ENVIRONMENTAL LAW CENTRE
UNIVERSITY OF VICTORIA

Applying Solutions from the Great Bear Rainforest Agreements to Vancouver Island, the South Coast, and Beyond
RECOMMENDATIONS

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The content of this report is legal information and should not be relied on as legal advice.

Contents

I. Introduction

British Columbia is a province integrally linked to its forests. Forests cover nearly two thirds of the province's land mass, equating to approximately 60 million hectares of wooded area.[1] Nearly 14% of this land is old growth forest—ecologically invaluable habitat that is home to trees that can grow to be over 1,500 years old.[2] Among other contributions, these old growth forests are vital in the fight against climate change; old growth forests store more carbon per hectare and are more resilient than young forests.[3] Despite the important role of forests to British Columbia's ecological and economic health, standards to protect these resources vary across the province, and in much of the province are inadequate.

In many ways, two very different forestry regimes are operating in the province, and specifically for the coastal temperate rainforest: the standards in place in the Great Bear Rainforest ("GBR") region, and those in place in the rest of the province.[4] Forestry standards in the GBR region incorporate ecosystem science-based standards and prioritize both biological and socioeconomic health.[5] This is in stark contrast to the rest of the province, where baselines for old growth forest retention fall well below what science shows is necessary to conserve biodiversity.[6]

The BC government has committed "to modernize land-use planning and sustainably manage BC's ecosystems, rivers, lakes, watersheds, forests and old growth," a process that will require significant resources and time to use the best available information to develop protected areas

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1 British Columbia, Ministry of Sustainable Resource Management, British Columbia's Forests: A Geographical Snapshot (Victoria: Ministry of Sustainable Resource Management, 2003) online: <https://www.for.gov.bc.ca/hfd/pubs/docs/mr/mr112/BC_Forests_Geographical_Snapshot.pdf > at 4 ["British Columbia's Forests: A Geographical Snapshot"].

2 Ibid, at 14.

3 T. Andrew Black et al, Carbon Sequestration in British Columbia's Forests and Management Options (Victoria: Pacific Institute for Climate Solutions, 2008), at 5, online: <https://pics.uvic.ca/sites/default/files/uploads/publications/WP_Forestry_November2008.pdf>.

4 An exception to this claim is Haida Gwaii, which has land use objectives similar to those in the GBR region. See the Haida Gwaii Reconciliation Act, SBC 2010, c 17, ss 3-5, which allows the Haida Gwaii Management Council to set objectives for land use decisions.

5 Coast Information Team, CIT Ecosystem-based Management Framework by Robert Prescott et al, ed (Victoria: Coast Information Team, 2004) at 2, online: <https://www.for.gov.bc.ca/tasb/slrp/citbc/c-ebmf-fin-03May04.pdf> ["CIT EBM Framework"].

6 Coast Information Team, CIT Scientific Basis of Ecosystem-Based Management by Robert Prescott et al, ed (Victoria: Coast Information Team, 2004) see graph at 66, online: <https://www.for.gov.bc.ca/tasb/slrp/citbc/c-ebm-scibas-fin-04May04.pdf> ["CIT Scientific Basis of EBM"].

and land use objectives needed to achieve ecological integrity and community well-being at the regional level.[7] There is an urgent need, however, to raise the bar for forest conservation to a minimum in all parts of BC. The upcoming reforms to the *Forest and Range Practices Act*[8] ("FRPA") represent a crucial opportunity to bring forestry standards across the province in line with the ecosystem science-based practices implemented in the GBR region. In striving towards this goal, we recommend the following actions for the FRPA amendments:

1. Require that minimum old growth forest retention levels across the province be increased to at least 30% of the total forest area by ecosystem and by landscape unit for forests with low levels of natural disturbance[1] (e.g. coastal and inland temperate rainforest) [Note: for forests with higher levels of natural disturbance 30% of the total forest should be set aside from industrial activity, and likely not all of the forest set aside would be old-growth. In the latter types of forests, exceptions may be needed to address safety concerns as forests with higher levels of natural disturbance tend to be at greater risk of wildfires];
2. Require that in areas with less than 30% of the original old growth forest remaining due to past harvesting, that old growth restoration reserves be established with the goal to recover at least 30% of the original amount of old growth areas by ecosystem and landscape unit;
3. Spatially identify retained old growth forest and restoration reserves with an emphasis on preserving connectivity between these landscapes;
4. Require increased detail in Forest Stewardship Plans that directly outlines how forestry practices in a region and at landscape level will meet objectives identified by the BC government;
5. Develop a transition strategy to phase out drawback policies;[9]
6. Enter into long-term land use planning agreements with each First Nation on a government-to-government basis. These agreements should incorporate traditional ecological knowledge into all decision-making processes.

