0f-ed0e70e8673/resource/101c1481-9e58-4fe1-89fa-ba7c7cabdccc6/download/af-summary-alberta-timber-quotas-2021-07.pdf>. Also see, the recent decision to increase the AAC by up to 13%, online: <https://www.alberta.ca/release.cfm?xID=71253CB1DD3E5-AF97-D91F-972ED430583647B9>.

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sequence, silviculture prescription commitments and operating ground rules.

The *Planning Standard* contains two Appendices and numerous Annexes which provide technical and process standards for forest management planning. Appendix A sets out landscape assessment standards and Appendix B sets out relevant definitions.

The most substantial Annex to the *Planning Standard* is Annex 1 which provides the timber supply analysis, and growth and yield standards. This Annex provides standards for vegetation inventory, land base description (including stand description and classification of harvest areas), yield projection and reforestation monitoring, reforestation performance, forecasting, and harvest planning. Rules for setting the AAC are found in Appendix A of Annex 1 and indicate that the AAC is usually reassessed every ten years but it can be changed by the Minister at any time when, in their opinion, it is in the interest of good forest management to do so. In Appendix B of Annex 1, rules pertaining to timber supply and reforestation impacts from wildfire are outlined: if wildfire has affected the net productive forest land base of a forest management unit by more than 2.5%, a revised AAC will be determined. A similar approach may be adopted for insect and disease outbreaks. Appendix C of Annex 1 sets out reforestation forecasting tools requirements, regeneration model requirements, planning and monitoring standards for partial harvests. Finally, Appendix D of Annex 1 provides a paper about harvest planning frameworks for discussion purposes only.

The role of regulated forest professionals in forest management is delineated in Annex 2 of the *Planning Standard*. Forest professionals must validate forest management plans, annual operating plans, and harvesting and reforestation activities.

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Annex 3 of the *Planning Standard* provides information about FireSmart management which seeks to mitigate large, high intensity, high severity wildfires and to incorporate natural disturbance emulation. This Annex states that fire management is an integral part of sustainable forest management and identifies opportunities to use prescribed burns as natural disturbance management strategy to meet ecological objectives. The objectives of FireSmart management are to: reduce wildfire threat potential by reducing fire behaviour potential, reducing fire occurrence risk, reducing threat to values at risk, enhancing suppression capability, and enhance positive attributes of fire by emulating historic landscape patterns created by natural disturbance.

Performance standards are set out in Annex 4 of the *Planning Standard*. This Annex identifies the VOITs which must be included in the detailed forest management plan. These VOITs include:

- Biological diversity which includes ecosystem diversity at the ecosystem level, species diversity, genetic diversity of trees, and protected areas.
- Ecosystem productivity (ecosystem resilience) which considers values such as reforested harvest areas, maintenance of forest landbase and control of invasive species.
- Soil and water quality and quantity.
- Global ecological cycles including values relating to carbon uptake and storage, and forest land conversion.
- Multiple benefits to society including values relating to timber and non-timber benefits, and communities and sustainability.
- Accepting society's responsibility for sustainable development which includes consideration of values relevant to Indigenous and treaty rights,

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Indigenous forest values, and public participation and information for decision-making.

In addition to Sections 1, 2, and the Appendices and Annexes of the *Planning Standard* discussed above, the *Planning Standard* includes two interpretative bulletins: *Forest Management Planning Roles, Responsibilities and Approval Authorities*, and *Yield Projection Guidelines for Alberta*.

Since the release of the *Planning Standard*, there have been supplemental documents, directives, and interpretative documents released:

- The *Partial Harvest (non-clear cut) Planning and Monitoring Guidelines: A Supplement to the Alberta Forest Management Planning Standard*³⁷⁶ which supplements the standards found in Appendix C of Annex 1 regarding partial harvests. These guidelines are designed “to provide direction to forest industry staff in developing partial harvest stand-level crop plans and monitoring of results, and to provide direction to [government] staff in reviewing and approving such plans”.³⁷⁷ The guidelines are concerned with partial harvest techniques that are unproven and unknown growth responses including commercial thinning, understory protection harvests, and other techniques (shelterwood, seed tree, selection harvesting, FireSmart). These guidelines address matters such as site and stand selection criteria, treatment methodologies, reforestation requirements, and information requirements (includes monitoring for assessment of stand response).

³⁷⁶ *Partial Harvest (non-clear cut) Planning and Monitoring Guidelines: A Supplement to the Alberta Forest Management Planning Standard* (Edmonton: 2006, Government of Alberta).

³⁷⁷ *Ibid.* at 1.

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- *Interpretative Bulletin: In-Block Roads and Processing Area Requirements for Timber Supply Analysis* which explains the intent of *Planning Standard* provision 5.9.9 which requires that productivity losses from road, decking and processing areas on reforested areas be applied. It sets out the methodologies to be used to meet this requirement.
- *Interpretative Bulletin: Planning Mountain Pine Beetle Response Operations, version 2.6* which applies to working forest public lands. This bulletin outlines forest management planning and operations to address Mountain Pine Beetle infestation (including changes to AAC and operating ground rule amendments). There are special considerations outlined for riparian areas, white bark and limber pine stands, and habitat for woodland caribou, grizzly bear and trumpeter swan.
- *Interpretative Bulletin: Forest Management Planning Standard Interpretive Bulletin: Stewardship Reporting Requirements*³⁷⁸ which provides stewardship report context and expectation for all timber disposition holders. The stewardship reporting requirements designed to compare the approved forest management plan with the completed actions of all timber disposition holders to increase transparency and accountability. It is also meant to link forest management planning implementation to provincial, regional and subregional initiatives.

Forest management planning stewardship reporting requirements consist of two main parts: mandatory components and VOIT reporting. The mandatory components include a review and status of approval decision conditions, regional or defined forest area specific management

³⁷⁸ *Interpretative Bulletin: Forest Management Planning Standard Interpretive Bulletin: Stewardship Reporting Requirements* (Edmonton: 2017, Government of Alberta).

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objectives, approved spatial harvest sequence variance assessments, landbase changes, AAC review, growth and yield program maintenance, seed availability and usage, and forest genetic resource management and conservation standards reporting.

With respect to VOITS, the stewardship reporting requirements classify VOITs into three groups: dynamic (which are operational), modeled (which are VOITs with unaffected values if forest management activities follow the forest management plan and usually include predicted or modeled indicators), and non-forest management plan VOITs (which are other commitments not explicitly part of the approved forest management plan).

- The *Alberta Forest Genetic Resource Management and Conservation Standards*,³⁷⁹ as mentioned in the Stewardship Reporting Requirements Bulletin, provide rules to facilitate the collection, processing, documentation, tracking, custody, and use of forest reproductive resources. The goal is to avoid genetic erosion, reduced fitness and loss of evolutionary resilience in wildlife populations. There are two streams of general resources. Stream 1 consists of seed or vegetative material collected from stands of wild or artificially regenerated native species. Stream 2 consists of seed or vegetative material produced in production units (i.e., production units are seed orchards, stoolbeds or collection of tissues for rootling propagation).

³⁷⁹ *Alberta Forest Genetic Resource Management and Conservation Standards, Third Revision of STIA, Volume 1: stream 1 and stream 2* (2016, updated 2020) and *Alberta Forest Genetic Resource Management and Conservation Standards, Third Revisions of STIA, Volume 1A* (2016, updated 2020).

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- *Directive 2007-01: Fire Salvage Planning and Operations*, the objective of which is to use as much fire-killed timber as possible within 2 years of a fire event while maintaining environmental values.³⁸⁰ This directive sets out policy and procedure requirements, including those for planning, reforestation, and structure retention.

Although it predates the current version of the *Planning Standard, Directive 97-12: Verification of Disposition Holder Forest Inventories* still applies.³⁸¹ This directive indicates that inventories are to be completed by the forest industry and other stakeholders. In particular, FMA holders are required to collect data for their detailed forest management plans and have agreed to do so in accordance with the *Alberta Vegetation Inventory Standards*.³⁸²

4.3 Operating Ground Rules

There are specific operating ground rules developed for each FMA area and for two forest management units (FMU E08 and FMU F23).³⁸³ Operating ground rules are the “practices used in planning and conducting timber harvesting operation which constitute the methods used to implement decisions made in the [forest management plan] and other higher level plans”.³⁸⁴ If there are no higher level

³⁸⁰ *Directive 2007-01: Fire Salvage Planning and Operations* (November 21, 2007).

³⁸¹ *Directive 97-12: Verification of Disposition Holder Forest Inventories* (September 23, 1997).

³⁸² There are a variety of requirements available on Government of Alberta website. These include the *Alberta Vegetation Inventory Interpretation Standards: Version 2.11* (March 2005), the *Capturing Disturbances: Standards and Specifications for Harvesting* (December 2015), *Inventory Enhancements* (March 2006), and *Data Models* (March 2006).

³⁸³ Government of Alberta website at <https://www.alberta.ca/forest-management-manuals-and-guidelines.aspx#jumplinks-1>.

³⁸⁴ *Operating Ground Rules Framework* at 1.

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strategic plans, then the ground rules must establish practices to minimize impacts from roads, timber harvesting and forest management operations.

There is a general document outlining the basic requirements for Operating Ground Rules: the *Operating Ground Rules Framework*. The operating ground rules must be relevant, measurable, understandable, and achievable. Several topics are to be addressed in all ground rules:

1. Operational Planning

Addresses the planning process which consists of 5 components:

- a) Approved Forest Management Plan including a spatial harvest sequence for the first two 10 year periods and an approved long term road network.
- b) Compartment Assessment to address matters not addressed in the forest management plan.
- c) General Development Plan which gives a comprehensive description of the proposed harvest strategy, road building plans, and reclamation operations for a 5 year period.
- d) Forest Harvest Plan which consists of a map and report describing the harvest and road design, along with water crossing.
- e) Annual Operating Plan which describes operations in detail including operating schedule and timber production; applicable forest harvest plans; general development plan; compartment assessments as required; reforestation program; fire control plan; and road plan.

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There are specific ground rules set out for each of the compartment assessment, general development plan, forest harvest plan and annual operating plan components. As well, there are ground rules to address salvage planning (to reduce potential for loss of fibre).

2. Utilization

These operating ground rules address stand utilization, and tree utilization. The purpose of the stand utilization ground rules is to track variances from the forest management plan spatial harvest sequence to ensure a sustainable harvest level and forest objectives are maintained, and to improve information for the next forest management plan. The purpose of the ground rules relating to tree utilization are to ensure utilization of all merchantable trees and pieces in a merchantable stand. The tree/piece utilization standards are stated in the applicable timber disposition (i.e., size determines merchantability).

While it is not mentioned in this section of the *Operating Ground Rules Framework*, it should be noted that there is tension between ensuring utilization of all merchantable timber (as well as removal of debris for fire prevention) and ensuring some level of structural retention for regeneration and ecological purposes.

3. Integration with other Users

These operating ground rules address integration with other users including:

- a) Deciduous/Coniferous Integration (i.e., overlapping timber tenures)
- b) Forest recreation and tourism

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- c) Trapping
- d) Range management (i.e., grazing operations)
- e) Forest Aesthetics (i.e., visual impact of timber operations)
- f) Historic and cultural resources

It is noteworthy that there is no reference to integration with oil and gas operators.³⁸⁵ This is despite the fact that oil and gas operations can impact forests and forestry operations by creating linear disturbances (roads, seismic lines), soil compaction, and tree removals.

4. Watershed protection

These operating ground rules are meant to manage impacts of timber operations on water quality, quantity and flow regime. This is done by minimizing the potential for sedimentation; preventing oil, logging debris and deleterious substances from entering watercourses; maintaining aquatic and terrestrial habitat; and complying with the *Water Act*.

5. Habitat Management

These operating ground rules address landscape planning and harvest area design to ensure landscapes maintain biodiversity and ecosystem function. Forest cover is managed by the spatial harvest sequence approved in the forest management plan. The Ground Rules also address harvest area design and layout, debris management and wildfire

³⁸⁵ See *2010 Reclamation Requirements for Well Sites and Associated Facilities on Forested Lands* (July 2013) which apply to oil and gas operators. See also *Timber damage assessment for loss of timber dues as a result of industrial use*, online: <https://www.alberta.ca/timber-damage-assessment.aspx>.

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protection, structure retention, understory protection, fisheries and the aquatic environment, and species of special management concern (specifically woodland caribou, grizzly bear and trumpeter swan).

Structure retention is designed to maintain snags and live residual trees within harvested areas to create refugia, wildlife thermal and hiding cover, and wildlife travel corridors. At one point a structure retention directive was proposed but not finalized which means that structural retention is determined in accordance with the operating ground rules. Similarly, there is understory protection ground rules to protect coniferous understory during harvesting and reforestation.

In terms of species of special management control, there are a variety of ground rules including requirements that new harvest areas not exceed 1000 ha in caribou range that falls within the FMU, buffers for harvest area boundaries, buffers from certain sensitive sites (like nesting areas for some species), time restrictions on certain activities, and location of roads.

6. Silviculture

The purpose of the silviculture operating ground rules is to implement practices that result in reforested stands that meet regeneration standards. The silviculture ground rules address planning, the reforestation program, and silviculture operations (such as site preparation and herbicide use).

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7. Soils

These operating ground rules are aimed at ensuring timber harvest, road construction, reforestation and reclamation operations minimize the potential for soil erosion; preventing soil, logging debris and deleterious substances from entering watercourses; and ensuring capability of the site to support healthy tree growth.

8. Forest Health/Protection

These operating ground rules address matters such as insect and disease control, and weed management.

9. Roads

The operating ground rules for this topic address matters such as road classification, road planning and design; road construction, maintenance and reclamation; watercourse crossings; access control; and camps and facilities.

10. Reporting

The purpose of the reporting ground rules is to ensure timber operation activities are reported to the Government of Alberta.

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4.4 Draft Provincial Woodland Caribou Range Plan

The provincial *Caribou Range Plan* addresses, among other things, forest management activities in caribou ranges as part of Alberta's "actions towards meeting caribou conservation and recovery goals and objectives".³⁸⁶ Upon completion, the *Caribou Range Plan* is intended to be adopted as an ALSA subregional plan where there is a regional plan in place (and in the case of LARP, amendments will be made to ensure authority for the *Caribou Range Plan*). In areas where there is no regional plan in place, interim regional planning documents will be developed to incorporate the *Caribou Range Plan*. The intention "is for the requirements to be reflected in regulatory approvals and in direction given by regulators to operators with respect to operating plans, as appropriate. There will be alignment with existing regulatory guidance".³⁸⁷

The *Caribou Range Plan* sets out several requirements for forestry within caribou ranges. Most of the requirements pertain to spatial harvest sequences to "align with the sequence of undisturbed caribou habitat development found in the Range Plan with range-specific details".³⁸⁸ Spatial harvest sequences in forest management plans "must specify the location, extent, period of entry, and rate of harvesting within caribou ranges in a manner (including spatial patterns and landscape scales) that is considerate of caribou goals and objectives".³⁸⁹ Specifically:³⁹⁰

³⁸⁶ *Caribou Range Plan* at 15.

³⁸⁷ *Ibid.* at 63.

³⁸⁸ *Ibid.* at 52.

³⁸⁹ *Ibid.* at 52.

³⁹⁰ *Ibid.* at 52.

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- a. Harvest location will avoid areas of high caribou occupancy during the first 10-year period.
- b. The extent and rate of harvesting over time will be assessed to ensure there are no significant negative implications for caribou biophysical habitat.
- c. Existing Forest Management Plans will be updated to align with the required sequence of undisturbed habitat development.
- d. The areas available for harvesting will be limited to predetermined harvest areas for any given decade. If an area is not harvested within the decade identified it will continue to be available the following decade, and the following will apply:
 - i. Harvesting within a predetermined harvest area must be completed prior to initiating harvest in the available area.
- e. Once harvesting has been initiated in the next available area, there will be no further harvesting in the preceding area until the following rotation.
- f. Alberta Agriculture and Forestry will review application of the Pine Beetle Strategy in each caribou range and provide relevant guidance to the Forest Management Plan amendment process as outlined in this range plan.

In addition, forest harvest plans and annual operating plans are required to incorporate any additional requirements deemed necessary by the government's forest management branch. The Appendices to the *Caribou Range Plan* set out specifics for each particular range (such as A La Peche, Cold Lake and so forth).

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The imposition of restrictions on timber harvesting pursuant to the *Caribou Range Plan* was challenged in *ANC Timber Ltd. v Alberta (Minister of Agriculture and Forestry)*.³⁹¹ In this case, the Little Smokey and A La Peche caribou ranges (LSALP ranges) overlap with 46% of the FMA area held by ANC Timber. In a letter dated June 1, 2018, the government issued guidelines to ANC Timber (and other affected timber disposition holders) to give directions about implementation of the Caribou Range Plan in the LSALP ranges. These guidelines indicated that until detailed range plans for the LSALP ranges were produced, approved and put into effect, a portion of the area was not available for harvesting and further upon finalization, the previously approved detailed forest management plan would need amendment to align with the LSALP range plan.³⁹²

ANC Timber sought judicial review of these guidelines, applied for a stay of the guidelines (or an interim injunction), and sued for \$250,000,000. At issue in this decision was whether or not the stay/interim injunction should be allowed. The Court did not allow the request for a stay/interim injunction on the grounds that such a stay/interim injunction is not available against the Minister. Further, even if such relief could be granted, the Court found ANC did not establish entitlement to a stay/interim injunction. In making its decision, the Court stated that “the balance of convenience favours the Minister. The Minister is the steward of [Alberta's] timber resources. In this role, the Minister exercises discretion,

³⁹¹ *ANC Timber Ltd. v Alberta (Minister of Agriculture and Forestry)*, 2019 ABQB 710 (CanLii).

³⁹² As stated *ibid.* at para. 37: “The Guidelines divide the Caribou Management Zone into ten geographical areas, referred to as series 1 through 10, and indicate that only series 1 was available for harvesting until detailed range plans were produced, approved and put into effect”.

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prioritization, and balancing of many interests. It is not for this court to decide if the Minister is “governing well”.³⁹³

Although occurring after this decision, it should be noted that the governments of Alberta and Canada have entered into an agreement for the conservation and recovery of Woodland Caribou pursuant to the federal *Species at Risk Act*. Among other things, this agreement³⁹⁴ sets out timelines for the completion of sub-regional caribou habitat protection plans (with final steps being taken in 2025).

4.5 Regional Landscape Assessments

In accordance with the *Planning Standard*, forest landscape assessments are prepared as part of forest management planning. Landscape assessments present detailed information regarding administrative boundaries, physical conditions, forest pattern/structure/disturbance/succession, wildfire impacts, and land uses of the defined forest area. Regional landscape assessments have been completed to align with the 7 ALSA regions:³⁹⁵

- Upper Athabasca Landscape Assessment,
- North Saskatchewan Landscape Assessment,

³⁹³ *Ibid.* at para. 143 and 144.

³⁹⁴ *Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta (2020)*, online: <https://open.alberta.ca/dataset/40a40950-f210-4a37-b2a1-e274a9c75a48/resource/9d5326f4-0f3a-4aef-b0a2-d6fabc8439b4/download/aep-agreement-for-the-conservation-and-recovery-of-the-woodland-caribou-in-alberta-2020.pdf>.

³⁹⁵ These regional landscape assessments can be accessed on the Government of Alberta website at <https://www.alberta.ca/regional-landscape-assessments.aspx>.

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- Lower Peace Landscape Assessment,
- Upper Peace Landscape Assessment,
- South Saskatchewan Landscape Assessment, and
- Lower Athabasca Landscape Assessment.

As existing forest management plans are updated or replaced for each FMA area, the appropriate regional landscape assessment will be incorporated.

5. Reforestation

The *Reforestation Standard of Alberta*³⁹⁶ is the standard for determining the level of reforestation success relative to approved forest management plans. The *Reforestation Standard*:

- Provides the standards and procedures to assess the level of reforestation success in managed stands following harvest;
- Enables the assessment of each opening (i.e., cut area) to determine the adequacy of stocking, survival, growth, and tree species composition (Establishment survey); and,
- Assesses reforestation performance of each opening relative to the yields and strata assumed in the [forest management plan] (Establishment and Performance surveys).³⁹⁷

³⁹⁶ *Reforestation Standard*.

³⁹⁷ *Ibid.* at 36 to 37.

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The *Reforestation Standard* is divided into nine main sections, along with a variety of appendices addressing all aspects of reforestation including requirements for Understory Protection Establishment and Performance surveys (sections 7 and 10), requirements for Establishment and Performance surveys (sections 6 and 8), and requirements for quality assurance programs (section 11). Section 5 addresses stratum declaration, subdivision of openings and strata balancing.³⁹⁸ This is a very technical document covering items such as technology, surveying, sampling, measurement, and species acceptability. Appendix 2 provides a list of current Forest Management Agreements in the province and Appendix 3 provides acceptable tree species within each FMA and Forest Management Unit for reforestation purposes. The tree species list is developed by the government department for non-FMA forest management units whereas FMA holders submit a tree species list for approval (and that list must be based on the mean annual increment standards developed by the FMA holder during forest management planning).