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7 https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/premier-cabinet-mlas/minister-letter/donaldson-mandate.pdf
8 Forest and Range Practices Act, SBC 2002, c 69 ["FRPA"].
[1] Shown in this map as 'Natural Disturbance Type 1: ftp://ftp.for.gov.bc.ca/hre/external/!publish/becmaps/PaperMaps/NDT.8x11.pdf
9 See explanation below at part III, section 2.

II. The Importance of British Columbia's Forests

British Columbia's forests contribute significantly to the provincial economy.[10] Forestry in the province supports more than 12,000 direct jobs.[11] However, the province's forests also hold aesthetic, cultural and ecological value that cannot easily be quantified. They are home to over half of Canada's total grizzly bear population[12] and to more living things than the forests of any other province;[13] they are a sanctuary for countless plant and animal species. They play a key role in purifying and replenishing the salmon streams of "SuperNatural BC." The beauty of the province's forests is renowned across the world; BC's forests attract visitors from around the globe, who in 2016 alone contributed 17 billion to the province's economy.[14]

British Columbia is the unceded territory of 198 distinct First Nations,[15] all of whom have cultivated unique relationships with the region's forests for thousands of years, relationships which continue to this day. In May 2016 Canada officially adopted the United Nations Declaration on the Rights of Indigenous Peoples ("UNDRIP"),[16] a declaration outlining the rights that "constitute the minimum standards for the survival, dignity and well-being of the [I]ndigenous peoples of the world."[17] The articles of UNDRIP require, amongst many other provisions, that Indigenous peoples have autonomy in local affairs and that manifestations of their cultures, such as historical and archaeological sites, be protected.[18] If British Columbia intends to fully meet the requirements of UNDRIP, protecting the regions' culturally and socially significant forests will be vital.

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10 https://www.statista.com/statistics/608359/gdp-distribution-of-british-columbia-canada-by-industry/
11 https://cfs.nrcan.gc.ca/statsprofile/employment/bc
12 "Bears in BC, Grizzly Bear Conservation, Bear Hunting", online: Bears in BC. <https://www.bearsinbc.com/>.
13 Dick Cannings, Biodiversity of British Columbia: An Overview, in Brian Klinkenberg, Biodiversity of British Columbia (Vancouver: University of British Columbia Press, 2017), online: <http://ibis.geog.ubc.ca/biodiversity/BiodiversityinBC.html>.
14 Destination British Columbia, A Snapshot of Tourism in BC (Vancouver, 2018), online: <https://www.destinationbc.ca/content/uploads/2018/05/Value-of-Tourism-2016-Snapshot_FINAL.pdf>.
15 "B.C. First Nations & Indigenous People", online: WelcomeBC <https://www.welcomebc.ca/Choose-B-C/Explore-British-Columbia/B-C-First-Nations-Indigenous-People>.
16 Northern Affairs Canada, "United Nations Declaration on the Rights of Indigenous Peoples" (3 August 2017), online: Government of Canada; Indigenous and Northern Affairs Canada <https://www.aadnc-aandc.gc.ca/eng/1309374407406/1309374458958>.
17 United Nations Declaration on the Rights of Indigenous Peoples, GA Res 61/295, UNGAOR, 61st Sess, at article 43.
18 Ibid, at articles 3 and 11.

Further, British Columbia's forests are crucial for fulfilling the federal government's obligations to recognize and protect Aboriginal Rights under section 35 of the Constitution Act, 1982.[19] In *Xeni Gwet'in First Nation v British Columbia*, the British Columbia Court of Appeal noted that in cases where a First Nation has established Aboriginal rights to hunting, fishing or trapping, there is an obligation on the government to ensure that the environment can support these rights.[20] As this report will later explain, biodiversity depends on having sufficient forest habitat.[21] As a result, sustainably maintaining the province's forests is vital to ensuring constitutionally protected Aboriginal Rights can be meaningfully exercised in present and future generations.

As this report will highlight, the province's current forestry regulatory regime is insufficient when considering the economic, ecological, aesthetic, cultural and societal importance of British Columbia's forests. This report will present a summary of forestry practices in the province as a whole and contrast them to the best practices currently being implemented in the GBR region. Using that comparison as a basis, this report will identify the major problems with the province's current forestry regime and explain what steps are needed to address these deficiencies. The next section of this report will outline the legal framework that governs forestry operations in the majority of the province.

III. Forestry Regulation across the Province

1. Regulatory Framework

Forestry practices in British Columbia are governed by a system of land use objectives. Before a new forestry operation can be started, the FRPA requires that the proponent submit a Forest Stewardship Plan ("FSP"), which outlines in broad terms how the forestry operations will be consistent with "objectives set by government."[22] For the purposes of the FRPA, objectives set by government are established by three methods:

19 Constitution Act, 1982, being Schedule B to the Canada Act 1982 (UK), 1982, c 11 at s 35.
20 Xeni Gwet'in First Nation v British Columbia, 2012 BCCA 285, 2012 CarswellBC 1860, at para 335; rev'd on other grounds by Tsilhqot'in Nation v British Columbia, 2014 SCC 44.
21 CIT EBM Framework, see note 5, at 65.
22 FRPA, see note 7, at s 5.

1. Through land use objectives created pursuant to the *Land Use Objectives Regulation*,[23] enacted under the *Land Act*;
2. Through the *Forest Planning and Practices Regulation*[24] ("FPPR") or the *Government Actions Regulation*,[25] both enacted under FRPA; and
3. Through Higher Level Plans enacted pursuant to the now *rescinded Strategic Planning Regulations*, which have been grandparented through section 181 of FRPA.

Orders establishing objectives for the purposes of FRPA can apply province wide, or only in specified areas. As a result, the forestry framework in the province is a patchwork of many regional orders, with provincial land use objectives constituting the underlying and unifying threads. For province wide objectives, two are of major importance: those set out in the FPPR, and those outlined in the "Order Establishing Provincial Non-Spatial Old Growth Objectives" ("*Old Growth Order*").[26]

The objectives established by government in the FPPR are not legally binding and they are vague in nature; they mainly provide guidance for those who must submit a FSP. Specifically, the objectives in the FPPR state that conservation of wildlife, trees, soil quality and biodiversity should be exercised so long as it does not "unduly [reduce] the supply of timber from British Columbia's Forests."[27]

The objectives set by the Old Growth Order are far more technical. The *Old Growth Order* requires that old growth forests in the province be retained to varying degrees, depending on: the biogeoclimatic unit,[28] the level of natural disturbance in the region, and whether the landscape has been designated a low, medium, or high "biodiversity emphasis area." Biodiversity emphasis regions were implemented through the now repealed *Forest Practices*

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23 Land Use Objectives Regulation, BC Reg 357/2005 ["Forest Planning and Practices Regulation"].
24 Forest Planning and Practices Regulation, BC Reg 14/2004.
25 Government Actions Regulation, BC Reg 582/2004.
26 British Columbia, Ministry of Sustainable Resource Management, "Order Establishing Provincial Non-Spatial Old Growth Objectives", Ministerial Order (June, 2004), online: <https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/policies-guides/old_growth_order_may18th_final.pdf>.
27 Forest Planning and Practices Regulation, see note 22, at ss 5-9.1
28 "At the regional level, vegetation, soils, and topography are used to infer the regional climate and to identify geographic areas that have relatively uniform climate. These geographic areas are termed biogeoclimatic units: "Forest Service British Columbia – Research Branch, "Biogeoclimatic Ecosystem Classification Program: How BEC Works", online: <https://www.for.gov.bc.ca/hre/becweb/system/how/index.html#basic_concepts> ["Forest Service, How BEC works"].