The *Herbicide Reference Manual* is authorized under the *Environmental Code of Practice for Pesticides*, the *Forests Act* and the TMR. The *Herbicide Reference Manual* is meant to ensure familiarity with requirements for herbicide application for forest management purposes and to enable creation of a compliance mechanism to ensure accountability with respect to herbicide applications. It is required that Alberta Agriculture and Forestry review and approve herbicide applications for forest management purposes on public lands and the requirements in this regard are outlined in the *Herbicide Reference Manual*. These requirements include use of only specified acceptable herbicides, describing the treatment area, and consultation and notification to stakeholders

³⁹⁸ This replaces the procedures described in *Directive 2005-01: Regeneration Strata Declarations on Allowable Cut*.

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(overlapping tenure holders, indigenous peoples, public), and reporting and monitoring plan.

There are 2 directives pertaining to reforestation using improved seed: AF-FDP-2019-03 Planning and Reporting Requirements for Tree Improvement (November 28, 2019) and AF-FP-2016-02 Mandatory Use of Improved Seed for Reforestation Directive (October 11, 2016). The first directive provides for the use of “improved seed” (i.e., designed to provide height gain) and incorporating its effects into yield estimates. The second directive also provides for the use of improved seed from approved tree breeding programs.

The *Directive FMBRS-2014-01: Assessing Damage from Disturbance to Regenerating Forest Stands in Cutblock Openings and Recovering Productivity* guides and sets parameter for operational decision relating to wildfire and other disturbances on regenerating forest stands.

6. Enforcement

With respect to a timber quota, license or permit, the director may suspend, cancel, reduce the terms, or realize on the posted security deposit for non-compliance.³⁹⁹ Non-compliance includes failure to pay Crown charges, failure to comply with approved operating plan, or failure to comply with terms and conditions of the quota, licence or permit, the Act, the regulations or a director's order.⁴⁰⁰

³⁹⁹ *Forests Act* at s. 25.

⁴⁰⁰ *Ibid.* at 25.

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With respect to an FMA, the director may suspend, cancel, or realize on the security for non-compliance.⁴⁰¹ Non-compliance includes contravention of the Act or regulations, failure to comply with a term or condition of the FMA, or failure to comply with any order of the director.⁴⁰²

A suspended or canceled timber quota or FMA may be reinstated, on application by the holder within 6 months, if the Minister is satisfied that the holder has complied with any Ministerial order made for the purposes of reinstatement.⁴⁰³ The reinstatement of a FMA also requires the approval of Cabinet.⁴⁰⁴

Where there are unpaid Crown charges in respect of a timber disposition, the Minister may impose a lien against that timber (which has priority over all other encumbrances).⁴⁰⁵ In addition, a forest officer may seize and detain timber or primary timber product if they reasonably believe that there are unpaid Crown charges or that the timber was cut on public land without a timber disposition or disposition under the *Public Lands Act*.⁴⁰⁶

For the purposes of administering the Act and its regulations, a forest officer has authority for entry, inspection and seizure of evidence.⁴⁰⁷ A forest officer has right to entry to conduct an inspection, investigation or survey, to review and

⁴⁰¹ *Ibid.* at s. 25.

⁴⁰² *Ibid.* at s. 25.

⁴⁰³ *Ibid.* at s. 25.

⁴⁰⁴ *Ibid.* at s. 25.

⁴⁰⁵ *Ibid.* at ss. 32 and 33.

⁴⁰⁶ *Ibid.* at ss. 34 to 39.

⁴⁰⁷ *Ibid.* at s. 43 to 44.4.

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obtain copies of records, or require the production of records.⁴⁰⁸ A forest officer also has right to stop, enter and inspect (right of search) any conveyance for compliance with the Act and its regulations. If necessary, a forest officer may seek an order from a justice (defined in Provincial Offences Procedure Act) allowing entry and inspection. Furthermore, during an inspection, a forest officer may seize evidence of the commission of an offence (that is either presented or in plain view).

Additional clarification is provided in the *Timber and Reforestation Operations Monitoring Directive*.⁴⁰⁹ Any FMA and quota holders who harvest more than 30,000 m³ annually are required to report their forest operations for compliance with the operating ground rules and approved annual operating plans. This directive provides a monthly reporting form and delineates the roles of companies and government.

Contraventions of reforestation obligations are addressed in *Directive 97-20: Continuing Contraventions of Reforestation Obligations* (September 23, 1997). A contravention of legislated requirements and obligations will result in a monetary penalty, and penalties may be applied for each instance of contravention.

The *Public Disclosure of Penalties Directive* indicates that the Minister is required to publicly disclose administrative penalties.⁴¹⁰ Information about *Forests Act* contraventions is published on the Government of Alberta's website.⁴¹¹

⁴⁰⁸ *Ibid.* at s. 43 to 44.5.

⁴⁰⁹ *Directive No. 2006-04: Timber and Reforestation Operations Monitoring* (May 1, 2006).

⁴¹⁰ *Directive 97-21: Public Disclosure of Penalties* (November 24, 2010).

⁴¹¹ Government of Alberta website at <https://open.alberta.ca/publications/5641438>.

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7. Public Participation

The *Forests Act* itself does not require public participation in decision-making around issuance of forest tenure, forest management or forest operations.

In terms of decision to issue tenure (i.e., grant FMAs, quotas/licences or permits), the decision is made by the government as the owner of the forest resource. There is no established process in place requiring public participation in such decisions.

There is some scope for public participation in forest management planning. The *Planning Standard* indicates that while public participation is advised in preparation of the preliminary FMP, it is not mandatory.⁴¹² However, public involvement is required in development of the detailed forest management plans.⁴¹³ Approved forest management plans are available on the Government of Alberta website.⁴¹⁴

In addition, general development plans, final harvest plans and annual operating plans are made available for public review (via the forestry companies, not the government).⁴¹⁵

⁴¹² *Planning Standard* at s. 2.1.

⁴¹³ *Ibid.* at 11 and s. 2.2.

⁴¹⁴ Government of Alberta website <https://www.alberta.ca/forest-management-plans.aspx>. As well, can search for penalties issued on the Government of Alberta website at <https://open.alberta.ca/publications>.

⁴¹⁵ See for example, Millar Western website at <https://millarwestern.com/company/latest-projects/2021-2022-annual-operating-plan/> and Alberta Pacific website at <https://mk0alpacwebsitefr6ep.kinstacdn.com/wp-content/uploads/2020/12/2020-Annual-Operating-Plan.pdf>.

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8. Indigenous Consultation

The *Government of Alberta Guidelines on Consultation with First Nations on Land and Natural Resource Management* provides guidance on First Nation consultation in Alberta.⁴¹⁶ It outlines the roles and responsibilities of various parties in consultation processes and outlines the process for consultation. Similarly, there is a *Policy on Consultation with Métis Settlements on Land and Natural Resource Management*.⁴¹⁷

The duty to consult rests with the Government of Alberta but a role is played by industry participants. Decisions about surface land activity related to forestry (among other things) may trigger consultation. With respect to forestry operations, the level of consultation varies with the particular type of decision involved. The chart below provides guidance for consultation with First Nations although the government could determine a different level of consultation is appropriate (there is not a similar chart for consultation with Métis Settlements).

⁴¹⁶ *Government of Alberta Guidelines on Consultation with First Nations on Land and Natural Resource Management*, as amended (Edmonton: 2014, Government of Alberta).

⁴¹⁷ *Government of Alberta's Policy on Consultation with Métis Settlements on Land and Natural Resource Management, 2015*, as amended (Edmonton: 2020, Government of Alberta).

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Low Impact STREAMLINED CONSULTATION	Moderate Impact STANDARD CONSULTATION	High Impact EXTENSIVE CONSULTATION
These activities are typically short duration (less than 2 years), small in size (less than 5 ha), and have low or limited environmental impacts.	These activities are typically moderate in duration (more than 2 years), moderate in size (greater than 5 ha), and have moderate environmental impacts.	These activities are typically long in duration (more than 10 years), large in size and scale or complexity, have extensive environmental impacts, and include approvals from multiple regulatory authorities.
FireSmart plans (vegetation management component only) Herbicide plans where there was no previous consultation Temporary roads that are new routes with no previous consultation	Forest management agreement (FMA) renewal New quota New FMA Forest management plan (FMP) amendment (e.g., mountain pine beetle amendment) General development plan (GDP), Community Timber Permit Program (CTPP), FMA, and quota-holders Prescribed burn (Types 1 and 2) All weather roads (mainlines)	Forest management plans

Figure 6: Level of Consultation triggered by forestry activities.

From: Government of Alberta Guidelines on Consultation with First Nations on Land and Natural Resource Management (Edmonton: 2014, Government of Alberta), as amended, at A2.

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Further some activities may not require consultation including: type 3 prescribed burns (generally consist of annual hazard reduction with no detailed planning or approval process); annual operating plans and operational plan amendments; temporary roads; herbicide and compartment assessment where there was previous consultation at the general development plan level. The *Herbicide Reference Manual* also indicates that, where there has been consultation on herbicide plan activities as part of the General Development Plan process, then further consultation may not be required.

Although thorough discussion of the Crown's fiduciary duty to consult and accommodate Indigenous peoples is outside the scope of this report, there may be concerns around the approach to consultation in forestry operations. For example, Indigenous peoples have raised concerns with the use of herbicides in other contexts⁴¹⁸ and given the lack of detail at the General Development Plan stage around location and timing of herbicide applications, the approach outlined above should be revisited. There have also been concerns raised by Indigenous peoples about the recent amendments made to the *Forests Act* without adequate consultation.⁴¹⁹

⁴¹⁸ For example, Julien Gignac, "In Northern Ontario, herbicides have indigenous people treading carefully and taking action" (December 26, 2016) *Globe and Mail* online: <https://www.theglobeandmail.com/news/national/in-northern-ontario-herbicides-have-indigenous-people-treading-carefully-and-takingaction/article33088274/>.

⁴¹⁹ For example, Bob Weber, "Alberta must retract Forest Act before it becomes law: Treaty 8 grand chief" (April 9, 2021) *Canadian Press*, online: <https://www.cbc.ca/news/canada/edmonton/first-nations-forest-act-alberta-forestry-1.5981073>.

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Part 4: Lessons from Other Jurisdictions

What can we learn from other jurisdictions' approaches to forest management? This part of the report looks at several jurisdictions: Montana and Oregon in the United States and British Columbia, Saskatchewan, Quebec and Ontario in Canada.

For each jurisdiction, there is an overview of the legislative framework, identification of ecosystem based management principles implemented, opportunities for meaningful public consultation and participation, community forest management, and monitoring and enforcement mechanisms.

Some interesting aspects of forestry management in other jurisdictions (Australia, Finland and Nova Scotia) are highlighted in section 7 of this part.

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1. Forests Law and Policy in Montana

Unlike Canada where the majority of forest land is owned by the government, in Montana there is a mix of forest land ownership of by the federal government, the state government, Indigenous (tribal) entities, and private landowners. This means that, unlike in Canada, the state government does not set annual allowable cuts or quotas on a state-wide basis.

In 1989, there was a significant amount of federal and public concern around the impacts of forestry operations on water resources (enough that the federal government was considering action under its *Clean Water Act*).⁴²⁰ In response, Montana adopted a “soft regulatory scheme” based on voluntary compliance with minimum standards known as Best Management Practices (BMPs) blended with some mandatory requirements.⁴²¹ This approach relies greatly on education and outreach to encourage private forest owners to adopt the BMPs. There is also voluntary adherence by the forest products industry and state/tribal/federal agencies to BMPs.⁴²² The compliance to and effectiveness of the BMPs is audited every two years by multi-disciplinary teams.⁴²³

Aside from the encouragement to voluntarily adhere to the BMPs, there are some regulatory (i.e., mandatory) requirements for forestry operations on private lands. These include the *Forest Practice Notification Law* which requires provision

⁴²⁰ Jim Smyle, Sandy Collins and Claire Biason, “Rethinking forest regulations: overcoming challenges of regulatory reform” (2016) *Megaforestais* [Smyle et al.].

⁴²¹ Hans Gregersen and Arnaldo Contreras, *Rethinking Forest Regulations: From simple rules to systems to promote best practices and compliance* (Washington, D.C.: 2010, Rights and Resources Initiative) [Gregersen & Contreras].

⁴²² Montana Statewide Assessment of Forest Conditions, Final Draft V10.0 12/15/2020 available at <https://www.stateforesters.org/districts/montana/>.

⁴²³ Smyle et al. *supra*. note 420 and Gregersen & Contreras *supra*. note 421.

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of notification prior to commencing forestry operations, the *Control of Slash and Debris* law, and the *Streamside Management Zone Law* which provides basic protections for soils, streams, wetlands, and riparian habitats.

On state lands, the *Streamside Management Zone Law* applies and there are also legislated rules addressing several aspects of forest management. These rules set out provisions relating to biodiversity, watershed management, fisheries, threatened and endangered species, sensitive species, road management, silviculture, weed management, and timber activities. The Department of Natural Resources and Conservation manages state forest lands in accordance with its *State Forest Land Management Plan*.⁴²⁴

The national forests located in Montana are managed by the USDA Forest Service or Bureau of Land Management, both federal entities.⁴²⁵ These forests are regulated and managed under various pieces of federal legislation and policy which will not be reviewed in this report.⁴²⁶ However, it is worth noting that, under the *Good Neighbour Authority*,⁴²⁷ the Montana State Department of Natural Resources Conservation, the USDA Forest Service, and Bureau of Land

⁴²⁴ Montana Department of Natural Resources and Conservation, *State Forest Land Management Plan: Final Environmental Impact Statement Record of Decision* (May 30, 1996), online: dnrc.mt.gov/divisions/trust/docs/forest-management/forest-management-plan/mt_dnrc_sflmp_rod_05301996.pdf.

⁴²⁵ Montana Statewide Assessment of Forest Conditions, Final Draft V10.0 12/15/2020 available at <https://www.stateforesters.org/districts/montana/>.

⁴²⁶ For example, land use planning is required for all national forests under the 2012 Planning Rule, 36 CFR Ch.II, Part 219 which requires the use of "best available scientific information to inform the planning process" as well as opportunities for public participations (219.3 and 219.4). National forest plans must contain plan components to "maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area" (219.8).

⁴²⁷ Authorized by the 2008 and 2014 federal *Farm Bill*.

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Management work with other agencies, industry and conservation groups to increase the scale of watershed and forest restoration.⁴²⁸

As well, non-federal entities may partner with the federal government via Habitat Conservation Plans (HCPs) to develop conservation strategies to contribute to recovery of species under the *Endangered Species Act*.⁴²⁹ Without an HCP, landowners cannot apply for incidental take permits which allow landowners to proceed with activity that would otherwise violate the *Endangered Species Act* by causing harm to a listed species.⁴³⁰

1.1 Ecosystem based management principles

Ecosystem based management principles are reflected in the BMPs and in the regulatory requirements on private lands. The regulatory (i.e., mandatory) positions of the Montana Code and the Administrative Rules applicable to forestry activities on private land are found in:

- Montana Code Annotated, Title 76: Land Resources and Use, Chapter 13: Timber Resources; and
- Montana Administrative Rules, Chapter. 36.11.

⁴²⁸ The Montana Forest Action Advisory Council convened by the Montana Department of Natural Resources and Conservation, *Montana Forest Action Plan* (2020).

⁴²⁹ Montana Statewide Assessment of Forest Conditions, Final Draft V10.0 12/15/2020, online: <https://www.stateforesters.org/districts/montana/> [Montana Statewide Assessment 2020].

⁴³⁰ *Ibid.* There are three active HCPs in Montana: the Montana Department of Natural Resources and Conservation HCP, the Plum Creek Native Fish HCP, and the Burlington Northern and Santa Fe Railway Company Grizzly Bear HCP.

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Together, these pieces of legislation establish the *Forest Practice Notification Law* (a.k.a. the *Best Management Practices Notification Law*), the *Control of Slash and Debris Law*, and the *Streamside Management Zone Law* (SMZ Law). These laws set mandatory requirements on private lands.

The Montana Code indicates that the purpose of the Title 76 timber resources provisions is the “(i) protection and conservation of natural resources, range, and water; and (ii) the prevention of soil erosion”.⁴³¹ The purpose section also indicates that in order to achieve the conservation of natural and watershed resources, the legislature encourages the use of BMPs in timber sale planning, associated road construction, timber harvesting, site preparation, and related activities. Further, Title 76 sets out findings and policy for sustainable management of public forests including that:⁴³²

- Public forest should be sustainably managed to maintain biodiversity, productivity, regeneration capacity, vitality and potential to fulfill relevant ecological, economic, and social functions.
- Sustainable forest stewardship and management of Montana's public forests requires a balanced approach that ensures a stable timber supply, active restoration, healthy watersheds and fish and wildlife habitat, areas for natural processes, and allowances for multiple uses.
- Management, protection, and conservation of watershed is critical to the well-being of the state.

⁴³¹ Montana Code Annotated (MCA) at § 76-13-101.

⁴³² *Ibid.*

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- It is the policy to promote the sustainable use of all public forests within the state through sound management and collaboration with local, state, and federal entities.

Similar purposes are reflected in the establishment of seven state forests “primarily to secure through forestry management a continuous supply of timber and the performance of watershed covers”.⁴³³

1.1.1 Forest Practice Notification Law

The *Forest Practice Notification Law* requires an operator or landowner to provide notification to the Montana Department of Natural Resources prior to conducting forest practices on private lands.⁴³⁴ In response, the Department will provide information on BMPs, on conservation district permit requirements related to stream crossings, and any other information it considers helpful. This is a key aspect to ensuring operators and landowners are aware of BMPs (although ultimately adherence to the BMPs is voluntary).

The definition of “forest practices” includes harvesting, road construction associated with harvesting and accessing trees, site preparation for regeneration, reforestation, and management of logging slash.⁴³⁵ Forest practices do not encompass activities associated with the operation of a nursery or Christmas tree farm, the harvest of Christmas trees or firewood, or the cutting of trees for personal use by an owner or operator.

⁴³³ *Ibid.* at § 77-5-101.

⁴³⁴ *Ibid.* at § 76-13-420.

⁴³⁵ *Ibid.* at § 76-13-102.

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1.1.2 Control of Timber Slash and Debris Law

The Montana Code requires that prior to cutting any forest product, constructing any road for forestry purposes, or conducting timber stand improvement activities on private lands, the person performing the work must enter into a Fire Hazard Reduction Agreement with the state and post a bond to cover potential cost for fire hazard abatement in case of default.⁴³⁶

More detailed control of slash and debris rules are found in Chapter 36.11 of the Administrative Rules. The purpose of these rules is to provide fire hazard reduction, protection or management. Subject to some specific instances, the general standard must be met for 90% of the total area within each cutting unit.⁴³⁷ The general standard is the level to which slash must be reduced such that fire starting under conditions similar to standard day (which is defined in the *HRA Manual*)⁴³⁸ would burn with a flame length of 4 feet or less.⁴³⁹

1.1.3 Streamside Management Zone Law

A key aspect of forestry regulation in Montana is the SMZ Law which applies on private, state and federal lands.⁴⁴⁰ Further detail is found in the SMZ Rules⁴⁴¹ and

⁴³⁶ *Ibid.* at § 76-13-408. See also *Fire Hazard Reduction Fact Sheet*, online: <http://dnrc.mt.gov/divisions/forestry/docs/assistance/practices/hazard-reduction-fact-sheet-oct-2019.pdf>.

⁴³⁷ Montana Administrative Rules (MAR) at § 36.11.223.

⁴³⁸ Forestry Assistance Bureau, *Hazard Reduction Manual* (Missoula: 2014, Department of Natural Resources Conservation).

⁴³⁹ MAR at § 36.11.222.

⁴⁴⁰ MCA at §§ 77-5-301 to 77-5-307. Applies on federal lands by virtue of 33 USC 1323 which provides that federal entities will comply with state water pollution control requirements.

⁴⁴¹ MAR at Chapter 36.11: Natural Resources and Conservation, Forest Management.

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the *Montana Guide to the Streamside Management Zone Law and Rules* (SMZ Guide).⁴⁴² Under the SMZ Law, seven forest practices are prohibited within a SMZ:⁴⁴³

- broadcast (slash) burning;
- operation of wheeled or tracked vehicles except in established roads;
- clearcutting;
- construction of roads (except where necessary to cross a stream or wetland);
- the handling, storage, application, or disposal of hazardous or toxic materials in a manner that pollutes streams, lakes, or wetlands, or that may cause damage or injury to humans, land, animals, or plants;
- the side-casting of road material into a stream, lake, wetlands, or watercourse; and
- the deposit of slash in streams, lakes, or other water bodies.