Code,[29] with direction for proper designation of a biodiversity emphasis area for a landscape outlined in the Biodiversity Guidebook.[30] Designations were to be made primarily based on impacts to timber supply, but also took into account factors such as topographic and ecosystem complexity, wildlife and fisheries species diversity, and significance of key species.[31]

2. Problems with this Framework

The first major flaw in the province's current framework is a prioritization of immediate timber supply rather than long-term ecological and socioeconomic health. For example, the non-legally binding objectives set by government in the FPPR all have the limitation that steps taken cannot unduly reduce the amount of timber being harvested in BC's forests. While economic considerations must be fundamental to forestry practices in the province, given their importance to British Columbia's economy, prioritizing timber harvest above all else threatens the ability of the province to continue to benefit from forest resources in the future—and to continue to benefit from the host of ecological and forest values described in Part II, above. In contrast to the lopsided, short-sighted FPPR regime, the GBR regime considers both the socioeconomic benefits of an activity and ecological needs. However, the GBR acknowledges that ecological concerns are inherently "first among equals"[32] (i.e. ecological integrity is considered a basic condition for human well-being) – a stance that needs to be adopted across the province.

The second problem in the current framework is the absence of landscape-level planning, which would ensure that old growth forest is retained in a way that preserves ecological value locally (i.e. at landscape level) and regionally. Proper planning should focus on—amongst other things—"maintaining connectivity between landscape and watershed reserves."[33] Without detailed planning at the landscape level, there is no practical method to ensure that forest is being retained in a way that ensures connectivity between these preserved areas. As such,

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29 Forest Practices Code of British Columbia, RSBC 1996, c 159.
30 Ministry of Forests, Biodiversity Guidebook by J Parminter, ed (Victoria: Ministry of Forests, 1995) online: <https://www.for.gov.bc.ca/ftp/hfp/external/!publish/FPC%20archive/old%20web%20site%20contents/fpc/fpcguide/biodiv/chap1.htm> ["Ministry of Forests, Biodiversity Guidebook"].
31 Ibid, at 8.
32 Coast Information Team, Review Report by Robert Prescott et al, ed (Victoria: Coast Information Team, 2005), online: <https://www.for.gov.bc.ca/tasb/slrp/citbc/c-citreview-jan05.pdf>.
33 Coast Information Team, CIT Ecosystem-based Management Planning Handbook by Robert Prescott et al, ed (Victoria: Coast Information Team, 2004) at 10, online: <https://www.for.gov.bc.ca/tasb/slrp/citbc/c-ebm-hdbk-fin-22mar04.pdf> ["CIT EBM Planning Handbook"].

licensees may meet the retention levels outlined in the Old Growth Order without benefitting the overall ecological health of the landscape.

The third problem with this current framework is that the level of detail required by FSPs under FRPA is simply not sufficient to ensure objectives set by government are being met. While the language of FRPA requires that FSPs "specify intended results or strategies" for how the forestry operations will meet objectives set by government,[34] in practice, this often means stating only what rules will be followed—rather than any specific plans for meeting the government objectives.[35]

The fourth problem is that the standards put in place do not adequately reflect what science shows is necessary to preserve the ecological health of BC's forests.[36] Further, the shortcomings of the old growth retention levels in the *Old Growth Order* are exacerbated by a severe "drawback policy." Section 5 of the *Old Growth Order* states that in zones designated as low biodiversity emphasis areas, retention requirements for old growth forests can be reduced by up to two thirds.[37] The impacts of this drawback policy on the conservation of old growth forests are especially severe as 45% of the province's forests have been designated as low biodiversity emphasis areas.[38]

The fifth problem identified in this report is that the current statutory and policy framework in the province makes enforcing the already low standards for old growth retention difficult. British Columbia relies on a system of professional reliance: a regulatory model in which government sets results-based objectives (such as the old growth retention levels) and then relies on designated professionals in the industry sector to implement these standards.[39] Whether these standards are actually being met or implemented is questionable: at least one

34 FRPA, see note 7, at s 5(1)(b).
35 Mark Haddock, Professional Reliance Review: The Final Report of the Review of Professional Reliance in Natural Resource Decision-Making, ed (Victoria, 2018), online: <https://engage.gov.bc.ca/app/uploads/sites/272/2018/06/Professional_Reliance_Review_Final_Report.pdf> ["Haddock, Professional Reliance"].
36 CIT Scientific Basis of EBM, see note 6, at 66.
37 "Order Establishing Provincial Non-Spatial Old Growth Objectives" at s 5.
38 Ministry of Forests, Biodiversity Guidebook, see note 28, at 8.
39 Haddock, Professional Reliance", see note 33, at 6.

study in the Kootenay region found that nearly a quarter of the biogeoclimatic units in the landscape had not been sufficiently retained to meet the legally required targets.[40]

The sixth and final problem identified in this report is an insufficient consultation process between the provincial government and First Nations. While Aboriginal Rights and the duty to consult are enshrined in s. 35 of the *Constitution Act, 1867*, Canada will need to go beyond these baseline measures to meet its requirements under UNDRIP. The process of reconciliation requires a government-to-government relationship be adopted whenever a land use decision is contemplated on any First Nation's traditional lands.

While not exhaustive, the above points demonstrate some of the significant deficiencies in BC's current forestry model. Fortunately, an answer to most of these problems already exists in the province. The Great Bear Rainforest Order[41] ("GBR Order"), highlighted in the next section, provides an alternative, science-based framework for sustainable forestry.

IV. Great Bear Rainforest Agreements

Hailed as a "landmark agreement" and an "expression of our collective love of this land" by former premier Christy Clark,[42] the GBR Agreements are the culmination of decades of work by First Nations, the provincial government, environmentalists, and industry representatives and establish a science-based framework for sustainable forestry. The GBR Agreements covers more than 6.4 million hectares of land, which include the traditional territories of 26 First Nations.[43] The GBR Agreements recognize and incorporate Ecosystem Based Management ("EBM") as the backbone of sustainable forestry practice.

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40 Ministry of Forests, Lands, Natural Resource Operations and Rural Development. 2018. Biodiversity Analysis for Arrow and Kootenay Lake. Mackillop et al.
41 British Columbia, Ministry of Forests, Lands, and Natural Resource Operations, "Great Bear Rainforest Order", Ministerial Order (January, 2016) online: <https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/maps-and-graphics/great_bear_rainforest_order_-_jan_21_2016.pdf> ["GBR Order"].
42 Justine Hunter, "Final agreement reached to protect B.C.'s Great Bear Rainforest", (5 June 2017), online: The Globe and Mail <https://www.theglobeandmail.com/news/british-columbia/final-agreement-reached-to-protect-bcs-great-bear-rainforest/article28475362/>.
43 Ibid.

1. Ecosystem Based Management

While a variety of definitions for EBM exist,[44] the definition used in the GBR region comes from the Coast Information Team ("CIT"), a multidisciplinary research group created in 2001 to formulate and implement land and resource management strategies in the North and Central Coast areas. The CIT defines EBM as follows:

> [A]n adaptive approach to managing human activities that seeks to ensure the coexistence of healthy, fully functioning ecosystems and human communities. The intent is to maintain those spatial and temporal characteristics of ecosystems such that component species and ecological processes can be sustained, and human wellbeing supported and improved.[45]

The expansive nature of the term is apparent from the above definition. Indeed, objectives for the implementation of EBM in the GBR region cover a range of topics, including the recognition of Indigenous peoples' history and rights, incorporating best available knowledge (including traditional ecological knowledge) into decision making, preserving threatened and endangered species, and increasing local employment in the region.[46]

Vital to meeting these objectives is the process of risk assessment, which seeks to determine the degree to which a land-use decision will impact the ecological integrity of the region.[47] Risk assessment is commonly based on an ecosystem's "range of natural variation" ("RONV"). The RONV for an old-growth ecosystem reflects the amount of a forest that would naturally be old.[48] For example, in coastal rainforests with low levels of natural disturbance, forests have a high percentage of natural old-growth compared to many interior forests which have higher levels of natural disturbance and a small percentage of natural old-growth. In general, the higher the degree to which a land use decision reduces the amount of naturally occurring old-growth (RONV), the greater the level of ecological risk for species.[49] Using an area's RONV as a baseline, a "low risk target" and a "high risk threshold" are established;[50] low risk targets