It should be noted that the SMZ law does not apply to cutting wood for personal use or to other land management activities that do not qualify as timber sales. The SMZ Guide details the manner in which SMZs are determined and the activities prohibited therein.

⁴⁴² *Montana Guide to the Streamside Management Zone Law and Rules* (Missoula: 2006, Montana Department of Natural Resources and Conservation).

⁴⁴³ MCA at § 77-5-303.

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A key determinant of the SMZ is the classification of stream involved: a stream segment that supports fish or has surface flow for six months or more that contributes to a stream, lake or other body of water is a class 1 stream.⁴⁴⁴ A stream that does not support fish, and its surface flow is either six months or more but does not contribute to a stream, lake or other body of water OR is less than six months but does contribute to a stream, lake or other body of water is a class 2 stream. A class 3 stream does not support fish and has surface flow less than six months which rarely contributes to surface flow. The requirements for width of the SMZ and tree retention vary with each stream class.

1.1.4 Best Management Practices

As mentioned above, the *Forest Practice Notification Act* requires an operator or landowner to advise the Department of Natural Resources prior to commencing forest activities on private lands. In turn, the Department provide the operator or landowner with information on BMPs designed to minimize non-point source water pollution from forest practices. While Montana's BMPs are voluntary, these are widely accepted and generally adhered to by the forest products industry, private landowners, and federal/state/tribal agencies.⁴⁴⁵ In order to be certified by the American Forest Foundation's Standard of Sustainability, a forest owner must comply with the state's BMPs.⁴⁴⁶

Details are found in the *Montana Forestry Best Management Practices Guidelines* (BMP Guidelines) which are focused on addressing roads and practice with the goal of maintaining water quality.⁴⁴⁷ While the BMP Guidelines

⁴⁴⁴ MAR at § 36.11.403.

⁴⁴⁵ Montana Statewide Assessment 2020, *supra*. note 429.

⁴⁴⁶ American Tree Farm System website at <https://www.treefarmssystem.org/-mt-bmps>.

⁴⁴⁷ *Montana Best Management Practices Guidelines* (Missoula, MN: 2015, Montana Dept. of Natural Resources & Conservation) [BMP Guidelines].

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are voluntary, it is important to note that the SMZ Law (discussed above) is mandatory and requires specific management practices when conducting a commercial harvest around streams, lakes and other bodies of water. The BMPs are designed to result in minimal to no negative impacts and, in some cases, may even improve conditions of the natural resources. The BMP Guidelines state that “[p]roper timber harvest techniques, combined with the BMPs, result in a healthy forest that supports fish, wildlife, clean water and healthy ecosystem processes” (page 1). The BMP Guidelines address harvesting around streamside management zones; road construction, maintenance and closure; stream crossing design and installation; and harvest practices and planning.

1.1.5 State Forest Land Management

EBM principles are also reflected in Montana Code Annotated, Title 77: State Lands, Chapter 5: Timber Resources which sets mandatory requirements for forestry operations on state lands. These requirements include the streamside management zone restrictions (i.e., the SMZ Law).⁴⁴⁸

Rules for state forest land management are found in Chapter 36.11, Subchapter 4 of the Administrative Rules. These rules apply to forest management activities on all state trust lands.⁴⁴⁹ The rules set out provisions relating to biodiversity, watershed management, fisheries, threatened and endangered species, sensitive species, road management, silviculture, weed management, and timber activities.

⁴⁴⁸ MCA at §§ 77-5-301 to 77-5-307.

⁴⁴⁹ MAR at § 36.11.402.

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With respect to biodiversity, the rules indicate that a coarse filter approach will be used to favour an appropriate mix of stand structures and compositions considering ecological characteristics such as land type, climatic section, habitat type, disturbance regime, and unique and rare habitats.⁴⁵⁰ Forests and stands are to be described in terms of forest composition, age class distributions, cover type and stand structure. Further, for threatened, endangered and sensitive species, a fine filter approach is used that focuses on a single species' habitat requirements.⁴⁵¹ Both the coarse and fine filter approaches are guided by the desired future conditions as set out in the rules.⁴⁵² The desired future conditions are determined using habitat and cover types, successional stages, species compositions, patch size and shape, habitat connectivity and fragmentation, disturbance regimes, old-growth distribution and attribute levels, habitat type, and stand structure.⁴⁵³ The rules pertaining to biodiversity also set requirements for selection of silvicultural systems (typically based on natural disturbance regimes), salvage harvesting, nutrient retention (minimize removal of fine branches and leafy material), snags and snag recruits, retention of cull material and coarse woody debris), patch size and shape (emulate natural spatial patterns, and consider fragmentation and connectivity), and old growth management. Field reviews are required after project completion or every five years for ongoing projects in order to “evaluate the application of biological diversity measures at a stand and landscape level” and to check actual effects

⁴⁵⁰ *Ibid.* at § 36.11.404.

⁴⁵¹ *Ibid.* at § 36.11.406.

⁴⁵² *Ibid.* at § 36.11.405.

⁴⁵³ *Ibid.* at §§ 36.11.405 and 36.11.407.

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of management activities and natural processes against desired/predicted effects.⁴⁵⁴

In terms of watershed management, the Montana Code Annotated established standards for forest practices in streamside management zones.⁴⁵⁵ Additional detail is set out in rules with the goal of managing watersheds to “maintain high quality water that meets or exceeds state water quality standards and protects designated beneficial water uses”.⁴⁵⁶ Projects that involve substantial vegetation removal or ground disturbance must assess cumulative watershed effects.⁴⁵⁷ In addition, monitoring is required to assess impacts of land use activities on the watershed and to assess effectiveness of mitigation measures.⁴⁵⁸ There are provisions for wetland management zones, streamside management zones, equipment restriction zones and riparian management zones which impose restrictions on forestry activities.⁴⁵⁹ In addition, these rules are used to minimize impacts on fish populations and habitats.⁴⁶⁰

There is specific reference to using the watershed protection rules for the protection of bull trout, westslope cutthroat trout and Columbia redband trout, Yellowstone cutthroat trout, and Arctic grayling.⁴⁶¹ As well, there are specific rules addressing the requirements to accommodate habitat for Canada lynx

⁴⁵⁴ *Ibid.* at § 36.11.419.

⁴⁵⁵ MCA at §§ 77-5-301 to 77-5-307.

⁴⁵⁶ MAR at § 36.11.422.

⁴⁵⁷ *Ibid.* at § 36.11.423.

⁴⁵⁸ *Ibid.* at § 36.11.424.

⁴⁵⁹ *Ibid.* at §§ 36.11.425 and 36.11.426.

⁴⁶⁰ *Ibid.* at §§ 36.11.427.

⁴⁶¹ *Ibid.*

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and grizzly bear.⁴⁶² The rules also clarify the roles of relevant state and federal departments with respect to endangered and threatened species, and habitat conservation plans under the federal *Endangered Species Act*.⁴⁶³

1.2 Public Participation

In 2019, the Forest Action Advisory Council was established to develop and implement a *Montana Forest Action Plan*.⁴⁶⁴ The Council is comprised of representatives from the timber industry, conservation organizations, and local/state/federal/tribal agencies. In addition to multi-stakeholder input, the Council provides opportunities for public input. The *Montana Forest Action Plan* addresses matters of forest health and wildfire risk in Montana, and recommends goals and strategies for forest restoration and management.

Aside from the Forest Action Advisory Council, the forestry branch of the Montana Department of Natural Resource Conservation actively provides information and assistance to forest landowners to encourage adoption of voluntary BMPs and compliance with regulatory requirements. This is done through its Forest Stewardship Program.⁴⁶⁵

1.3 Community Forest Management

As mentioned previously, unlike Canada where the majority of forest land is owned by the government, in Montana there is significant ownership of forest

⁴⁶² *Ibid.* at §§ 36.11.428 to 36.11.442.

⁴⁶³ *Ibid.* at §§ 36.11.428 to 36.11.470.

⁴⁶⁴ Forest Action Advisory Council website at <https://www.montanaforestactionplan.org>.

⁴⁶⁵ Montana DNRC website at <http://dnrc.mt.gov/divisions/forestry/forestry-assistance/forest-stewardship>.

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land by the federal government, state government, Indigenous (tribal) entities, and private landowners. This means that the focus in Montana is on encouraging sound management by private forest landowners via outreach and education on BMPs.

The USDA Forest Service operates a community forest program which provides grants to tribes, local governments and qualified conservation non-governmental organizations.⁴⁶⁶ The funds are used to acquire and establish community forests which are actively managed in accordance with a community forest plan to provide community benefits. To be eligible, the land must:

- be private forestland at least 5 acres in size;
- at least 75% forested;
- threatened by conversion to a non-forest use;
- provide community benefits; and
- not be held in trust by the federal government.

There are three community forests in Montana: Mount Ascension Point, Foy's Community Forest, and Alvord Lake.⁴⁶⁷ All community forests must be publicly accessible.

⁴⁶⁶ USDA Forest Service website at <https://www.fs.usda.gov/managing-land/private-land/community-forest>.

⁴⁶⁷ Montana Statewide Assessment 2020, *supra*. note 429.

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1.4 Accountability, Monitoring and Enforcement

As part of the Forest Stewardship Program implemented by Montana's Department of Natural Resources Conservation, multi-disciplinary teams conduct audits of harvest sites every two years.⁴⁶⁸ Audits typically are focused in areas where timber harvesting may cause greater soil and water damage.⁴⁶⁹ These audits are designed to determine compliance with BMPs.

Under the SMZ Law and Rules, civil penalties are assessed for failures to comply with the requirements. In addition, where both a penalty and site rehabilitation are warranted, a repair-order form which specifies necessary repair action is issued. The penalty imposed reflects both repair (i.e., whether party exceeds, meets or fails to complete repair actions) and damage (i.e., extent and duration of impact, and type of stream involved) variables. In some cases, a civil penalty may not be imposed but voluntary compliance and site rehabilitation will be sought.

Under the control of timber slash and debris rules, the Montana DNRC has the right to inspect slash treatments on private land for compliance.⁴⁷⁰ Failure to comply may result in an order to stop all cutting, clearing and construction activities until compliance is achieved.⁴⁷¹ If the person fails to comply, then the DNRC may take necessary steps and recover cost plus a penalty. In addition, the DNRC may require a person to show cause as to why any further fire hazard reduction agreements or exemption certificate should not be withheld.

⁴⁶⁸ Smyle et al. *supra*. note 420.

⁴⁶⁹ Gregersen & Contreras *supra*. note 421.

⁴⁷⁰ MAR at § 36.11.231.

⁴⁷¹ MCA at § 76-13-410.

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In addition, any violation of Part 4 of the MCA 76-13 – which consists of the control of Timber Slash and Debris law, and the Forest Practices Notification law – is considered a misdemeanour subject to a fine ranging from \$100 to \$1,000.⁴⁷²

2. Forests Law and Policy in Oregon

Forest practices in Oregon are governed by the *Oregon Forest Practices Act* (OFPA) and Forest Practice Administrative Rules.⁴⁷³ The OFPA established the Board of Forestry (a seven member citizen board appointed by the Governor and confirmed by the State Senate) which is required to ensure the “continuous growing and harvesting of forest tree species” and to “provide for the overall maintenance of” air quality, water, soil, fish and wildlife.⁴⁷⁴ The Board of Forestry also must establish best management practices and other forest practice rules to ensure that no point source discharges of pollutants resulting from forest operations impair water quality standards.⁴⁷⁵ There are also three Regional Forest Practice Committees comprised of citizen panels that advise the Board of Forestry on current forestry issues and forest management approaches. The Regional Forest Practice Committees play an advisory role to the Board of Forestry which in turn interprets the OFPA and sets rules for forest practices. The requirements are enforced by the Oregon Department of Forestry.

⁴⁷² *Ibid.* at § 76-13-412.

⁴⁷³ Oregon Revised Statute (ORS) at § 527 and Oregon Administrative Rules (OAR) § 629-605. For a summary, see *Oregon's Forest Protection Laws: An Illustrated Manual*, 3rd ed. (Portland: 2018, Oregon Forest Resources Institute).

⁴⁷⁴ ORS at § 527.710.

⁴⁷⁵ *Ibid.* at § 527.765.

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The OFPA and relevant rules apply to all commercial activity involving the establishment, management or harvesting of trees on non-federal lands whether private, state, or county/city owned.⁴⁷⁶ On federal lands, the USDA Forest Service and Bureau of Land Management have agreed to meet or exceed the OFPA standards.

Forest operations do not include:⁴⁷⁷

- Establishment, management or harvest of Christmas trees on land used solely for their production.
- Hardwood plantations harvested on a rotation cycle that is 12 or fewer years after planting and subject to intensive agricultural practices.
- Agricultural tree crops, including nuts, fruits, seeds and nursery stock.
- Juniper species management in a unit less than 120 contiguous acres within a single ownership.
- Trees intended to mitigate agricultural practices that are established or managed for windbreaks, riparian filters or shade strips immediately adjacent to actively farms lands

The OFPA and the relevant rules address all aspects of forestry operations including timber harvest planning; timber harvest practices; reforestation; fire control and chemical application; and roads and stream crossings. Timber harvest planning must meet requirements around leaving wildlife trees, snags

⁴⁷⁶ *Ibid.* at § 527.736.

⁴⁷⁷ *Ibid.* at § 527.620(12).

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and down logs; protection of sensitive wildlife spots and species; potential landslide areas; and scenic highways.

Aside from the OFPA and the relevant rules, forestry operations are also subject to federal requirements such as the *Endangered Species Act* and other environmental legislation imposed by Oregon. This report focuses only on the requirements of the OFPA and the relevant rules.

2.1 Ecosystem based management principles

Ecosystem based management principles are reflected in Oregon's forestry regulatory regime especially in terms of protecting riparian areas and important habitat components. However, much like in Alberta, continuous timber harvest is a central principle in Oregon as indicated in the legislative statement of policy:⁴⁷⁸

... encourage economically efficient forest practices that ensure continuous growing and harvesting of forest tree species and the maintenance of forestland for such purposes as the leading use on privately owned land, consistent with sound management of soil, air, water, fish and wildlife resources and scenic resources within visually sensitive corridors... and to ensure the continuous benefits of those resources for future generations of Oregonians...

Notification must be provided to the State Forester at least 15 days in advance of commencing all forestry operations with the exception of tree planting, routine road maintenance, personal-use firewood cutting, and collecting tree

⁴⁷⁸ *Ibid.* at § 527.630.

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boughs, cones or similar minor forest products.⁴⁷⁹ The OFPA provides that a “forest practice” is any operation conducted on or pertaining to forestland including reforestation, road construction and maintenance, harvesting, application of chemicals, disposal of slash, removal of woody biomass.⁴⁸⁰

In some cases, written plans prepared by the operator may be required. There are three kinds of written plans:

- Statutory Plans⁴⁸¹

These are required if operations are planned near Type F, SSBT or D streams (see below for description of each), wetlands larger than 8 acres, bogs or important springs, estuaries, or wildlife sites. If the operations can be shown to not interfere with the riparian area or there is a stewardship agreement in plan, then this requirement may be waived.

The plan must contain a description of how the operation is to be conducted. The Oregon Department of Forestry will provide comments on the plan but does not issue a formal approval.

- Non-statutory Plans⁴⁸²

These are required, unless the requirement is waived, in circumstances specified in the OFPA. A non-statutory plan is required where forestry operations are to be near or within habitat sites of endangered or

⁴⁷⁹ OAR at §§ 629-605-0140 and 629-605-0150.

⁴⁸⁰ ORS at § 527.620(5).

⁴⁸¹ OAR at § 629-605-0170.

⁴⁸² *Ibid.* at §§ 629-605-0170 and 629-605-0190.

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threatened species, near a Northern Spotted Owl resource site, and within the riparian management zone of certain water bodies.

The plan must contain a description of how the operation is to be conducted. The Oregon Department of Forestry will provide comments on the plan but does not issue a formal approval.

- Plans for Alternate Practice⁴⁸³

This type of plan is used to propose methods that are different than those required in the rules. For instance, a plan for alternate practice will be required to waive or modify rules for research purposes, to use natural reforestation methods, or to obtain structural replacement or temporal exemptions near an osprey or blue heron site.

These plans must be approved by the Oregon Department of Forestry and must be fully complied with.

There are provisions in the OFPA and the Forest Practice Administrative Rules addressing harvesting activities. There are three types of harvest identified in the OFPA:

- Harvest Type 1 which is an operation that requires reforestation but does not require wildlife leave trees.⁴⁸⁴

⁴⁸³ *Ibid.* at § 629-605-0173.

⁴⁸⁴ ORS at § 527.620(8).

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- Harvest Type 2 which is an operation that requires wildlife leave trees but does not require reforestation since there is adequate stocking of free to grow seedlings, saplings, poles and larger trees.⁴⁸⁵
- Harvest Type 3 which is an operation that requires both reforestation and wildlife leave trees.⁴⁸⁶

Wildlife leave trees are trees or snags retained in accordance with the requirements of the OFPA.⁴⁸⁷ The Forest Practice Administrative Rules set out the standards for forest practices designed to maintain productivity of the forestland, minimize soil and debris entering water, and protect wildlife and habitat. Matters such as road construction and maintenance,⁴⁸⁸ treatment and removal of slash,⁴⁸⁹ chemical/pesticide use,⁴⁹⁰ skidding and yarding practices,⁴⁹¹ harvesting on steep or erosion prone slopes⁴⁹² or landslide hazard locations,⁴⁹³ and drainage systems⁴⁹⁴ are addressed in the Rules.

Reforestation requirements are also set out in the Forest Practice Administrative Rules.⁴⁹⁵ The purpose of the reforestation rules is to “establish standards to ensure

⁴⁸⁵ *Ibid.* at § 527.620(9).

⁴⁸⁶ *Ibid.* at § 527.620(10).

⁴⁸⁷ *Ibid.* at § 517.676.

⁴⁸⁸ OAR at § 629-615.

⁴⁸⁹ *Ibid.* at § 629-615 and 629-630.

⁴⁹⁰ *Ibid.* at § 629-620.

⁴⁹¹ *Ibid.* at § 629-630.

⁴⁹² *Ibid.*

⁴⁹³ *Ibid.* at §§ 629-623 and 629-630.

⁴⁹⁴ *Ibid.* at § 629-630.

⁴⁹⁵ *Ibid.* at § 629-610.

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timely replacement and maintenance of free to grow forest tree cover following forest operations at or above stocking levels that will use the tree growth potential of forest lands in Oregon".⁴⁹⁶

Reforestation is the responsibility of the landowner regardless of who conducted the harvest.⁴⁹⁷ Harvest areas that require reforestation must be planted within 2 years and those seedlings must be "free to grow" and "well distributed" within 6 years.⁴⁹⁸ Free to grow means freely growing, well-distributed trees of acceptable species and form with a good chance of becoming healthy and taller than neighbouring grass and brush competition.

There are very specific rules around the type and number of seedlings, saplings, or basal area of trees required for reforestation. These requirements vary with the classification of the land which is based on the production capacity of the land in terms of cubic feet per acre per year.⁴⁹⁹ Land classification ranges from a high of I to a low of VI. With written approval of a plan for alternate practice, natural reforestation methods may be employed, or non-native species used for reforestation.⁵⁰⁰

In the harvest types where reforestation is not required, the landowner is still required to ensure sufficient revegetation of the site to provide continuing soil productivity and stabilization within 12 months of completion of operations via planting or natural revegetation.⁵⁰¹ If the land uses are not compatible with tree

⁴⁹⁶ *Ibid.* at § 629-610-0000(3).

⁴⁹⁷ ORS at §§ 527.620 and 527.745, and OAR at § 629-610.

⁴⁹⁸ OAR at § 629-610-0040.

⁴⁹⁹ *Ibid.* at § 629-610-0020.

⁵⁰⁰ *Ibid.* at §§ 629-610-0030 and 629-610-0060.

⁵⁰¹ *Ibid.* at § 629-610-0080.

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cover⁵⁰² or if the land is to be used as a wildlife food plot,⁵⁰³ then the landowner may be exempt from reforestation requirements. A wildlife food plot provides an area of forage or food to wildlife, however there are rules on which landowners can use this management approach and limits on the size of the wildlife food plots (in addition to requiring a written plan for alternate practice).

Provisions to protect wildlife habitat are referred to as “specified resource site protection rules”.⁵⁰⁴ The Rules also set out the criteria used to inventory and protect special resources in accordance with section 527.710(3) of the OFPA.⁵⁰⁵ These are rules designed to protect:

- sensitive bird nesting, roosting, and watering resource items for osprey, great blue herons and bald eagles;⁵⁰⁶
- northern spotted owl nesting sites on forest lands;⁵⁰⁷
- biological sites that are ecologically and scientifically significant (to date, there no such sites identified);⁵⁰⁸ and
- significant wetlands on forest lands.⁵⁰⁹

⁵⁰² *Ibid.* at § 629-610-0090.