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44 CIT Scientific Basis of EBM, see note 6, at 10.
45 CIT EBM Framework, see note 5, at 2.
46 Ibid, for complete list of objectives in GBR region see appendix at 13.
47 CIT Scientific Basis of EBM, see note 6, at 42.
48 CIT EBM Planning Handbook, see note 31, at 6.
49 Ibid.
50 CIT Scientific Basis of EBM, see note 6, at 43.

represent the point at which detrimental changes appear in the ecosystem, while high risk thresholds are the point at which the ecosystem loses significant functionality.[51]

Both measurements will vary depending on the ecosystem. For old growth forests, the CIT identified a 30% deviation from RONV as a low risk target, and 70% deviation from RONV as a high risk threshold.[52] These numbers form the scientific basis for old growth retention levels throughout the GBR Agreements. The preamble of the GBR order states as one of the goals to "maintain old forest representation of each ecosystem at 70% of the range of natural variation (RONV) across the order area" and the order itself specifies that 30% of the total forest by ecosystem and landscape unit is – with few exceptions - the local minimum old growth threshold. This distinction between a higher regional target and a minimum local target should be used as a model across the province. It has the potential to expedite a solution to ensure a minimum threshold is in place in all parts of BC, and allow more time for land use planning to set the higher targets at the regional level.

2. Government-to-Government Relationship

Core to the GBR Agreements is the relationship between First Nations and the provincial government. Before any land use decisions were made, negotiation occurred on a government-to-government basis.[53] Embracing this model, parallel land use planning processes were undertaken by the provincial government and each First Nation with the final plans representing a compromise of the two versions.[54] Importantly, this government-to-government framework allowed traditional ecological knowledge to be meaningfully incorporated into land use decisions throughout the GBR Agreements' area.

3. Legal Framework

The GBR agreements are comprised of various documents, zoning mechanisms, ministerial orders and statutes, which together form an evolving, overarching framework for forestry management in the region. The *Great Bear Rainforest (Forest Management) Act*[55] sets out a

51 Ibid.
52 Ibid, at 66.
53 Deborah Curran, "Legalizing the Great Bear Rainforest Agreements: Colonial Adaptations Toward Reconciliation and Conservation" (2017) 62:3 McGill LJ at 830 ["Curran, Legalizing the GBR Agreements"].
54 Ibid.
55 Great Bear Rainforest (Forest Management) Act, SBC 2016, c 16, s 6.

maximum annual allowable cut for the entire GBR region. This annual allowable cut will be reviewed by all parties to the agreement in December 2026 and can be changed if it is deemed to be too high or low.[56] Moving into more specific aspects of the GBR agreement, it provides for two main land use zones: conservancies and biodiversity, mining, and tourist areas ("BMTAs"). Conservancies comprise one third of the GBR area, and completely restrict commercial logging and mining.[57] BMTAs, on the other hand, set out areas which are meant to "support the maintenance of biodiversity and the natural environment and use by First Nations, while allowing for tourism and, in some cases, mining."[58]

The land which does not fall under either of the above zoning categories is governed by the GBR Order, which came into effect in January 2016. The GBR Order creates legally binding land use objectives pursuant to section 93.4 of the *Land Act*[59] and for the purposes of the FRPA. Practically, it requires that advocates for a proposed forestry operation in the GBR region submit an FSP that stipulates how the proposed logging operation would meet the objectives outlined in the GBR Order. Failure to comply with these objectives can result in a fine of up to $500,000 and/or a term of imprisonment for up to two years.[60]

4. GBR Order Objectives

Land use objectives for areas not otherwise designated as conservancies or BMTAs have three spatial categories: those that apply to the entire order area, those that apply only to the Central and North Coast ("CNC") areas, and those that apply only in the South Central Coast ("SCC") area. Although appearing in separate parts of the GBR Order, the land use objectives for the CNC area and the SCC area are substantially similar. As this report intends to present a high-level summary of the objectives implemented, it will not discuss small differences between their application in these areas.