⁵⁰³ *Ibid.* at § 629-610-0100.

⁵⁰⁴ *Ibid.* at § 629-665.

⁵⁰⁵ *Ibid.* at § 629-680.

⁵⁰⁶ *Ibid.* at § 629-665-0100.

⁵⁰⁷ *Ibid.* at §§ 629-665-0200 and 629-665-0210.

⁵⁰⁸ *Ibid.* at § 629-665-0300. This provision does not yet exist in the OAR which indicates no such biological sites have been identified but may be in the future.

⁵⁰⁹ *Ibid.* at § 629-645.

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The goal is to ensure that these resources are not destroyed, abandoned or reduced in productivity by forest practices. For each specified resource site, the key components are identified and any exceptions are noted. There are structural and temporal protections put into place for each specified resource site.

As an example of the requirements that may be put into place, the active nests, perching and fledging trees and replacement trees of osprey are specified resource sites. The active nest tree and at least 8 additional trees must be retained as key components. No forest operations with 600 feet of active nest trees or perch trees are allowed between March 1 to September 15. Key components may only be removed if replacement nest tree or artificial structures are installed.

There is a significant number of Forest Practice Administrative Rules devoted to water protection.⁵¹⁰ The overall purpose of the water protection rules is to:⁵¹¹

protect, maintain and, where appropriate, improve the functions and values of streams, lakes, wetlands, and riparian management areas

...

provide resource protection during operations adjacent to and within streams, lakes, wetlands and riparian management areas so that, while continuing to grow and harvest trees, the protection goals for fish, wildlife, and water quality are met.

⁵¹⁰ *Ibid.* at §§ 629-635, 629-642, 629-645, 629-646, 629-655 and 629-660.

⁵¹¹ *Ibid.* at § 629-635.

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Functions and values include “water quality, hydrologic functions, the growing and harvesting of trees, and fish and wildlife resources”. The protection goals for water quality, fish and wildlife are as follows:

- for water quality: ensure non-point source discharges of pollutants resulting from forest operations do not impair water quality standards;⁵¹²
- for fish: maintain water quality and provide aquatic habitat components and functions (such as shade, large wood and nutrients);⁵¹³ and
- for wildlife: maintain water quality and habitat components such as live trees, shade, snags, downed wood, and food within riparian management areas.⁵¹⁴

In order to ensure these goals are being met, the State Forester is required to conduct monitoring in cooperation with state and federal agencies, landowners and other interested parties.⁵¹⁵ As well, there is a process to determine whether additional watershed specific protection rules are needed for watersheds with limited water quality or containing threatened or endangered species.⁵¹⁶

There are detailed, specific requirements for vegetation retention (size, number of trees, location, snags and so forth), soil protection, water quality protection and reforestation by water bodies and within riparian management areas set

⁵¹² See also, ORS at § 527.765.

⁵¹³ See also, OAR at §§ 629-642-0000 (streams), 629-645-0000 (significant wetlands), and 629-650-0000 (lakes).

⁵¹⁴ *Ibid.*

⁵¹⁵ OAR at § 629-635-0110.

⁵¹⁶ *Ibid.* at § 629-635-0120.

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out in the Rules. Specific requirements are determined by classification of the water body which is meant to “match the physical characteristics and beneficial uses of a water body to appropriate set of protection measures”.⁵¹⁷ Water bodies are classified as streams, wetlands or lakes. Streams are classified according to beneficial uses and size:

- Type F which supports fish, or fish and domestic water use;
- Type SSBT which supports salmon, steelhead or bull trout;
- Type D which supports domestic water use but no fish; and
- Type N which does not support domestic water use or fish.

Streams further identification as large, medium or small is accordance with the parameters set in the Rules.⁵¹⁸ Wetlands are classified as follows:

- significant: wetlands larger than 8 acres, estuaries, bogs and important springs in eastern Oregon;
- stream associated wetlands that less than 8 acres are classified according to the stream to which they are connected; and
- all other wetlands classified as “other wetlands greater than ¼ acre” or “other wetlands less than ¼ acre”

⁵¹⁷ *Ibid.* at § 629-935-0200.

⁵¹⁸ *Ibid.* at § 629-635-0200(14).

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Lakes that do not have riparian management areas (i.e., lakes which do not have fish and are less than ½ acre) are protected as other wetlands.⁵¹⁹ The width of the associated riparian management area is determined by the size and classification of the water body.⁵²⁰

While not limited only to forest lands, section 541.423 of the Oregon Revised Statutes and Division 21 of the Administrative Rules provides for stewardship agreements. Stewardship agreements are long term agreements meant to achieve conservation, restoration and improvement of fish and wildlife habitat or water quality on a property wide basis (rather than at the scale of single localized project). In the context of lands and activities that fall under the OFPA, the purpose of the stewardship agreement program is to more efficiently implement the provisions of the Act as a voluntary alternative to traditional approaches of forest operations planning, review, inspection and enforcement. It is designed to recognize and reward forest owners who exceed regulatory criteria for conservation, restoration and improvement of fish and wildlife habitat or water quality.

There are also incentives for converting idle land or land in other uses to commercial forest use.⁵²¹ This program only applies to land at least 20 feet from the high level mark of Type F, SSBT, and D streams, and large or medium Type N streams.

⁵¹⁹ *Ibid.* at § 629-646.

⁵²⁰ *Ibid.* at § 629-635-0310.

⁵²¹ *Ibid.* at § 629-611.

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2.2 Public Participation

There are some opportunities for public participation in Oregon's forestry regime both on a state regulatory scale and on an individual planning scale. For instance, on the state regulatory scale, a person may propose listing species that use sensitive bird nesting, roosting and watering sites.⁵²² As well, the Regional Forest Practice Committees are comprised of citizens and operate as advisory committees to assist the Board of Forestry in developing appropriate forest rules.⁵²³ These committees are meant as a vehicle for greater public involvement in the rule-making process.

The public may also participate on the individual planning scale. Where notice or a written plan is required, any person may request a copy from the State Forester and may submit written comments within 14 days of the filing date.⁵²⁴ If a person does submit comments and is "adversely affected or aggrieved" by the operation, then that person may request a hearing.⁵²⁵ In addition, the person entitled to a hearing may request a stay of operations pending the hearing.⁵²⁶

2.3 Community Forest Management

The USDA Forest Service operates a community forest program which provides grants to tribes, local governments, and qualified conservation non-

⁵²² *Ibid.* at § 629-680-0200.

⁵²³ *Ibid.* at § 629-676.

⁵²⁴ ORS at § 527.670 and OAR at § 629-674-0100.

⁵²⁵ OAR at § 629-672-0210.

⁵²⁶ *Ibid.* at § 629-672-0300.

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governmental organizations.⁵²⁷ The funds are used to acquire and establish community forests which are actively managed in accordance with a community forest plan to provide community benefits. To be eligible, the land must:

- be private forestland at least 5 acres in size;
- be at least 75% forested;
- be threatened by conversion to a non-forest use;
- provide community benefits; and
- not be held in trust by the federal government.

There are several community forests at various stages of establishment in Oregon: Miller Tree Farm, Eagle Creek Community Forest, Butte Falls Community Forest, and Headwaters Community Forest.⁵²⁸ All community forests must be publicly accessible.

2.4 Accountability, Monitoring and Enforcement

Section 629-605-0200 of the Forest Practice Administrative Rules state that all operators, landowners and timber owners must comply with all relevant rules, as well as specified harvest requirements set out in the OFPA.⁵²⁹ Enforcement and civil penalty provisions are found in OAR 629-670. These provisions address:

⁵²⁷ USDA Forest Service website at <https://www.fs.usda.gov/managing-land/private-land/community-forest>.

⁵²⁸ *Ibid.*

⁵²⁹ Specifically, ORS at §§ 527.740, 527.750, 527.755 and 527.676.

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- compliance determination,
- enforcement actions,
- written statements of unsatisfactory condition to prevent damage/failure to begin timely reforestation/non-compliance with procedural rules, issuing citations and orders to cease further violation,
- criminal prosecutions,
- civil penalties, and
- orders prohibiting new operations (by an operator or landowner who failed to complete ordered repairs or failed to pay civil penalties).

Criminal penalties are set out in the OFPA.⁵³⁰ The OFPA also sets out the general provisions around operator violations, orders to cease operations or repair damages, and so forth.⁵³¹

⁵³⁰ ORS at § 527.990.

⁵³¹ *Ibid.* at §§ 527.680 to 527.690.

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3. Forests Law and Policy in British Columbia

Like Alberta, most of BC's forest is Crown owned (public). The forests are divided into forest management units which are designated as either timber supply areas or tree farm license areas.⁵³² Timber supply areas are designated areas within which volume-based tenures grant the right to harvest a certain amount of timber (in accordance with annual allowable cut). A tree farm licence is an "area-based tenure that grants virtually exclusive rights to harvest timber and manage and conserve forests, recreation and cultural heritage resources on a specified area of land" (i.e., similar to Alberta's FMA tenure).⁵³³ The annual allowable cut for each timber supply area and tree farm licence is set by the province's chief forester at least once every ten years.

For public forests, the relevant legislation is the *Forest Act* and the *Forest and Range Practices Act* (FRPA) and associated regulations.⁵³⁴ The *Forest Act* and its regulations regulate forestry activities within public forests and address matters such as classification of forests, regulation of cutting rates, timber dispositions, general tenure provisions, annual allowable cut partition, cut control, timber marking, timber scaling, payments to government (for stumpage, rent), roads and right of ways, and offences and penalties.

⁵³² Government of British Columbia, "Forest Management Unit Map" online: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/tfl_tsa_district_map.pdf.

⁵³³ Government of British Columbia website at <https://www2.gov.bc.ca/gov/content/industry/forestry/forest-tenures/timber-harvesting-rights/tfl>.

⁵³⁴ *Forest Act*, R.S.B.C. 1996, c 157 [Forest Act]. & *Forest and Range Practices Act*, S.B.C. 2002, c 69 [FRPA].

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In 2003, the B.C. Government introduced its *Forestry Revitalization Plan* which included timber reallocation wherein the largest licences were required to return about 20% of their replaceable logging rights to the Crown. About half of this was allocated to First Nations and small tenure holders and the other half was sold at competitive auction.⁵³⁵ As well, the tenure system underwent some changes. Currently, section 12 of the *Forest Act* sets out the various types of forest licences which may be issued in B.C.:⁵³⁶

- **Forest licence** which specifies a volume-based AAC which may be harvested in a specified timber supply area or tree farm licence area. These may be issued for a term up to 20 years which may be replaceable every 5 to 10 years or non-replaceable.
- **Timber licence** which grants exclusive right to harvest timber in a specified area (no longer being issued).
- **Tree farm licence** which grants virtually exclusive right to harvest timber and manage forests in a specified area (which may include private land). These are issued for 25 year terms which are replaceable every 5 to 10 years.
- **Community forest agreement** is an area-based tenure granted to a First Nation, municipality, regional district or society to harvest an AAC in a specified area. May also include a right to harvest, manage, and charge fees for botanical forest products and other products. Issued for terms ranging from 25 to 99 years.
- **First Nations woodland licence** an area-based tenure granted to a First Nation to harvest an AAC in a specified area. May also include a right to

⁵³⁵ British Columbia, *Timber Tenures in British Columbia: Management Public Forests in the Public Interest* (June 2012).

⁵³⁶ *Ibid.* See also British Columbia, *Managing your New Timber Tenure in British Columbia: An Administrative Guide for First Nations and Other B.C. Communities, Version 2.1* (July 2019).

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harvest, manage, and charge fees for botanical forest products and other products. Issued for terms ranging from 25 to 99 years.

- **Community salvage licence** provides communities the right to remove timber that is dead, damaged, diseased, wind thrown or left over from logging. Issued for up to 5 years.
- **Woodlot licence** which is an area-based licence that grants an exclusive right to harvest an AAC and manage forest in a specified area (which may include private lands). Issued for a term up to 20 years and most are replaceable every 20 years.
- **Licence to cut** grants the right to harvest and/or remove Crown timber for up to 5 years.

As well, section 12 indicates the forest permits which may be issued:

- Free use permit (a.k.a. cutting permits) allows harvesting up to 50 m³ for non-commercial purposes and may be issued for up to 5 years.
- Christmas tree permit which permits an individual to grow and/or harvest Christmas trees commercially.
- Road permit allows construction of a road or maintenance of an existing road, it may include the right to harvest timber.

The FRPA and its regulations adopts a results based approach to regulate forest and range practices, and the conduct of resource-based activities, on Crown land. Under FRPA, the government can set objectives for sustaining forest values including biodiversity, cultural heritage, forage, fish, recreation, resource features, soils, timber, visual quality, water, and wildlife. The FRPA applies to all stages of planning, road building, logging and reforestation. The FRPA also establishes the Forest Practices Board which carries out periodic independent

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audits and special investigations for tenure-holder compliance, and deals with complaints from the public on compliance matters.

The FRPA requires that all major licence holders develop a Forest Stewardship Plan before undertaking any operations such as harvesting or road construction (similarly, woodlot licence holders must prepare a Woodlot Licence Plan). Forest stewardship plans are map-based, landscape-level plans for potential forest development activities that are intended to take place in the plan area and must:⁵³⁷

- include a map with the boundaries of all forest development units;
- specify intended results or strategies in relation to objectives set by the government or the Act; and
- conform to other prescribed requirements.

Forest agreement holders must prepare a forest stewardship plan and have it approved by government, including a public review process, before harvesting or road building activities can begin.⁵³⁸ Forest stewardship plans have a term of five years with the option of renewal for additional terms.⁵³⁹ Once a plan is approved, the licensee must prepare site plans detailing logging, road building

⁵³⁷ FRPA at s 5(1). See also Government of British Columbia, "Forest Stewardship Plans" online: <https://www2.gov.bc.ca/gov/content/industry/forestry/forest-tenures/forest-tenure-administration/annual-rent-fees>.

⁵³⁸ FRPA at s. 18.

⁵³⁹ *Ibid.* at s. 6.

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and silviculture activities.⁵⁴⁰ As well, most licensees must also obtain cutting permits and road permits.

Aside from the regulation of public forests, there is legislation addressing the approximately 5% of B.C.'s forests located on private land: the *Private Managed Forest Land Act* and its regulations.⁵⁴¹ This legislation does not apply to all private forest land, rather the landowner must seek to have land classified as managed forest, the land must be a minimum of 25 hectares and suitable for growing trees, and the landowner must commit to using the land for production and harvesting of timber and other forest management activities.⁵⁴² Managed forest land is assessed at lower property tax rates and is not subject to municipal bylaws that might restrict forest management activity.⁵⁴³

Oversight and administration of the Act is provided by the Private Managed Forest Council which is an independent provincial agency. This Council determines whether land can qualify as private managed forest and ensures that management objectives are being met. Results-based management objectives include soil conservation, water quality, fish habitat, critical wildlife habitat and reforestation.⁵⁴⁴ Ultimately, the goals of this legislation are to

⁵⁴⁰ *Ibid.* at ss. 10(1) and 10(2).

⁵⁴¹ *Private Managed Forest Land Act*, S.B.C. 2003, ch. 80.

⁵⁴² *Ibid.* at s. 17.

⁵⁴³ *Ibid.* at ss. 17 and 21.

⁵⁴⁴ *Ibid.* at ss. 12 to 16. See also *Private Managed Forest Land Council Regulation*, B.C. Reg. 182/2007 (soil, riparian areas, fish streams, reforestation); *Private Managed Forest Land Council Matters Regulation*, B.C. Reg. 372/2004 (water quality, remediation); and *Private Managed Forest Land Regulation*, B.C. Reg. 371/2004 (critical wildlife habitat).

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encourage private landowners to manage their lands for long-term forest production and to encourage sustainable forest management practices.⁵⁴⁵

3.1 Ecosystem based management principles

The framework set by B.C.'s *Forest Act* and the FRPA does reflect some consideration of forest values beyond timber. However, sustainable timber supply is the primary goal as illustrated by the considerations for setting the allowable annual cut. The Act requires that, in determining the allowable annual cut for Crown land in each timber supply area (except for Crown land in tree farm licence areas, community forest agreement areas, First Nations woodland licence areas and wood lot licence areas) and for each tree farm licence area, the Chief Forester must consider the sustainable rate of timber production and abnormal infestations in and devastations of timber in the area, as well as major salvage programs.⁵⁴⁶ As well, the Chief Forester must consider the economic and social objectives of the government for the area, the general region and British Columbia as a whole.⁵⁴⁷ Although it's possible that social objectives may reflect some ecological concerns, ecological considerations are not expressly mentioned as a determinant or even as a factor in determining allowable annual cut.⁵⁴⁸

⁵⁴⁵ Government of B.C. website at <https://www2.gov.bc.ca/gov/content/industry/forestry/forest-tenuresfore/private-managed-forest-land>.

⁵⁴⁶ *Forest Act* at s. 8(8).

⁵⁴⁷ *Ibid.* at s. 8(8).

⁵⁴⁸ Maria Church, "BC drops Lakes Timber Supply Area AAC by 41%" (November 22, 2019) Canadian Forest Industries, online: <https://www.woodbusiness.ca/bc-cuts-lakes-timber-supply-area-aac-by-41/>. The Chief Forester cites social and economic objectives, consultation with stakeholders, and end of mountain pine beetle epidemic as considerations in reducing AAC.

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The FRPA enables the provincial cabinet to set objectives for a variety of forest values: soils, visual quality, timber, forage and associated plant communities, water, fish, wildlife, biodiversity, recreation resources, resource features and cultural heritage resources.⁵⁴⁹ In addition, regulations and objectives can be made to address ungulate winter range, wildlife habitat areas and general wildlife measures.⁵⁵⁰ The same can be done for watersheds with significant downstream fisheries values and significant watershed sensitivity, for lakeshore management zones, and scenic areas and visual quality.⁵⁵¹ Regulations can be made for classification of streams, wetlands and lakes including riparian reserve zones, riparian management zones, and designation of temperature sensitive streams.⁵⁵²

Regulations setting objectives have indeed been made in the *Forest Planning and Practice Regulation*.⁵⁵³ However, the objectives set out are fairly high level - for example "conserve sufficient wildlife habitat in terms of amount of area, distribution of areas and attributes of those areas, for (a) the survival of species at risk, (b) the survival of regionally important wildlife, and (c) the winter survival of specified ungulate species".⁵⁵⁴ Furthermore, the objectives set out in the regulations are subject to the caveat that such objectives should not "unduly

However, it is clear that sustainable timber supply is a primary goal.

⁵⁴⁹ FRPA at s. 149.

⁵⁵⁰ *Ibid.* at s. 149.1.

⁵⁵¹ *Ibid.* at ss. 150.1, 150.2, 150.3.

⁵⁵² *Ibid.* at s. 150.5.

⁵⁵³ *Forest Planning and Practice Regulation*, B.C. Reg. 14/2004.

⁵⁵⁴ *Ibid.* at s. 7.

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reduc[e]the supply of timber".⁵⁵⁵ In other words, primacy is still given to the timber value of forests.

The objectives set out in the FRPA and its regulations govern the activities of licensees during all stages of planning, road building, logging and reforestation. A licensee must prepare a forest stewardship plan that specifies intended results or strategies to address the forest values set out in the Act and which must be approved by the Minister.⁵⁵⁶ The intended results and strategies described in the forest stewardship plan must be carried out in practice.⁵⁵⁷

It is important to note that the *Haida Gwaii Reconciliation Act*⁵⁵⁸ changes both setting the annual allowable cut and forest objectives for the Haida Gwaii Islands. The Haida Gwaii Management Council – which consists of 2 members appointed by the Haida Nation and 2 members appointed by provincial cabinet – can set both the annual allowable cut and forest objectives for the Haida Gwaii Islands.⁵⁵⁹ Furthermore, the provincial cabinet may modify a provision of the *Forest Act* or the FRPA to bring them into alignment with the reconciliation protocol.⁵⁶⁰

Another important exception to the general operation of the *Forest Act* and FRPA is found in the Great Bear Rainforest (GBR) on the Central and North Coast of B.C. The GBR is governed under a separate management regime as set out in the *Great Bear Rainforest (Forest Management) Act*, the *Great Bear Rainforest*

⁵⁵⁵ *Ibid.* at ss. 5 to 10.

⁵⁵⁶ *Ibid.* at Part 2.

⁵⁵⁷ FRPA at Part 2.

⁵⁵⁸ *Haida Gwaii Reconciliation Act*, S.B.C. 2010, ch. 17.

⁵⁵⁹ *Ibid.* at ss. 4 and 5.

⁵⁶⁰ *Ibid.* at s. 15.

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(*Forest Management*) Regulation, the *Great Bear Rainforest (Special Forest Management Area) Regulation*, and the *Great Bear Rainforest Order*.⁵⁶¹

Management of the GBR is an ecosystem-based management approach grounded in science and traditional, local knowledge. The intent is to “establish a Natural Forest of 3,108,876 ha and to maintain old forest representation of each ecosystem at 70% of the range of natural variation” and to “establish a Managed Forest area of 550,032 ha and an [annual allowable cut] of 2.5 million m³ for the area until March 31, 2025”.⁵⁶²

The *Great Bear Rainforest (Forest Management) Act* sets out the framework for managing timber activities within the GBR – including identification of the GBR land base, application of the *Forest Act*, rules for determining annual allowable cut, and cut control. The Regulations set out the annual allowable cut for the various regions of the GBR with a maximum annual allowable cut for the entire GBR being capped at 2,500,000 m³.⁵⁶³

The ecosystem-based management requirements are found in the *Great Bear Rainforest Order* (GBR Order) and its schedules. The GBR Order sets out objectives for the GBR on several matters - First Nations information sharing and engagement, First Nations forest resources and heritage features, ecological

⁵⁶¹ *Great Bear Rainforest (Forest Management) Act*, S.B.C. 2016, c. 16; *Great Bear Rainforest (Forest Management) Regulation*, B.C. Reg. 327/2016; *Great Bear Rainforest (Special Forest Management Area) Regulation*, B.C. Reg. 325/2016; *Great Bear Rainforest Order* (January 2016) Government of British Columbia [GBR Order].

⁵⁶² GBR Order at preamble. For discussion of the different land use zones in the GBR (conservancies and biodiversity, mining and tourism areas), see Deborah Curran, “Legalizing” the Great Bear Rainforest Agreements: Colonial Adaptations Toward Reconciliation and Conservation” (2017) 62(3) McGill Law Journal 813.

⁵⁶³ *Great Bear Rainforest (Forest Management) Regulation* at s. 2.

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representation, landscape reserve designs, managed forest and natural forest, restoration zones and landscape units, aquatic habitat, wildlife (especially bear) – which are objectives for the purposes of the *Forest and Range Practices Act*.⁵⁶⁴ The Schedules to the GBR Order address matters such identification of grizzly bear habitat, fisheries watersheds, and important plant communities; aboriginal heritage features and forest resources; and old forest retention levels and targets.

While not an enforceable part of the GBR order, the preamble to the GBR Order provides interesting context and background information. The preamble indicates that the goal is to implement ecosystem-based management within the GBR “in a manner that maintains ecosystem integrity and improves human well-being concurrently”.⁵⁶⁵ The preamble further states that “[e]cological integrity is being maintained when adverse effects to ecological values and processes are minimal or unlikely to occur. A high level of human well-being is being achieved when the quality of life in communities is equal to or better than the Canadian average”.⁵⁶⁶

The preamble indicates that if “monitoring results determine that ecological integrity is not being maintained or that human well-being is not being improved” then the GBR Order may be reviewed and amended.⁵⁶⁷ In terms of monitoring, the preamble indicates that ecological and human well-being indicators include high levels of old forest representation (70% of the range of

⁵⁶⁴ GBR Order at s. 1 of each part of the GBR Order (each part addresses different regions of the GBR).

⁵⁶⁵ *Ibid.* at preamble.

⁵⁶⁶ *Ibid.*

⁵⁶⁷ *Ibid.*

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natural variation) and increases in employment levels (equal to Canadian average).

It should be noted that concerns with ineffective enforcement, lack of enforcement and monitoring systems being in place, and incomplete specific plans for large swathes of the GBR have been raised.⁵⁶⁸ Going forward, these issues represent significant impediments to the purported goals of an ecosystem-based management regime within the GBR.

3.2 Public Participation

The FRPA requires that a person responsible for preparing a forest stewardship plan make it available for public review and comment prior to submitting it for approval to the Minister for approval.⁵⁶⁹ However, as pointed out by Gilani and Innes, the “existence of a stakeholder consultation process does not mean that stakeholder inputs are actually incorporated into decision-making”.⁵⁷⁰ This is an important consideration in the design of public participation processes. Public

⁵⁶⁸ Justine Hunter, “Logging in B.C.’s Great Bear Rainforest not meeting protection promises, environmentalists say” (10 February 2020) *The Globe and Mail*, online: <https://www.theglobeandmail.com/canada/british-columbia/article-logging-in-bcs-great-bear-rainforest-not-meeting-protection/>; Simon Little & Linda Aylesworth, “Environmentalists say B.C. falling behind on pledge to protect Great Bear Rainforest” (10 February 2020) *Global News*, online: <https://globalnews.ca/news/6534229/environmentalists-bc-pledge-great-bear-rainforest/>; and Ben Parfitt, “The Great Bear loophole: why old growth is still logged in B.C.’s iconic protected rainforest” (29 November 2019) *The Narwhal*, online: <https://thenarwhal.ca/the-great-bear-loophole-why-old-growth-is-still-logged-in-b-c-s-iconic-protected-rainforest/>.

⁵⁶⁹ FRPA at s. 18.

⁵⁷⁰ Haris R. Gilani and John L. Innes, “The State of British Columbia’s Forests: A Global Comparison (2020) 11 *Forests* 316.

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participation must be meaningful with the possibility of influencing planning or other decisions (i.e., not merely be a nominal, procedural requirement).

Although not specific to forest management or forestry regulation, for most of B.C., strategic land use plans have been completed at a regional or sub-regional scale.⁵⁷¹ The process for development of these plans involved public participation and a public engagement hub exists for all current land use planning projects in the province.⁵⁷²

3.3 Community Forest Management

The forest management framework in B.C. does incorporate community-based tenure in the form of community forest agreements and First Nation woodland licences.⁵⁷³ Community forest agreements may be entered into with a First Nation, municipality or regional district, or a society, association, corporation or partnership. Community timber agreements are issued for a term ranging from 25 to 99 years (usually 25 years) and gives the holder an exclusive right to harvest timber on applicable Crown land. Such an agreement may also give its holder the right to harvest, manage and charge fees for botanical forest products and other prescribed products. A First Nation woodland license is similar except that it may only be issued to a First Nation or its representative.

⁵⁷¹ Government of B.C. website at <https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions>.

⁵⁷² Provincial Land Use Planning Hub, Government of B.C. website at <https://landuseplanning.gov.bc.ca>.

⁵⁷³ *Forest Act* at Part 3, Divisions 7.1 and 7.11.

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Further details of the community forest program are found in the *Community Tenures Regulation*.⁵⁷⁴ The goals of the community forest program include providing long-term opportunities to achieve a range of community objectives and priorities and to undertake forestry consistent with principles of environmental stewardship reflecting a broad spectrum of values.⁵⁷⁵ A management plan is prepared to establish an annual allowable cut for the agreement and to link the community and its values to forest management (including social, economic and resource goals).

A management plan is also prepared for a First Nation woodland licence with the primary purpose of setting an annual allowable cut.⁵⁷⁶ Details about First Nation Woodland Licences is provided in the *First Nations Woodland Licence Information Guide*.⁵⁷⁷

⁵⁷⁴ *Community Tenures Regulation*, B.C. Reg. 352/2004.

⁵⁷⁵ British Columbia, *Management Plan Template: Companion Document* (Victoria: 2015, Ministry of Forests, Lands and Natural Resource Operations, Forest Tenures Branch). See also British Columbia, *Community Forest Agreement Application Requirements* (Victoria: 2017, Ministry of Forests, Lands and Natural Resource Operations, Forest Tenures Branch); and British Columbia, *Managing your new Timber Tenure in British Columbia: An Administrative Guide for First Nations and other B.C. Communities, version 2.1* (Victoria: 2019, Ministry of Forests, Lands, Natural Resource Operations and Rural Development) [Administrative Guide for First Nations].

⁵⁷⁶ British Columbia, *First Nation Woodland Licence Management Plan Handbook* (Victoria: 2019, Ministry of Forests, Land, Natural Resource Operations and Rural Development). See also *Administrative Guide for First Nations*, *ibid*.

⁵⁷⁷ British Columbia, *First Nations Woodland Licence Information Guide* (Victoria: 2019, Ministry of Forests, Lands, Natural Resource Operations and Rural Development).

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3.4 Accountability, Monitoring and Enforcement

Under the *Forest Planning and Practices Regulation*, tenure-holders are required to meet certain notification and reporting requirements.⁵⁷⁸ These include notification to the district manager prior to commencement of harvesting or road construction activities. As well, annual reports on harvest areas, wildlife tree retention areas, location of wildlife habitat features, regeneration activity, and silviculture treatments must be provided to the district manager.

The Forest Practices Board is established by the FRPA and is an independent watchdog for sound forest practices in B.C. reporting to the government and the public on compliance matters.⁵⁷⁹ It conducts periodic audits and special investigations. The Forest Practices Board also investigates complaints made by the public. The *Compliance Audit Manual*⁵⁸⁰ sets out the audit standards and processes for forest compliance audits. As well, the audit standards and processes for forest enforcement audits are provided in the *Enforcement Audit Reference Manual* which is currently being updated.⁵⁸¹ The *Complaint Investigation Process* document describes the process and addresses related matters such as timelines and reporting.⁵⁸²

In addition to establishing the Forest Practices Board, the FRPA sets out offences including unauthorized harvesting, damaging the environment, failure to prepare harvesting plans, failure to properly reforest a harvested site, and

⁵⁷⁸ *Forest Planning and Practices Regulation* at Part 6.

⁵⁷⁹ FRPA at Part 8.

⁵⁸⁰ Forest Practices Board, *Compliance Audit Reference Manual, version 7.1* (2016).

⁵⁸¹ Forest Practices Board website at <https://www.bcfpb.ca/board/policies/>.

⁵⁸² Forest Practices Board, *Complaint Investigation Process* (2017).

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improper road construction and maintenance.⁵⁸³ Penalties include fines up to \$1,000,000 or imprisonment up to 3 years. There are also a variety of compliance and enforcement tools such as entry and inspection, delivery of records, search and seizure, stop work orders, administrative penalties, and remediation orders.⁵⁸⁴ The Minister is required to publish an annual report on enforcement activities, as well as to make performance records for tenure-holders publicly available.⁵⁸⁵

⁵⁸³ FRPA at s. 87.

⁵⁸⁴ *Ibid* at Part 6.

⁵⁸⁵ *Ibid.* at s. 85.

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4. Forests Law and Policy in Ontario

Like most of Canada, the majority of Ontario's forests are owned by the Crown (about 90%) with a small amount of private ownership (about 9%).⁵⁸⁶ The *Policy Framework for Sustainable Forests* (Policy Framework) sets out a goal and strategic objectives for Ontario's forests, as well as principles for sustaining, using and decision-making for forests.⁵⁸⁷ The *Policy Framework* also sets out essential steps towards ecosystem management.

The main piece of legislation for forest management is the *Crown Forest Sustainability Act* (CFSA).⁵⁸⁸ The CFSA provides for regulation of forest management planning, permitting and licensing, forest operations, forest resource processing facilities, and trust funds.

Under the CFSA, the main form of forest tenure is the Sustainable Forest Licence which may be issued for terms up to 20 years which may be extended.⁵⁸⁹ Sustainable Forest Licences are subject to a review for compliance every five years. A licence must specify the requirements for preparation of inventories and forest management plans by the licensee; the silvicultural and other standards to be met; reporting requirements; procedures for periodic review of the licensee's performance; and the term of the licence and conditions applicable

⁵⁸⁶ Government of Ontario website at <https://www.ontario.ca/page/sustainable-forest-management>.

⁵⁸⁷ Government of Ontario, *Policy Framework for Sustainable Forests* (Toronto: 1994, Government of Ontario) [*Policy Framework*].

⁵⁸⁸ *Crown Forest Sustainability Act*, S.O. 1994, c 25, s 1 [CFSA].

⁵⁸⁹ *Ibid.* at s. 26.

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to its renewal.⁵⁹⁰ Other forms of tenure include forest resource licences (issued for a 10-year term),⁵⁹¹ and permits that allow removal of trees for the purpose of allowing a non-forestry activity to be carried out (such as mining).⁵⁹²

Further detail and requirements for regulation of forestry operations are found in four manuals mandated by the CFSA:⁵⁹³

- The *Forest Management Planning Manual* (FMPM) which addresses all aspects of forest management planning for Crown lands in Ontario (except the southern Ontario management unit).⁵⁹⁴ This includes details of the planning process and contents of forest management plans which are required for each forest management unit prior to initiation of forest activities.
- The *Forest Information Manual* (FIM) sets out information collection and reporting requirements for the purposes of forest management planning and compliance monitoring.⁵⁹⁵
- The *Forest Operations and Silviculture Manual* outlines the overarching principles and accepted approaches for forest management. It also sets

⁵⁹⁰ *Ibid.* at s. 26.

⁵⁹¹ *Ibid.* at s. 27.

⁵⁹² *Ibid.* at s. 41.4.

⁵⁹³ *Ibid.* at s. 68.

⁵⁹⁴ Government of Ontario, *Forest Management Planning Manual* (Toronto: 2020, Ministry of Natural Resources) [FMPM].

⁵⁹⁵ Government of Ontario, *Forest Information Manual* (Toronto: 2020, Ministry of Natural Resources) [FIM].

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the standards for forestry operations and silvicultural practices, as well as the base qualifications for forestry workers.⁵⁹⁶

- The *Scaling Manual* contains instructions and standards for measuring Crown forest resources.⁵⁹⁷

Recognizing that managing resource-based tourism in the forestry sector is a critical part of forest management planning, the *Management Guidelines for Forestry and Resource-Based Tourism (Forestry-Tourism Guidelines)* guide the planning of forestry operations in areas that are used for both forestry and tourism activities.⁵⁹⁸ The *Forestry-Tourism Guidelines* are meant to be used by both forest management planners and operators of resource-based tourism businesses. The *Forestry-Tourism Guidelines* are complemented by the Resource Stewardship Agreement Process which “encourages the forest and resource-based tourism industries... to work closely together in planning forestry operations that could potentially affect tourist operations.”⁵⁹⁹ This process is outlined in the *Tourism and Forestry Industry Memorandum of Understanding*.⁶⁰⁰ Resource Stewardship Agreements map projected road corridors and the tourism values to be protected over the next 20 years, prescriptions affecting

⁵⁹⁶ Government of Ontario, *Forest Operations and Silviculture Manual* (Toronto: 2020, Ministry of Natural Resources) [*Forest Operations Manual*].

⁵⁹⁷ Government of Ontario, *Scaling Manual* (Toronto: 2020, Ministry of Natural Resources) [*Scaling Manual*].

⁵⁹⁸ Government of Ontario, *Management Guidelines for Forestry and Resource-Based Tourism* (Toronto: 2001, Queen's Printer for Ontario) [*Forestry-Tourism Guidelines*].

⁵⁹⁹ Government of Ontario website at http://www.mtc.gov.on.ca/en/resourcebase/resource_stewardship.shtml.

⁶⁰⁰ *Tourism and Forestry Industry Memorandum of Understanding* (June 29, 2000), online: http://www.mtc.gov.on.ca/en/publications/rsa_mou_e.pdf.

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forest management that will be included in forest management plans, and any other provisions as agreed by the parties.⁶⁰¹

Because the CFSA deals only with forestry operations on Crown lands, it does not apply to private forest lands. As such, the Ontario government encourages responsible forest management of private forests through information and incentives.⁶⁰² The Managed Forest Tax Incentive Program provides tax relief to eligible landowners who prepare a detailed 10-year plan for responsible forest management.⁶⁰³ The plan must be approved by a Managed Forest Plan Approver and progress reports are required every 5 years. There is a list of criteria determining whether or not a private forest qualifies for the program including minimum size (4 ha) and number of trees per hectare requirements.⁶⁰⁴

4.1 Ecosystem based management principles

The adoption of the CFSA in 1994 marked a shift from a multiple-use, sustained yield forest management approach in the previous legislation to a sustainable forest management approach.⁶⁰⁵ This can be seen in the purpose of the CFSA which is to “provide for the sustainable Crown forests and, in accordance with that objectives to manage Crown forests to meet social, economic and

⁶⁰¹ *Ibid.* at Appendix A: Framework of an RSA.

⁶⁰² Government of Ontario website at <https://www.ontario.ca/page/sustainable-forest-management>.

⁶⁰³ Government of Ontario, *Managed Forest Tax Incentive Program guide* (2012), online: <https://www.ontario.ca/page/managed-forest-tax-incentive-program-guide>.

⁶⁰⁴ *Ibid.*

⁶⁰⁵ Mark Robson & Troy Davis, “Evaluating the Transition to Sustainable Forest Management in Ontario’s Crown Forest Sustainability Act and Forest Management Planning Manuals from 1994 to 2009” (2014) 45:4 *Can J Forest Res* 436 at 437 [Robson & Davis].

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environmental needs of present and future generations.⁶⁰⁶ Sustainability is defined to mean “long term Crown forest health”.⁶⁰⁷

EBM principles can also be seen in the *Policy Framework* which sets out the policy context guiding forest management planning and decision-making in the province. For instance, the principles for sustaining forests include:⁶⁰⁸

- Maintaining ecological processes is essential to the functioning of the biosphere, and biological diversity must be conserved in the use of forest ecosystems.
- Large, healthy, diverse and productive forests are essential to the environmental, economic, social and cultural well-being of Ontario.
- Forest practices, including all methods of harvesting must emulate, within the bounds of silvicultural requirements, natural disturbances and landscape patterns.
- Forest ecosystem types should not be candidates for harvest where this practice threatens their long-term health and vigour.
- Forest practices must minimize adverse effects on soil, water, remaining vegetation, fish and wildlife habitat, and other values.

The principles for decision-making include making use of best available science, informing the public of links among forest ecosystems, objectives and

⁶⁰⁶ CFSA at s. 1.

⁶⁰⁷ *Ibid.* at s. 2.

⁶⁰⁸ *Policy Framework* at s. 3.0.

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management tools, and effective public involvement.⁶⁰⁹ The *Policy Framework* also sets out the essential steps towards ecosystem management which are:⁶¹⁰

- Boundaries of ecosystems are defined for the primary components.
- Goals and measurable targets for ecosystem conditions are developed.
- Management strategies are designed, implemented and modified to achieve goals and targets.
- Ecosystem conditions are monitored and compared with the goals and targets.

While the Policy Framework does reflect a clear EBM ethos, it is policy and as such may have limited enforceability which means the principles need to be carried into legislation and regulatory requirements.

As mentioned, the purpose provision of the CFSA does reflect a focus on EBM. Other provisions in the Act also reflect EBM principles. For example, the CFSA requires that forest management plans have “regard to the plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values, of the management unit”.⁶¹¹ The CFSA requires that every forest management plan set management objectives relating to:⁶¹²

⁶⁰⁹ *Ibid.* at s. 5.1.

⁶¹⁰ *Ibid.* at s. 6.0.

⁶¹¹ CFSA at s. 8. Interestingly, section 47.1 of the CFSA grants an exemption from the *Endangered Species Act, 2007* prohibition against killing, harming, harassing, capturing or taking a member of a species at risk, or damaging or destroying habitat of a species at risk for persons conducting forest operations.

⁶¹² CFSA at s. 68.

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- diversity objectives including natural landscape patterns, forest structure and composition, habitat for animal life and the abundance and distribution of forest ecosystems;
- social and economic objectives, including harvest levels and a recognition that healthy forest ecosystems are vital to the wellbeing of Ontario communities;
- objectives for provision of forest cover for those values that are dependent on the Crown forest; and
- silviculture objectives for the harvest, renewal and maintenance of the Crown forest.

These management objectives must be compatible with the sustainability of the Crown forest (i.e., long term forest health).⁶¹³

There are also EBM principles embraced in the FMPM. For example, the FMPM indicates that forest management is to be conducted using adaptive management and provides a schematic of adaptive management.⁶¹⁴ The FMPM also sets out indicators and assessment timing for each category of CFSA management objectives. Detailed requirements for forest management plan contents and annual operations designed to ensure forest sustainability in accordance with the CFSA are set out in the FMPM.⁶¹⁵

⁶¹³ CFSA at ss. 1 and 68.

⁶¹⁴ FMPM at iii to iv.

⁶¹⁵ FMPM, Parts B, C and D.

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4.2 Public Participation

The CFSA requires that the Minister establish local citizen committees (LCCs).⁶¹⁶ Additional information about LCCs is provided in the *Forest Management Planning Manual (FMPM)*.⁶¹⁷ The LCCs are permanent standing committees comprised of local citizens that represent a “range and balance of interests” from the communities within or adjacent to the management unit.⁶¹⁸ The LCC participates in the preparation and implementation of forest management plans (usually there is one LCC per management unit).

In addition to the LCCs, there are public consultation requirements for all five stages of forest management planning.⁶¹⁹ Part of the public consultation process includes the distribution of direct written notices to interested and affected members of the public.⁶²⁰ The members of the public that must receive direct written notices are: (1) members of the LCC, (2) individuals with known interest in forest management planning for the forest management unit, and (3) individuals or groups that may be affected by forest operations during the 10-year period of the FMP.⁶²¹ These notices are to be distributed at each of the five stages of the public consultation process alongside public and media notices.⁶²²

⁶¹⁶ CFSA, s. 13.

⁶¹⁷ FMPM at Part A, s. 2.2.

⁶¹⁸ *Ibid.* at A-81.

⁶¹⁹ *Ibid.* at Part A, s. 2.3.

⁶²⁰ *Ibid.* at Part A, s. 2.3.2.1.

⁶²¹ *Ibid.*

⁶²² *Ibid.* at A-85.

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In the event there is an unresolved public concern raised during the forest management planning process, a formal issue resolution process may be triggered.⁶²³ If a person is not satisfied with the outcome of the issue resolution process, then a written request can be made to the director of the Environmental Approvals Branch for an individual environmental assessment.⁶²⁴ The CFSA also provides an appeal from the Minister's forest management approval decisions.⁶²⁵

Overall, public participation involves multiple levels of engagement through LCCs, the processes provided by the FMPM, and the appeal process outlined in the CFSA. It is supported by the inclusion of two-way dialogue during the public consultation process, enhancing the potential for broad engagement and social acceptability.⁶²⁶

There are also participation opportunities specifically for Indigenous engagement in forest management.⁶²⁷ The FMPM sets out the requirements to involve and consult First Nations and Métis communities in forest management planning. There is a standard Indigenous consultation approach outlined in the FMPM; however, customized consultation approaches may be developed in co-operation with a particular First Nation or Métis community.

⁶²³ *Ibid.* at Part A2.4.

⁶²⁴ *Ibid.* at Part A, s. 2.4.

⁶²⁵ CFSA at s.12.

⁶²⁶ Robson & Davis, *supra* note 605 at 442.

⁶²⁷ FMPM at Part A, s. 3.0.

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4.3 Community Forest Management

There are historical community forests located in Eastern Ontario covering approximately 52,000 ha of forest.⁶²⁸ These community forests were once part of a now defunct forest program operated in the 1900's. When the program was terminated, the forests reverted to local municipalities or conservation areas. These forests are unique in Ontario and arose from historical circumstances rather than a concerted effort to embrace a community forest management form of tenure.

However, in 2012, the *Ontario Forest Tenure Modernization Act* made changes to forest tenure to allow local forest management corporations.⁶²⁹ Local forest management corporations are government agencies governed by a Board of Directors with representatives from local and Indigenous communities. One of the objectives of establishing local forest management corporations is to allow economic development for Indigenous peoples.⁶³⁰ To date, there are two local forest management corporations: the Nawiinginiima Forest Management Corporation established in 2012 and the Temagami Forest Management Corporation established in 2020.⁶³¹

⁶²⁸ Eastern Ontario Model Forest, *Profiles of Certified Community Forests in Eastern Ontario* (n/d), online:

https://www.eomf.on.ca/media/k2/attachments/FSC_CommunityForests_Guide2012FINAL_2.pdf.

⁶²⁹ *Ontario Forest Tenure Modernization Act*, S.O. 2011, ch. 10.

⁶³⁰ *Ibid.* at s.5.

⁶³¹ *Ontario Local Forest Management Corporations*, O.R. 111/12.

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4.4 Accountability, Monitoring and Enforcement

The Ministry of Northern Development, Mines, Natural Resources and Forests (the Ministry) collects and compiles information about forest management activities to monitor, assess and improve forest management of Ontario's Crown forests.⁶³² The Ministry facilitates this process by: (1) providing direction for compliance, (2) maintaining the Forest Operations Information Program to document inspections, (3) enforcing government standards, guidelines and rules, (4) engaging in restoration action if negative impacts to the forest occur, and (5) monitoring and auditing.⁶³³

The CFSA grants authority to the Minister to require information from holders of timber licenses.⁶³⁴ Detailed reporting requirements are set out in the *Forest Information Manual (FIM)*. The FIM sets out the standards for providing forest resource inventories, maps, geospatial data layers, forest operations inspections, forest values, base data, reports and other information required for forest management planning and ensuring compliance with the CFSA and its regulations.⁶³⁵ It also sets out the requirements, standards, roles and responsibilities, timelines, conditions, and technical specifications for providing information.⁶³⁶ Management unit reports which monitor and evaluate future

⁶³² Queen's Printer for Ontario, *Forest Monitoring* (20 May 2021), online: *Ministry of Northern Development, Mines, Natural Resources and Forestry* <https://www.ontario.ca/page/forest-monitoring>.

⁶³³ *Ibid.*

⁶³⁴ CFSA at ss. 20 and 21.

⁶³⁵ FIM at i.

⁶³⁶ *Ibid.* at v.

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forest conditions in relation to prescribed objectives are required on an annual basis.⁶³⁷

The CFSA sets out a variety of offences including harvesting timber without a license or permit, failure to comply with a license or permit, and failure to provide information as required by the Act.⁶³⁸ In addition, there are other enforcement tools available under the CFSA such as suspension or cancellation of licenses or permits,⁶³⁹ seizure of forest resources and products,⁶⁴⁰ entry onto private lands,⁶⁴¹ search and inspection of records,⁶⁴² and imposition of liens for Crown charges.⁶⁴³

In addition, the CFSA established the Forestry Futures Trust⁶⁴⁴ which supports the Forestry Futures Trust Committee. This Committee delivers the Independent Forest Audit Program.⁶⁴⁵ Under this program, each forest management unit in the province is independently audited every 10 to 12 years with the audit report being made publicly available. Among other things, the audits determine:

⁶³⁷ FMPM at xii and FIM at s. 2.4.

⁶³⁸ CFSA at s. 64.

⁶³⁹ *Ibid.* at ss. 59 and 59.1.

⁶⁴⁰ *Ibid.* at s. 60.

⁶⁴¹ *Ibid.* at s. 61.

⁶⁴² *Ibid.* at ss. 61 and 62.

⁶⁴³ *Ibid.* at s. 63.

⁶⁴⁴ *Ibid.* at Part V.

⁶⁴⁵ Forestry Futures Trust Ontario website, online: <http://www.forestryfutures.ca/ifa> and Government of Ontario website, online: <https://www.ontario.ca/page/independent-forest-audits>.

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- the extent to which forest management activities comply with the Act and the FMPM;
- the extent to which forest management activities comply with the Act, forest management plans, manuals and other applicable guides;
- the effectiveness of forest management activities in meeting forest management objectives set out in the forest management plan; and
- examine the performance of licensees and the Ministry in relation to their respective forest management responsibilities.⁶⁴⁶

⁶⁴⁶ Forestry Futures Trust Ontario website, online: <http://www.forestryfutures.ca/ifa>.

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5. Forests Law and Policy in Quebec

Forestry activities and forest management in Quebec are governed by the *Sustainable Forest Development Act* and its many regulations.⁶⁴⁷ The Forest regime established by this legislation applies to public forests, private forests and forests owned by Native landholding corporations in the James Bay and New Quebec Territories.⁶⁴⁸

Both private forests and forests owned by Native landholding corporations are addressed by Title IV of the Act. If a private owner wishes to access provincial management support programs, cost sharing of silviculture, land tax rebates and loan guarantees for woodlot purchases, then the owner must have a registered management plan (to be considered a certified forest producer).⁶⁴⁹

The Act enables the development of programs designed to foster the sustainable development of private forests.⁶⁵⁰ The Act also enables the establishment of regional agencies that provide private forest development

⁶⁴⁷ *Sustainable Forest Development Act*, C.Q.L.R. c. A-18.1 [*Sustainable Forest Development Act*].

⁶⁴⁸ *Ibid.* at s.3. Also see the *Act Respecting the Land Regime in the James Bay and New Québec Territories*.

C.Q.L.R. c. r-13.1 which creates the Indigenous landholding corporations.

⁶⁴⁹ Erin Neave and Doug Wolthausen, *Private Woodland Owners: Meeting the Stewardship Challenge* (Ottawa: 2004, Natural Resources Canada). See also *Regulation respecting the reimbursement of property taxes of certified forest producers*, ch. A-18.1, r. 12.1; *Regulation respecting the fees payable by certified forest producers*, ch.A-18.1, r.3; *Regulation respecting the Forest Management Funding Program*, ch. A-18.1, r.9; *Regulation respecting the rate per cubic metre of timber applicable to the computation of the contribution payable to a regional agency for private forests development by holders of a wood processing plant operating permit*, ch. A-18.1, r. 13.

⁶⁵⁰ *Sustainable Forest Development Act* at Title IV, Chapter II.

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services or forest product marketing services.⁶⁵¹ There are 17 such agencies established in Quebec. In addition, the Federation of Quebec Forest Producers is a provincial organization that promotes the interests of private forest owners, aims to protect and enhance private forests, and to ensure orderly marketing of timber from private forests. The Federation has published a *Sound Forestry Practices for Private Woodlots Field Guide* to promote responsible forest management.⁶⁵²

However, the bulk of the legislation is focused on regulation of forestry activities and forest management on public lands. The public forests are divided into development units within which an annual allowable cut is calculated and forestry operations are conducted.⁶⁵³ Each development unit is managed via a tactical plan and operational plan (together, integrated forest development plans). Since 2013, forest planning is done by the provincial government with public consultation (via a regional and local consultation process).⁶⁵⁴ These plans are “founded on ecosystem-based development and take into account any efficiency targets and objectives the Minister sets for forest operations”.⁶⁵⁵ A tactical plan contains the allowable cuts assigned to the development unit, the sustainable forest development objectives, the forest development strategies adopted, the location of the main infrastructure, and the location of areas of

⁶⁵¹ *Ibid.* at Title IV, Chapter IV.

⁶⁵² *Guide Terrain: Saines Pratiques D'intervention en Foret Privée*, 4th ed. (Quebec: 2016, Federation des producteurs du Quebec).

⁶⁵³ *Sustainable Forest Development Act* at ss. 13, 15 and 16.

⁶⁵⁴ *Ibid.* at ss. 52 to 57. See also Azadeh Mobtaker and Mikael Ronnqvist, “Development of an economically sustainable and balanced tactical forest management plan: a case study in Quebec” (10 September 2017).

⁶⁵⁵ *Sustainable Forest Development Act* at s. 53.

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increased timber production.⁶⁵⁶ An operational plan sets out the forest operations zone in which timber harvesting or other forest development activities (which include activities associated with operation of a sugar bush, infrastructure, silviculture, reforestation) are planned.⁶⁵⁷

A variety of forestry permits may be issued for:⁶⁵⁸

- Harvest of firewood for domestic or commercial purposes;
- Operation of a sugar bush (i.e., maple syrup);
- Activities required for public utility work or for exercise of mineral rights;
- Harvest of shrubs or timber to supply a wood processing plant;
- Activities required to create wildlife, recreational or agricultural development projects;
- Activities carried out as part of an experimental or research project; and
- Any other activity determined by the Minister.

A sugar bush permit is issued for 5 years, a permit to supply a wood processing plant is issued for 5 years, and all other permits are issued for no more than 12 months.

In addition to these forestry permits, a person who holds a wood processing plant operating permit may be granted a timber supply guarantee (this is distinct from a permit to supply a wood processing plant which cannot be granted to a person who holds a wood processing plant operating permit).⁶⁵⁹ A

⁶⁵⁶ *Ibid.* at s. 54.

⁶⁵⁷ *Ibid.* at ss. 4(1), 54 and 56.

⁶⁵⁸ *Ibid.* at ss. 73 to 116.3.

⁶⁵⁹ *Ibid.* at ss. 174 to 178 which address wood processing plan operating permits.

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timber supply guarantee entitles the holder to purchase a specific volume of timber originating from public forests. The holder of the timber supply guarantee is responsible for harvesting the standing timber that they purchase (in accordance with an agreement entered into with the Minister). These are granted for a 5 year period although, in some cases, it may be granted for a shorter period of time.

5.1 Ecosystem based management principles

Ecosystem-based management is embraced in the *Sustainable Forest Development Act*. For instance, one purpose of the Act is to "implement sustainable forest development, in particular through ecosystem-based development".⁶⁶⁰ Sustainable forest development must contribute to:⁶⁶¹

- the preservation of biological diversity,
- the maintenance and improvement of the condition and productivity of forest ecosystems,
- the conservation of soil and water,
- the maintenance of forest ecosystem contributions to major ecological cycles;
- the maintenance of the many socio-economic benefits society derives from forests; and
- the consideration, in making development choices of the values and needs expressed by the populations concerned.

⁶⁶⁰ *Ibid.* at s. 1(1).

⁶⁶¹ *Ibid.* at s.2.

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The Act defines ecosystem-based development as “development that consists in ensuring the preservation of the biodiversity and viability of ecosystems by reducing the differences between developed and natural forests”.⁶⁶²

In determining allowable cuts (which are the maximum volume of timber of a particular species that may be harvested annually within a given development unit or local forest), sustainable forest development objectives must be considered including the sustainability of forests, the impact of climate change on forests, the natural dynamics of forests (including composition, age structure and tree distribution), the maintenance and improvement of the productive capacity of forests, and the diversified use of forests.⁶⁶³

As previously mentioned, forest planning on public lands must be founded on ecosystem-based development.⁶⁶⁴ In addition, the Act allows designation of forest areas as biological refuges or exceptional forest ecosystems.⁶⁶⁵ A biological refuge is designated to protect mature or over mature forests that represent the province's forest heritage and to maintain biological diversity. Exceptional forest ecosystems are designated where a forest ecosystem is of special interest for conservation of biodiversity due to scarcity, age or some other reason. Forest development activities are prohibited in biological refuges and exceptional forest ecosystems unless the Minister considers it “expedient

⁶⁶² *Ibid.* at s. 4(2).

⁶⁶³ *Ibid.* at s. 48.

⁶⁶⁴ *Ibid.* at s. 53, 58.

⁶⁶⁵ *Ibid.* at ss. 27 to 35. See also, Ministère des Ressources naturelles, *Exceptional Forest Ecosystems in Quebec: Key elements of our biodiversity* (Quebec City: 2001, Gouvernement du Quebec). It should be noted that there are other designations such as experimental forests, teaching and research forests, and forest stations.

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and ... not likely to have an adverse effect" on the maintenance or conservation of biodiversity.⁶⁶⁶

Forest development standards are found in the *Regulation respecting the sustainable development of forests in the domain of the State*.⁶⁶⁷ The Regulation sets out requirements for buffer strips/visual settings around campgrounds, hiking trails, and other structures;⁶⁶⁸ protection of aquatic environments, riparian areas, wetlands, and soils;⁶⁶⁹ protection of wildlife habitat;⁶⁷⁰ road and bridge requirements;⁶⁷¹ allocations of forest operations and residual forest for specific types of forest;⁶⁷² and regeneration and soil protection.⁶⁷³ These requirements address, among other things, restrictions and limitations on activities, buffer location and size, and identification of program standards to be met (such as the *Plan de ratablissement du caribou forestier*). Additional clarification of these regulatory requirements is found in the *Guide to the Application of the Regulation respecting the sustainable development of forests in the domain of the State*.⁶⁷⁴

⁶⁶⁶ *Ibid.* at ss. 30 and 34.

⁶⁶⁷ *Regulation respecting the sustainable development of forests in the domain of the State*, ch. 18.1, r.0.01.

⁶⁶⁸ *Ibid.* at ss. 7, 8, 12, 13, 19, 20 and 21.

⁶⁶⁹ *Ibid.* at Chapter III.

⁶⁷⁰ *Ibid.* at Chapter IV.

⁶⁷¹ *Ibid.* at Chapter V

⁶⁷² *Ibid.* at Chapter VI.

⁶⁷³ *Ibid.* at Chapter VII.

⁶⁷⁴ Ministère des Forêts, de la Faune et des Parcs, *Guide to the Application of the Regulation respecting the sustainable development of forests in the domain of the State* (Quebec: 2021, Government of Quebec).

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Sections 11 and 12 requires the development of a Sustainable Forest Development Strategy to set out the “approach chosen and the sustainable development policy directions and objectives applicable to forest lands, in particular with regard to ecosystem-based development”. The Minister must exercise their responsibilities and power in a manner consistent with this strategy.⁶⁷⁵

The *Sustainable Forest Management Strategy (Strategy)*⁶⁷⁶ is intended to work in conjunction with the Act to form the “foundation of the new forest regime” and is intended to set out the goals of the Act in practice.⁶⁷⁷ The *Strategy* revolves around 6 challenges, each of which is accompanied by orientations designed to foster sustainable forest management, each orientation is further divided into objectives, actions and indicators (the latter for monitoring and evaluation). The challenges identified are:⁶⁷⁸

- Take the interests, values and needs of the Quebec population and the Indigenous nations into account in managing the forests.
- Use forest management practices that ensure ecosystem sustainability.
- Ensure productive forests that create wealth at different levels.
- Support a diversified, competitive, and innovative wood products and forest industry.
- Ensure that forests and the forest sector help fight and adapt to climate change.

⁶⁷⁵ *Sustainable Forest Development Act*, s. 52.

⁶⁷⁶ Ministère des Forêts, de la Faune et des Parcs, *Sustainable Forest Management Strategy* (Quebec: 2015, Government of Quebec) [*Strategy*].

⁶⁷⁷ *Ibid.* at 4.

⁶⁷⁸ *Ibid.* at 6.

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- Ensure sustainable, structured, and transparent forest management.

Most relevant to the discussion of ecosystem-based forest management is Challenge 2: use forest management practices that ensure ecosystem sustainability. The *Strategy* recognizes ecosystem management as one pillar of sustainable forest management and identifies 5 orientations to meet the challenge:

- Manage forests in a manner that preserves the main features of natural forests.
- Maintain quality habitats for species requiring particular attention and species sensitive to forest management activities.
- Contribute to the development and sustainable management of an effective network of protected areas representative of Quebec's biodiversity.
- Integrate new knowledge on ecosystem productivity into forest management.
- Introduce forestry practices and protective measures to maintain the integrity and ecological functions of aquatic, riparian, and wetland environments and forest soils.

The *Strategy* defines ecosystem management as “seek[ing] to maintain ecosystem biodiversity and sustainability by limiting the observed difference between managed and natural forests” and states that the “goal of ecosystem management is not to keep all forests in a pristine state or completely recreate natural forests, but to arrive at a close approximation of a natural forest”.⁶⁷⁹

⁶⁷⁹ *Ibid.* at 12.

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Further, the “management practices used are designed to create forest landscapes that contain all the diversity and irregularity of natural forests, including the composition and shape of stands, the presence of trees of different sizes, snags, and wood debris”.⁶⁸⁰ The approach also allows for coexistence of different users in the same area and is a “participatory management approach” which addresses environmental, social and economic issues.⁶⁸¹

The *Strategy* notes the main ecological issues raised by forest management as being changes in the age structure, spatial organization, and plant composition; simplification of forest stand structure; depletion of certain types of deadwood; and alteration of ecological functions in wetlands and riparian zones.

Aside from the provisions found in the Act and its regulations, and in the *Strategy*, there are several publications on the topic of ecosystem-based management (although these all pre-date the legislation which came into effect in 2013). These policies are:⁶⁸²

- Reference Manual for Ecosystem-Based Forest Management in Québec. Module 1 – Foundations and Implementation Approach (2011)
- Ecosystem based forest management: Closer to nature (2010)
- Harvesting in Burned Forests – Issues and Orientations for Ecosystem-Based Management (2011)

⁶⁸⁰ *Ibid.* at 12.

⁶⁸¹ *Ibid.* at 12.

⁶⁸² See Government of Quebec website at <https://mffp.gouv.qc.ca/the-forests/forests-publications/?lang=en>.

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- Sustainable Management in the Boreal Forest: A real Response to Environmental Challenges (2008)

It is interesting to note that the *Reference Manual for Ecosystem-Based Forest Management in Quebec*⁶⁸³ (*EBM Reference Manual*) identified three main categories of ecological issues: biodiversity, soil and water resources, and climate change. For each category of ecological issues, the *EBM Reference Manual* sets targets that correspond with the level of environmental alteration that falls within the limited of natural variation or that otherwise would be unlikely to lead to a loss of biodiversity.⁶⁸⁴ However, these targets have not been adopted into the legislative scheme.

5.2 Public Participation

Public participation is a key element of forest management planning in Quebec. For each development unit, the Minister develops a tactical plan and operational plan (together, the integrated forest development plan) in collaboration with a local integrated land and resource management panel. The panel is set up to “ensure that the interests and concerns of the persons and bodies affected by planned forest objectives are taken into account”.⁶⁸⁵ The

⁶⁸³ Frank Grenon, Jean-Pierre Jette, and Marc Leblanc, *Reference Manual for Ecosystem-Based Forest Management in Quebec, Module 1: Foundations and Implementation Approach* (Quebec: 2011, Ministère des Ressources naturelles et de la Faune), online at: <https://mffp.gouv.qc.ca/documents/forest/ecosystem-based-management.pdf> [*EBM Reference Manual*].

⁶⁸⁴ *Ibid.* at 25.

⁶⁸⁵ *Sustainable Forest Development Act* at s. 55. See also Government of Quebec, *Local Integrated Land and Resource Management Panel Guide: Role and Contribution to the Elaboration of Integrated Forest Management Plans* (Quebec: 2017, Forêts, Faune et Parcs

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panel is comprised of various stakeholders including representatives from Indigenous communities, municipalities, timber rights holders, holders of other forest related rights (such as outfitters and trappers), and regional environmental councils.⁶⁸⁶ There is no indication that persons with genuine public interest must be included on the panel but the Minister may invite any other persons or bodies not on the list to sit on the panel. Each panel focuses on one or more management units and make recommendations to the Minister on the proposed integrated forest development plan.

Once the panel has discussed the issues and recommendations have been incorporated into the integrated forest development plans by the Minister, then the plans are subject to public consultation. Public consultation is required for integrated forest development plans (i.e., the tactical plan and operational plan mentioned above).⁶⁸⁷ The consultation report is made public by the Minister.

It should be noted that, aside from the typical integrated forest development plans, a special development plan may be developed in the case of substantial damage to a timber stand by natural disturbance or human influence, or if a forest area is required for hydroelectric or wind power development. These plans address salvage of timber and appropriate silviculture treatments. Public consultation is not necessarily required for a special development plan if the Minister determines there is an urgent need for the plan especially if the plan is necessary to avoid deterioration or loss of timber.⁶⁸⁸

Quebec).

⁶⁸⁶ *Sustainable Forest Development Act* at s. 55.

⁶⁸⁷ *Ibid.* at s. 57.

⁶⁸⁸ *Ibid.* at s. 61.

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5.3 Community Forest Management

This is not addressed by the Act nor its regulations. However, as discussed above there are provisions dealing with management of private forests.

5.4 Accountability, Monitoring and Enforcement

There are a variety of penalty provisions in the Act which impose fines ranging up to \$80,000 (some fines are based on a per tree/volume basis, so theoretically fines could exceed \$80,000).⁶⁸⁹ Offences includes harvesting without a permit, harvesting timber outside authorized timber zones, harvesting an excess amount of timber or from the wrong species of trees, failure to submit a required annual activity report, and contravention of a regulatory provision.

Fines are doubled for offences that occur in a biological refuge or an exceptional forest ecosystem.⁶⁹⁰ In addition to these penalties, if damage is caused to a biological refuge or exceptional forest ecosystem, civil damages including punitive damages may be awarded.⁶⁹¹

There are a variety of enforcement powers such as inspection and verification, searches, seizure, and confiscation and disposal of timber.⁶⁹² The Chief Forester also has the power to carry out any investigations they consider necessary for the exercise of the functions of their office.⁶⁹³

⁶⁸⁹ *Ibid.* at ss. 227 to 254.

⁶⁹⁰ *Ibid.* at s. 247.

⁶⁹¹ *Ibid.* at s. 226.

⁶⁹² *Ibid.* at ss. 211 to 223.

⁶⁹³ *Ibid.* at s. 50.

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By way of monitoring, there are numerous reporting requirements set out in the Act. For example, the Chief Forester is required to send an activity report to the Minister at the end of each fiscal period (i.e., annually) along with an annual management report.⁶⁹⁴ As well, the Minister may require anyone conducting forest development activities in the public forests to submit a report which must be made available to the public.⁶⁹⁵ If the report is not submitted, the person's permit may be cancelled or suspended.⁶⁹⁶ Furthermore, the Minister may authorize an inspection and verification of the data and information provided in that report.⁶⁹⁷ Reporting requirements are also placed on the Minister. The Minister is required to prepare a 5 year sustainable forest development review which addresses information such as the sustainable forest development results achieved, an analysis of the sustainable forest development results achieved in public forests and other information of public interest.⁶⁹⁸ Holders of timber supply guarantees and permits to harvest timber to supply a wood processing plant must supply the information considered necessary by the Minister to meet their reporting obligations.⁶⁹⁹

⁶⁹⁴ *Ibid.* at s. 51.

⁶⁹⁵ *Ibid.* at s. 66.

⁶⁹⁶ *Ibid.* at s. 79.

⁶⁹⁷ *Ibid.* at s. 67.

⁶⁹⁸ *Ibid.* at s. 224.

⁶⁹⁹ *Ibid.* at s. 225.

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6. Forests Law and Policy in Saskatchewan

Although Saskatchewan may not be known for a robust forestry industry, over half of the province is forested with 5.3 million hectares available for commercial timber harvesting.⁷⁰⁰ The annual allowable cut for the entire province is 9.0 million m³ of timber, divided as 4.7 million m³ of softwood and 4.3 million m³ of hardwood (however, actual timber harvests generally fall below this amount).⁷⁰¹ Like other provinces in Canada, most of Saskatchewan's forests are publicly owned with less than 1% being private forest.⁷⁰²

Regulation of forestry operations is governed by the *Forest Resources Management Act* (FRMA), the *Forest Resources Management Regulations* (FRMA Reg), and the *Forest Resources Management (Saskatchewan Environmental Code Adoption) Regulation* (Code Reg).⁷⁰³ The Code Reg adopts those portions of the Saskatchewan Environmental Code that are relevant to forestry operations: Chapters A.1.1 (standards), D.1.1 (forest

⁷⁰⁰ Forestry Development, Government of Saskatchewan website at <https://www.saskatchewan.ca/business/investment-and-economic-development/key-economic-sectors/forestry-development#:~:text=Over%20half%20of%20Saskatchewan%20is,available%20for%20commercial%20timber%20harvesting.>

⁷⁰¹ Government of Saskatchewan, "Saskatchewan Forestry Sector" (April 2020) Powerpoint Presentation.

⁷⁰² Canadian Council of Forest Ministers, Province of Saskatchewan Fact Sheet (2017).

⁷⁰³ *Forest Resources Management Act*, S.S. 1996, ch. F-19.1 [FRMA]; *The Forest Resources Management Regulations*, ch. F-19.1, Reg. 1 [FRM Reg]; *The Forest Resources Management (Saskatchewan Environmental Code Adoption) Regulations*, ch. F-19.1, Reg. 11 [Code Reg]; and Government of Saskatchewan, *Saskatchewan Environmental Code Edition 1* (2014) [Saskatchewan Environmental Code].

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regeneration assessment), D.1.2 (forest data submission), D.1.3 (forest operating plan), D.1.4 (forest products scaling), D.1.5 (forest management planning), and D.1.6 (forest inventory).

Harvest of forest products is prohibited without proper authorization.⁷⁰⁴ As such, the Act allows issuance of forest harvest authorizations. Each authorization describes the area within which the rights apply; the location, quantity and type of forest products that may be harvested; dues and fares payable; the time period for the authorization; and any other necessary terms.⁷⁰⁵ The authorizations may be issued as forest management agreements, term supply licences, or forest product permits.

A forest management agreement is a long-term forest tenure which may be issued for up to 20 years (although the agreement may allow for 5 year extensions in every fifth year with the result that the agreement lasts more than 20 years).⁷⁰⁶ Every forest management agreement requires provincial cabinet approval.⁷⁰⁷ The tenure holder is required to prepare a forest management plan for the duration of the agreement (revised once every 10 years) and a 5 year operating plan.⁷⁰⁸ The forest management plans must describe how the tenure-holder plans to manage the forest and indicate how Indigenous people, people using the land, and other people interested in the forestry activities have been consulted and how any concerns raised will be addressed.⁷⁰⁹ The forest

⁷⁰⁴ FRMA at s. 17.

⁷⁰⁵ *Ibid.* at s. 20.

⁷⁰⁶ *Ibid.* at s. 34.

⁷⁰⁷ *Ibid.* at s. 33.

⁷⁰⁸ *Ibid.* at s. 38.

⁷⁰⁹ *Ibid.* at s. 39.

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management plan must be approved by the Minister and the Minister may impose additional terms onto the plan as they considers necessary or advisable.⁷¹⁰

A term supply licence confers the right to harvest specified forest products and may be granted for up to 10 years.⁷¹¹ A term supply licensee has the right to use and occupy the land described in the licence.⁷¹² Term supply licences may be area or volume based; however, volume based term supply licences are typically for a shorter term.⁷¹³ A term supply licensee is required to prepare a forest management and operating plan.⁷¹⁴ However, if the term of the license is less than 5 years and the licensee prepares an operating plan for the full term of the license then the licensee is not required to prepare a forest management plan.⁷¹⁵ As well, if the term supply licence area is entirely within an area covered by a forest management agreement, then by agreement the forest management agreement holder may prepare the term supply licensee's operating plan.⁷¹⁶

Finally, forest products permits are short-term permits issued for small volumes of wood or non-timber forest products.⁷¹⁷ Such a permit expires on the sooner of

⁷¹⁰ *Ibid.* at s. 39.1.

⁷¹¹ *Ibid.* at ss. 42 and 43.

⁷¹² *Ibid.* at s. 44.

⁷¹³ National Aboriginal Forestry Association, *Fourth Report on Indigenous-Held Forest Tenures in Canada 2018* (2018), online:

<http://nafaforestry.org/pdf/2018/NAFA%20Tenure%20Report%202018a.pdf> at 18.

⁷¹⁴ FRMA at s. 46 and 46.1.

⁷¹⁵ FRM Reg. at s. 29.

⁷¹⁶ *Ibid.* at s. 30.

⁷¹⁷ FMRA at s. 49.

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the date provided in the permit or the March 31st following the grant date (although extensions are possible). The Minister may require operating plans be submitted for the full term of the forest products permit.⁷¹⁸

Some activities are permitted without a licence including subsistence gathering for ceremonial, consumptive or medicinal use (but does include gathering of trees for fuel wood other than dead or down trees); harvesting of berries, fruits, renewable parts of plants and mushrooms for sale or barter; and harvesting a reasonable number of trees to be used as Christmas trees (as long as they are smaller than 4m).⁷¹⁹

While the Act and regulations indicate which tenure-holders are required to prepare forest management plans, the detailed requirements are found in the *Forest Management Planning Standard* of the *Environmental Code (Planning Standard)*.⁷²⁰ The *Planning Standard* outlines the process for planning including public engagement; plan content requirements including management of woodland caribou habitat, integration with non-timber uses of the forest and silviculture operating rules; development of values, objectives, indicators and targets to guide forest management activities; and requirements for public reporting.

In terms of forest management planning, the *Forest Operating Plan Standard* is also relevant.⁷²¹ The required contents of an operating plan are set out in the *Forest Operating Standard* with differing requirements for a forest management agreement or an area-based term supply versus a holder of a volume-based term supply licence or forest product permit. Operating plans must address

⁷¹⁸ *Ibid.* at ss. 49.1 to 49.4.

⁷¹⁹ *Ibid.* at s. 17.

⁷²⁰ *Saskatchewan Environmental Code* at Chapter D.1.5: Forest Management Planning.

⁷²¹ *Ibid.* at Chapter D.1.3: Forest Operating Plan.

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things such as proposed harvest blocks, proposed road and water crossings, proposed harvesting activities, and proposed renewal activities among others.

6.1 Ecosystem based management principles

The purpose of the *Forest Resources Management Act* is to “promote the sustainable use of forest land for the benefit of current and future generations by balancing the need for economic, social and cultural opportunities with the need to maintain and enhance the health of forest land”.⁷²² While this is not an express endorsement of ecosystem-based management, such an approach is not precluded by the purpose of the Act.

Ecosystem-based management is being adopted in the Meadow Lake Provincial Park and the Cypress Hills Interprovincial Park, both of which are designated as natural environment provincial parks under the *Parks Act*.⁷²³ Although such parks are to be used primarily for the pursuit of outdoor recreational activities in a manner consistent with protection of natural landscapes, forestry activities may be permitted within these parks.⁷²⁴

In 2019, Tolko Industries Ltd. was granted tenure rights within the Meadow Lake Provincial Park.⁷²⁵ The terms of operation are governed by the *Forest Conservation Management Plan for Meadow Lake Provincial Park (FCMP)* which

⁷²² FRMA at s. 3.

⁷²³ *The Parks Act*, S.S. 1986, ch. P-1.1 [*Parks Act*] at Sched. 1.

⁷²⁴ *Ibid.* at s. 4 and *The Parks Regulations*, 1991, ch. P-1.1 Reg. 6 at ss. 41 and 42.

⁷²⁵ 2020-2025 Operating Plan, Tolko Industries Ltd., Meadow Lake OSB Division Meadow Lake Provincial Park available at https://tolkocfpmllpp.ca/Documents/2020-2025_Tolko_MLPP_Operating_Plan_June%2026%202020.pdf.

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is a 20 year plan for area-based management with the goal of shifting the age class distribution to a “more natural and diverse age distribution” via prescribed burning and timber harvesting.⁷²⁶ The FCMP is based on the *Ecosystem Based Management Plan for the Meadow Lake Provincial Park* (EBM Plan).⁷²⁷

Ecosystem-based management is defined in the EBM Plan as a system in which managers are “expected to consider the whole interconnected system, not just individual species, resources, or issues”.⁷²⁸ The EBM Plan identifies 2 main ecosystem-based management goals:⁷²⁹

- enhance recreational, aesthetic, educational, and interpretive opportunities within a safe outdoor environment, and
- maintain and restore the natural landscape, ecosystem, and species diversity.

For each goal, more specific objectives are set out focusing on such things as managing park vegetation, restoring a more natural disturbance regime to park ecosystems, assessing the impact of all ongoing management activities and proposed development, monitoring the state of the environment, and ensuring an ongoing inventory of biological and ecological resources. Each objective is then broken down into concrete recommendations intended to each represent a step towards the achievement of those broader goals.

⁷²⁶ Forest Conservation Management Plan: Meadow Lake Provincial Park, Project Reference Number 1467-1 (March 23, 2018 as revisited March 22, 2019) at iv.

⁷²⁷ Jeff Thorpe & Bob Godwin, *Ecosystem-based Management Plan for Meadow Lake Provincial Park* (Saskatoon: 2019, Saskatchewan Research) [EBM Plan].

⁷²⁸ *Ibid.* at 6.

⁷²⁹ *Ibid.* at 100 and 102.

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A specific focus on forestry management can be found in some of the objectives including:

- managing core area vegetation to regenerate a vigorous natural forest through risk tree management and a renewal plan for core-area forests including stand composition and age;⁷³⁰
- restoring a more natural disturbance regime through forest management plans, an increase in the area of young forest, and the incorporation of fire management practices;⁷³¹
- assessing the impact of all ongoing management activities and developments through revised park zoning, protection for areas with unique ecosystems, and limits on industry;⁷³²
- an ongoing survey of biological and ecological resources through an analysis of forest age distribution;⁷³³ and
- prospects to expand the park for more protection in the area.⁷³⁴

It appears a similar approach is planned for the Cypress Hills Interprovincial Park (which borders with the Alberta Cypress Hills Interprovincial Park). The *Ecosystem-based Management Plan for Cypress Hills Interprovincial Park* (EBM Plan for Cypress Hills) was finalized in March 2021.⁷³⁵ While the EBM Plan for Cypress Hills

⁷³⁰ *Ibid.* at 101.

⁷³¹ *Ibid.* at 102.

⁷³² *Ibid.* at 103-104.

⁷³³ *Ibid.* at 105.

⁷³⁴ *Ibid.* at 105-106.

⁷³⁵ *Cypress Hills Interprovincial Park: Ecosystem Based Management Plan*, Project Reference Number: 1467-5 (March 11, 2020, revised March 2021) [EBM Plan for Cypress Hills].

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mentions a forest conservation management plan, it appears it is not yet in place.⁷³⁶ The EBM Plan for Cypress Hills indicates that forest harvesting has been limited in recent decades, in particular “harvesting for strictly commercial purposes will not be allowed, however commercial operations will be allowed to reach vegetation management goals”.⁷³⁷ This would include harvesting to restore tree age distribution across the landscape.

6.2 Public Participation

Public participation is required in the development of a forest management plan. Public engagement and information sharing activities must be “focused on both local and license-wide issues that affect communities, stakeholder groups, Aboriginal people and others having an interest in the land, resource uses, or forest management activities within the licence area”.⁷³⁸ As well, a public advisory group must be established to contribute to identification of desired forest conditions and benefits; specific values, objectives, indicators and targets; management objectives, strategies and options; and value-based resource inventories.⁷³⁹ The licensee must provide a report on the public engagement sessions, public advisory group meetings, and First Nation and Métis community information sessions.⁷⁴⁰

⁷³⁶ See Government of Saskatchewan website at <https://www.saskatchewan.ca/residents/parks-culture-heritage-and-sport/provincial-park-management/conservation-programs-in-provincial-parks>.

⁷³⁷ EBM Plan for Cypress Hills, *supra*. note 735 at 58.

⁷³⁸ *Forest Management Planning Standard* at 1-9 (referenced in *Saskatchewan Environmental Code* at Chapter D.1.5).

⁷³⁹ *Ibid.* at 1-12 and 1-13.

⁷⁴⁰ *Ibid.* at 1-10.

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6.3 Community Forest Management

The Act and its regulations make no provision for community forest management.

6.4 Accountability, Monitoring and Enforcement

The Minister is required to prepare a state of the forests report every 10 years.⁷⁴¹ In addition a tenure-holder with a forest management agreement must ensure that an independent audit is conducted every 5 years to assess how well the tenure-holder has implemented and met the objectives of the forest management plan and complied with the terms of the agreement, Act and regulations.⁷⁴²

There are also a variety of record-keeping requirements for forest tenure-holders. For example, the *Environmental Code* requires that licensees who are required to ensure harvested land are renewed must also keep records respecting the land and submit information about forest regeneration assessments.⁷⁴³ As well, any licensee (except for term supply licences and forest product permits smaller than 50,000 cubic metres), operators of a processing facility, or their trustees must submit data on their forest management activities.⁷⁴⁴

An officer may issue an order requiring a person to stop harvesting or any other activity where they believe that the person has harvested or is harvesting without authority to do so, has done or is doing anything that will damage Crown land or forest products, or has done or is doing something that is not

⁷⁴¹ FRMA at s. 9.

⁷⁴² FRM Reg. at ss. 35 and 36.

⁷⁴³ *Saskatchewan Environmental Code* at Chapter D.1.1, ss. 1-3 and 1-4.

⁷⁴⁴ *Saskatchewan Environmental Code* at Chapter D.1.2, ss. 1-1 and 1-2.

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authorized.⁷⁴⁵ An officer may also direct a person to take action to repair damage or prevent further damage. If a person fails to comply with the order, the Minister may carry out the order and recover costs for doing so.⁷⁴⁶

The Minister also has the power to issue forest remediation orders requiring a person to investigate the situation, to lessen or prevent further damage, to remedy damage, to return land or forest products to a satisfactory condition, to report to the Minister, or to cease or suspend specified activities.⁷⁴⁷ If there is failure to comply with a forest remediation order, then the Minister can carry out the order and recover costs for doing so.

An officer has powers of investigation and inspection, to arrest without warrant, to search a person, to enter onto land, to require production of records, to seize forest products and infected materials.⁷⁴⁸

The Minister may assess administrative penalties.⁷⁴⁹ In addition, the Act creates offences subject to fines up to \$250,000 or imprisonment up to 5 years (for an individual) and fines up to \$1,000,000 (for a corporation).⁷⁵⁰ The Minister may prohibit a person who has been convicted from obtaining a license.⁷⁵¹ Further, a Court may make orders in addition to penalties outlined in the Act (such as prohibiting certain activities, requiring repair of damages, payment of compensation, or cancelling licences).⁷⁵²

⁷⁴⁵ FRMA at s. 61.

⁷⁴⁶ *Ibid.* at s. 62.

⁷⁴⁷ *Ibid.* at ss. 62.1 to 62.7.

⁷⁴⁸ *Ibid.* at ss. 66 to 77.

⁷⁴⁹ *Ibid.* at ss. 78 and 78.1.

⁷⁵⁰ *Ibid.* at s.79.

⁷⁵¹ *Ibid.* at s. 79.1.

⁷⁵² *Ibid.* at s. 80.

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7. Highlights from Other Jurisdictions

Aside from those adopted by the jurisdictions detailed above, there are interesting approaches to forestry regulation elsewhere. However, rather than provide comprehensive summaries for each of these jurisdictions, “highlights” are provided.

7.1 Finland⁷⁵³

Finland, with over 60% private forest ownership, has been highlighted as an “exemplary model of forest law enforcement” as a result of its consensus-based and market-based approaches.⁷⁵⁴ An important tool for controlling compliance with the law is a forest use declaration. A forest use declaration contains all necessary information on logging operations, reforestation, regeneration, and preservation of biodiversity. It must be submitted at least 14 days before logging, regeneration method, planting, completion of establishing seedling stands, and treatment of important habitats for preserving biodiversity.

Inspections are done on a random 3-5% sample basis or when forest use declarations are suspicious. While sanctions such as fines, imprisonment and forfeiting of profits exist, they are rarely used as a consensus approach to addressing violations is preferred. Where the Finnish Forestry Centre⁷⁵⁵ verifies irregularities in planned cuttings or failure to fulfill reforestation obligations, it will negotiate with the owner to achieve agreement on remedial measures. If negotiations are not successful, then the Finnish Forestry Centre may require the

⁷⁵³ Summary based on Sofia R. Hirakuri, *Can Law Save the Forest? Lessons from Finland and Brazil* (Jakarta, Indonesia: 2003, Center for International Forestry).

⁷⁵⁴ *Ibid.*

⁷⁵⁵ The Finnish Forest Centre is a national, state-funded organization.

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owner to carry out remedial action (enforced via a fine or the Finnish Forestry Centre doing the work and recovering costs).

Finland also has an interesting approach to forest management planning. While forest owners are not required to prepare a forest management plan, most forest owners develop one because it allows for projection of economic profitability and access to financing of forest activities. Typically, forest management planning is done by the Finnish Forest Centre or Forest Management Associations on behalf of forest owners.⁷⁵⁶ Because these independent agencies lack a direct material interest, management tends to be more sustainable.

7.2 Australia

While Eastern Australia has been identified as a “deforestation front” (i.e., a place at imminent risk of large scale deforestation) by the World Wildlife Fund, Australia does have some interesting national policies in place.⁷⁵⁷

There is a *National Forest Policy Statement* which sets 11 national goals to be “pursued within a regionally based planning framework that integrates environmental and commercial objectives so that, as far as possible, provision is

⁷⁵⁶ Forest Management Associations are voluntary organizations formed by local forest owners and operate in every local government district and are sometimes considered part of the government structure. They promote forest management and profitability, protect interest of private forest owners by giving professional assistance, and offer training and guidance on forest management and use.

⁷⁵⁷ WWF International, *Deforestation Fronts: Drivers and Responses in a Changing World* (Switzerland: 2021, WWF International).

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made for all forest values".⁷⁵⁸ While the policy does not set firm requirements, it does address various topics including conservation, wood production and industry development, intergovernmental arrangements, water supply and catchment management, research and development, and international responsibilities.

A later document, *Australia's Sustainable Forest Management Framework of Criteria and Indicators 2008: Policy Guidelines*,⁷⁵⁹ sets out criteria and indicators based on the Montreal Process.⁷⁶⁰ The criteria include:

- conservation of biological diversity;
- maintenance of productive capacity;
- maintenance of ecosystem health and vitality;
- conservation and maintenance of soil and water resources;
- maintenance of forest contribution to global carbon cycles;
- maintenance and enhancement of long-term multiple socio-economic benefits to meet needs of society; and
- legal, institutional and economic frameworks for forest conservation and sustainable management.

⁷⁵⁸ *National Forest Policy Statement: A New Focus for Australia's Forests*, 2nd ed. (Canberra: 1995, Commonwealth of Australia) at 4.

⁷⁵⁹ Department of Agriculture, Fisheries and Forestry, *Australia's Sustainable Forest Management Framework of Criteria and Indicators 2008: Policy Guidelines* (Canberra: 2008, Commonwealth of Australia).

⁷⁶⁰ The Montreal Process working group was formed in 1994 as an intergovernmental response to the need for sustainable forest management, see website at <https://www.montrealprocess.org>.

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Each criterion is accompanied by indicators. For instance, indicators of the conservation of biological diversity criteria include area of forest by type and tenure, fragmentation, protected areas, and species.

Finally, *The National Indigenous Forestry Strategy*⁷⁶¹ sets out a vision of “an expanding, competitive and ecologically sustainable forest and forest products industry with participation of Indigenous communities and peoples so that they enjoy greater economic and social independence and standing in the wider community while staying connected to their cultural values”. In order to achieve this vision, six pathways are identified with recommended actions for each. While many of the pathways are focused on increasing Indigenous participation in the forestry industry, a key pathway is recognition of social and cultural issues associated with forestry operations.

Despite these national policies, it is important to recognize that the vast majority of Australia's forestry law and policy is found at the individual state level because forests fall within the jurisdiction of the states. For instance, the State of Victoria's *Sustainable Forests (Timber) Act 2004*⁷⁶² sets out a framework for “sustainable forest management and sustainable timber harvesting in State forests”.⁷⁶³ This Act sets out several principles of ecologically sustainable development which are to be taken into account in undertaking forest management.⁷⁶⁴ The principles include, among others:

- decision making processes should integrate long-term and short-term economic, environmental, social and equity considerations;

⁷⁶¹ *The National Indigenous Forestry Strategy* (Canberra: 2005, Commonwealth of Australia).

⁷⁶² *Sustainable Forests (Timber) Act 2004*, No. 48 of 2004.

⁷⁶³ *Ibid.* at s.1 (a).

⁷⁶⁴ *Ibid.* at s. 5.

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- if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (i.e., the precautionary principle);
- the need to consider the global dimension of environmental impacts of actions and policies; and
- the need to facilitate community involvement in decisions and actions on issues that affect the community.

These principles are carried into the *Code of Practice for Timber Production (Code of Practice)* ⁷⁶⁵ with which timber harvesters must comply.⁷⁶⁶ Application of the precautionary principle in the context of the *Code of Practice* was considered by the court in the *Wildlife of the Central Highlands Inc.* case.⁷⁶⁷

In that case, there was an application for interim injunction to prevent timber harvest in ten forest coupes in Victoria (harvesting was active in only three of the ten coupes in question) on the grounds that it was unlawful to harvest in coupes that are known to contain or are likely to contain a species identified as threatened under the *Fish and Fauna Guarantee Act 1988* and affected by the recent bushfires, or the habitat of such species. The applicant for the injunction argued that there were two breaches of the *Code of Practice*:

- Section 2.2.2.2 which requires precautionary principle to be applied to the conservation of biodiversity values. The application of precautionary principle must be consistent with the relevant monitoring and research

⁷⁶⁵ Department of Environment and Primary Industries, *Code of Practice for Timber Production 2014* (Melbourne: 2014, State of Victoria Department of Environment and Primary Industries) [*Code of Practice*].

⁷⁶⁶ *Ibid.*, s. 46.

⁷⁶⁷ *Wildlife of the Central Highlands Inc. v VicForests* [2020] VSC 10 (29 January 2020).

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that has improved the understanding of the effects of forest management on forest ecology and conservation values.

- Section 2.2.2.3 which requires that the advice of relevant experts and research in conservation biology and flora and fauna management must be considered when planning and conducting timber harvesting operations.

In this case, the coupes contained 4 species listed in the *Fish and Fauna Guarantee Act 1988*. Further, although the full impact was not yet understood, it was known that recent bushfires had a devastating effect on flora and fauna. The applicant argued that, in light of the bushfires and uncertainty of impact, it cannot be said that there will be no serious or irreversible damage caused by timber harvesting. The Court found that there was an established *prima facie* real threat of serious or irreversible damages to threatened species and their habitat should timber harvesting continue. As such, the Court concluded that the balance of convenience favoured the grant of an interim injunction (albeit limited to the three coupes in which harvesting is actually active).

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7.3 Nova Scotia

While not a piece of forestry legislation *per se*, the new *Biodiversity Act* provides a unique land management tool centred on ecosystems.⁷⁶⁸ This Act allows for development, coordination and implementation of policies, standards, guidelines, and program for the conservation and management of **ecosystems** and habitats (s. 8). This includes the establishment of Biodiversity Management Zones (s.15), the details of which are to be provided in regulations (which have yet to be developed). The Act also adopts goals and targets for biodiversity and indicators of ecosystem health and integrity.

⁷⁶⁸ *An Act to Provide for the Conservation and Sustainable Use of Biodiversity in Nova Scotia*, 2021 ch. 3 [*Biodiversity Act*]. Assented to April 19, 2021 and in effect October 1, 2021.

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Part 5: Managing Forests not Forestry, Recommendations for Alberta

1. Key gaps in Alberta's existing forestry law and policy framework

There are several key gaps in the existing forestry law and policy framework. Overall, these gaps stem from a primary focus on the timber value of forests (as opposed to viewing forests from an ecosystem perspective). These gaps are:

1.1 Lack of Ecosystem Based Management Principles

While the newly added preambles to the *Forests Act* do make a couple of references to “ecosystems”, this concept is not carried into the body of the legislation (and the other preambles reflect a focus on the economic contribution of timber). The only reference to management principles in the body of the legislation is stated in the context of FMA dispositions: FMAs are

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granted to enable holders to “establishing, growing and harvesting timber in a manner designed to provide a yield consistent with sustainable forest management principles and practices”.⁷⁶⁹ Although some of the policy and guidelines associated do mention other aspects of forests (such as caribou habitat), these considerations are not reflected in the legislation.

Ecosystem based management principles should be incorporated into the legislation to move from managing forests as a timber supply to managing forest ecosystems. The legislated goal should be ecologically sustainable forests with timber being one, not the primary, goal for forest management. Ecological sustainability requires viewing forests as ecosystems and recognizing all values (environmental, social, cultural, and economic). Activities within forests need to be managed to conserve ecological integrity, biological diversity, long-term productivity and the land base.⁷⁷⁰ Other concepts such as the precautionary principle and ecological-science based decision-making are also important management principles.

1.2 Lack of Public Participation

Although the *Planning Standard* sets some requirements for public participation in forest management planning, there is no public participation provisions in the legislation (either the *Forests Act* or its regulations). Opportunities for public participation and increased transparency in tenure decisions (particularly FMA and quota dispositions), annual allowable cut decisions, and forest management decisions should be set in legislation.

⁷⁶⁹ *Forests Act*, s. 16.

⁷⁷⁰ *Alberta Forest Conservation Strategy: A New Perspective on Sustaining Alberta's Forests* (1997) and Alberta Environmental Protection, *The Alberta Forest Legacy: Implementation Framework for Sustainable Forest Management* (Edmonton: 1998, Government of Alberta).

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1.3 Lack of accountability mechanisms

Accountability for decisions and operation comes in various forms: reporting and information sharing, monitoring and enforcement mechanisms, third party monitoring and assessment of forest management planning, and environmental assessment.

Although there are some requirements regarding reporting and information sharing in forestry policies and guidelines, these concepts are not mentioned in the legislation. These are required for effective public participation, as well as enforcement and monitoring.

There should be a range of monitoring and enforcement mechanisms in the legislation, as well as third party monitoring and assessment forest management planning.

Currently, dispositions of timber do not trigger environmental assessment requirements. Although much of Alberta's forest landbase is allocated for timber harvesting, environmental assessment could be used for renewals of existing allocations and for new allocations. As well, changes in the Annual Allowable Cut should be subject to environmental assessment.

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2. Lessons learned from other jurisdictions

Looking at approaches in other jurisdictions provides some guidance on addressing the gaps identified above. Some key lessons are:

- While it is clear that Alberta has a significant amount of law and policy in place to address various aspects of forestry operations, there is no overarching policy addressing forests as an ecosystem. In contrast, Ontario has a well-developed policy document outlining its approach to Crown forests which expressly adopts EBM concepts.
- Neither the *Forests Act* nor its regulations provide legislated goals for biodiversity, water, and so forth. Several jurisdictions – for example B.C. and Oregon – have goals for various environmental components set out in legislation.
- Other jurisdictions – including B.C., Ontario, Oregon and Finland – have implemented oversight bodies or processes to address various aspects of forest management. These include mechanisms such as compliant processes, advisory committees, and enhanced public participation. An important mechanism used in Ontario is third-party audits of forest planning and operations.
- In Alberta, planning is primarily conducted by forestry companies (with some government guidance and oversight). However, this is not the case in all jurisdictions (Quebec, Ontario via Local Citizen Committees, Finland) where there is either greater public participation in planning activities or such activities are undertaken by third parties.

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3. Summary of Recommendations

Several recommendations are made with the intention of making EBM of forest law and policy in Alberta.

3.1 Ecosystem Based Management Principles

Recommendation 1: Alberta's *Forests Act* should be amended to state that the goal of forest management is to allow timber harvesting only in a manner that maintains the ecological integrity of Alberta's forests. Furthermore, the *Forests Act* should be amended to include a definition of ecological integrity and ecosystem-based management.

Recommendation 2: The *Forests Act* should be amended to include a provision requiring administration of and decision-making under the Act to adhere to the principles of scientific integrity, honesty, objectivity, thoroughness and accuracy.

Recommendation 3: Adaptive management should be adopted in legislation as a management principle to achieve ecological health and integrity in Alberta's forests. Adaptive management should be defined and set out as a guiding principle in the *Forests Act*. It is essential that sufficient funding and capacity be designated for monitoring impacts of management decisions and for feedback into the decision-making process. Actual implementation of adaptive management will occur at the management planning and monitoring stages.

Recommendation 4: The precautionary principle should be adopted in legislation as a fundamental tool to achieving ecological health and integrity in Alberta's forests. The precautionary principle should be defined in the *Forests Act* and set out as a guiding principle for management decisions.

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Recommendation 5: The ecological principles of connectivity, retaining complex habitats, linear and spatial thresholds, watershed protection, species at risk, range of natural variation (including emulation of natural disturbances), and ecological boundaries should be incorporated into the legislation as guidance for decision-making and planning. In practical terms, these will need to be implemented in detail via regulation, standards and other policy documents. For each of these principles, it will be essential to set out goals and measurement parameters.

Recommendation 6: Along with other scientific principles that guide planning and decision-making, connectivity should be included as a guiding principle in the *Forests Act*. Specific requirements, including goals and targets, for achieving connectivity should be set via a specific regulation or directive.

Recommendation 7: Along with other scientific principles that guide planning and decision-making, structural retention should be included as a guiding principle in the *Forests Act*. Specific requirements, including goals and targets, for structural retention should be set via a specific regulation or directive. Where caribou habitat is involved, minimum structural retention targets should be at least 20%.

Recommendation 8: Consistent, widespread use of herbicides may ultimately reduce forest habitat complexity. This practice needs to be re-examined and alternative vegetation management approaches pursued. Furthermore, it should be a requirement (rather than an option) that an operator develop a long-term vegetation management strategy with the objective of minimizing or even eliminating herbicide use.

Recommendation 9: Along with other scientific principles that guide planning and decision-making, soil health should be included as a guiding principle in the *Forests Act*. Specific requirements, including goals and targets, for soil health

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should be set via a specific regulation or directive. The components of soil health need to be expanded beyond the physical aspects of erosion, displacement and compaction to include scientifically important nutrient, chemical and microbial factors.

Recommendation 10: Along with other scientific principles that guide planning and decision-making, watershed protection should be included as a guiding principle in the *Forests Act*. The forest-water linkage should be expressly articulated and tied to existing applicable standards for water quantity and quality. Specific requirements, including goals and targets, for watershed protection should be set via a specific regulation or directive. This includes a minimum 100m buffer from all native fish-bearing waterbodies, and no logging or infrastructure within any riparian buffers.

Recommendation 11: Along with other scientific principles that guide planning and decision-making, linear and spatial thresholds should be included as a guiding principle in the *Forests Act*. Specific thresholds should be set on a regional basis and this can be accomplished via regional planning under ALSA (within regional plans, subregional plans, or environmental management frameworks). Alternatively, more targeted thresholds could be set via plans such as the *Moose Lake Access Management Plan* which can ultimately be granted status as subregional plans under ALSA (but in the interim of regional plan development be adopted as policy).

Recommendation 12: The importance of forests as habitat for species at risk should be expressly acknowledged in the *Forests Act*. Further, management, conservation and recovery of species at risk should be integrated into forest management planning and decision-making. Specifically, forestry operations within forest management areas should be required to adhere to habitat related guidelines in both federal and provincial recovery plans, recovery strategies, actions plans, conservation plans, and management plans. It should

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be required that roads and harvesting activities avoid sensitive and critical habitat, as well as areas prone to soil loss and uncertain reforestation.

Recommendation 13: Disturbance via fire is a natural occurrence in the boreal forest but it must be recognized that harvesting is not equivalent to fire. If an emulation of natural disturbance approach is to be adopted, it is essential that biological legacies be left on site after harvesting.

Recommendation 14: Along with other scientific principles that guide planning and decision-making, range of variation should be included as a guiding principle in the *Forests Act*. In particular, natural range of variation should be used to guide decisions about appropriate harvesting levels and regional habitat-based thresholds. We note the Ontario management approach includes maintaining ecosystem functions within the range of natural variation.

Recommendation 15: A key component of EBM is management on an ecosystem scale. This could be accomplished using the ALSA framework by creating sub-regional plans that set clear, enforceable goals, objectives and thresholds relating to forestry operations. In the interim until necessary regional plans are developed, these sub-regional plans can be developed and adopted as policy (as has been done with the *Moose Lake Access Management Plan*).

3.2 Public and Indigenous Participation

Recommendation 16: The *Forests Act* should be amended to recognize the important role of public consultation and participation in forest management. In particular, the *Forests Act* should require participation in decisions relating to:

- tenure allocations and renewals, especially FMAs;
- setting Annual Allowable Cuts, especially increases; and

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- all aspects of forest management planning (operating ground rules, preliminary, detailed, compartment assessments, general development plans, forest harvest plans, and annual operating plans).

In addition, the *Forests Act* should provide for public access to information which is an essential requirement for meaningful public consultation and participation. This includes information pertaining to:

- all forest management planning documents (operating ground rules, preliminary, detailed, compartment assessments, general development plans, forest harvest plans, and annual operating plans) including records of public participation;
- maps illustrating buffers around riparian areas and other habitat; roads; and other infrastructure.
- maps and reports on harvested areas, and all Alberta Vegetation Inventory information;
- contraventions, audits and inspections; and
- reforestation and reclamation monitoring data.

We note that Quebec and Ontario have mechanisms in place to enhance public participation in forest management decision-making.

Recommendation 17: The *Planning Standard* should be updated to reflect that CSA Z809 has been revised since 2006 (the publication date of *Planning Standard*). Further, the *Planning Standard* should incorporate by reference the most recent version of the CSA Z809 rather than adopting a particular version which can become dated.

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Recommendation 18: The *Forest Act* should expressly recognize the duty to consult indigenous peoples in the context of forest management. The concepts of co-management and Aboriginal forestry are important policy approaches to be contemplated by the provincial government and First Nations on a nation-to-nation basis.

Recommendation 19: The *Forests Act* should be amended to include community management, a form of land-based tenure. Community tenure agreements should be issued on a long-term basis (20 years) and provide a right to harvest timber and other products from the forest. Associated regulations should set out the goals of community forestry including to provide long-term opportunities to achieve community social, economic and environmental objectives. The regulations should also set the qualifications for participants in community tenure agreements and obligations of participants. We note that a form of community tenure has been adopted in Ontario and in B.C.

3.3 Accountability Mechanisms

Recommendation 20: Create a centralized online registry for the collection and sharing of relevant information such as forest management planning documents; harvest maps and reports; Alberta Vegetation Inventory data; contraventions, audits and inspections; and reforestation and reclamation data.

Recommendation 21: Currently, monitoring and enforcement in Alberta's forest law and policy is primarily focused on reforestation and regeneration. This reflects the primary focus on a sustainable timber supply rather than EBM of forests. Requirements to monitor ecosystem components beyond timber - such as water, soil and biodiversity - should be stated with clear objectives, goals and thresholds. Monitoring programs should be designed within the context of an

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adaptive management approach which allows management decisions to be responsive to results of monitoring.

Recommendation 22: Require third-party audits of forest management plans and monitoring activities as an independent check that EBM principles are being adopted and implemented by forestry operators. In particular, there should be third-party review of operators' EBM plans with monitoring of on-the-ground operations to ensure adherence to the EBM plan.

In addition, there should be regular audits of harvest sites every two years by multi-disciplinary teams. We note that Ontario has a process for third party audits on a regular basis. As well, as is done in Montana, audits could be focused in areas where timber harvesting may cause greater soil and water damage.

Recommendation 23: Decisions to issue new or to renew timber allocations, particular on a large scale and long term basis (such as FMAs) should be subject to environmental assessment under the *Environmental Protection and Enhancement Act*. As well, the current Annual Allowable Cut (and decisions to increase) should be subject to environmental assessment to ensure the goals of EBM are being met (i.e., ensure annual allowable cut is scientifically based on EBM requirements).