The land use objectives identified in the GBR Order are based on the principles of EBM explained above. The GBR Order creates clear guidelines for the protection of wildlife, trees,

56 Ibid, see definition for "AAC adjustment period" at s 1.
57 Curran, Legalizing the Great Bear Rainforest Agreements, see note 51, at 836.
58 Ibid, at 838.
59 Land Act, RSBC 1996, c 245.
60 Ibid, at s 87(2).

aquatic areas, Aboriginal Heritage Features[61] and Aboriginal Forest Resources.[62] While minor exceptions to these rules are permitted when necessary,[63] forestry practices in the GBR region must meet the following legal objectives:

a. Establishment of Managed Forest and Natural Forest

The GBR Order requires the establishment of a managed forest area of 550,000 hectares that is available for logging operations. It also requires the establishment of a natural forest area of 3.1 million hectares, which is to be off-limits to forestry operations and will continue to grow older, subject only to natural disturbances.

b. Ecological Representation

At the landscape level, the GBR Order requires the maintenance of a distribution of forest stand ages that will reach designated targets for old growth representation no later than the year 2264. These target goals, referred to as old growth representation targets, are outlined in Schedule G of the GBR Order, and require that—with a few exceptions—70-100% of the forest will become old growth, varying from landscape to landscape.[64] Further, the GBR Order requires that a minimum level of old growth be retained immediately. These retention requirements are referred to as minimum old growth retention levels. The exact amount that must be retained varies depending on ecosystem and landscape unit, but a minimum of 30% of each site series group[65] must be preserved.

c. Landscape Reserve Design

A landscape reserve design ("LRD") must be established for every landscape unit in the GBR Order area. LRDs create areas in which commercial logging operations cannot occur and must be consistent with both the old growth representation targets and minimum old growth

61 Aboriginal Heritage Feature means "an artefact, feature, or site […] that is known, is found, or is identified during First Nation Engagement and is important to the cultural practices, knowledge or heritage of a first nation": GBR Order, see note 39, at s 2.
62 Aboriginal Forest Resource means "a forest plant resource […] identified by [F]irst [N]ations during First Nation Engagement that is utilized for food, social, medicinal or ceremonial purposes": ibid.
63 Exceptions for most objectives exist, when changes are necessary for road access or to address safety concerns where there are no practicable alternatives. Exceptions require engagement with affected First Nations.
64 GBR Order, see note 39, at Schedule G.
65 Site Series Groups refers to sites with similar topography, soil, and climate that are capable of supporting the same mature vegetation: Forest Service, How BEC Works", see note 26.

retention levels referenced above. Further, to the extent practicable, they must also protect culturally and ecologically valuable sites, including Aboriginal Heritage Features, red and blue-listed plant communities,[66] and habitat for regionally important species.[67]

d. Restoration Zones

The GBR Order established restoration zones, which are meant to restore landscape level biodiversity for areas in which extensive timber harvesting has already occurred.[68] The GBR Order requires that 30% of the total forest area be designated as restoration zones, with the intention of returning these lands to old growth forests.

e. First Nations Engagement

As discussed above, central to the development of the GBR Agreements was the relationship between the provincial government and First Nations. They were based on First Nations' land use plans, and their development relied on traditional ecological knowledge.[69] On an ongoing basis, the GBR Order requires engagement and information sharing with applicable First Nations[70] in the GBR region. Additionally, objectives are outlined that require both identification and protection of the following features:

- *Aboriginal Forest Resources*: a sufficient amount of Aboriginal Forest Resources must be retained to allow for First Nation stewardship for present and future generations;

- *Aboriginal Heritage Features:* reserve zones must be created surrounding Aboriginal Heritage Features;

66 GBR Order, see note 39, at Schedule N for red-listed plant communities and schedule O for blue-listed plant communities.
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68 GBR Order, see note 39, at Schedule H for complete list of land units that meet this designation.
69 Curran, Legalizing the GBR Agreements, see note 51.
70 Applicable First Nations refers to any First Nation "with an asserted or established [A]boriginal right, [A]boriginal title or treaty right to the area under consideration": GBR Order, see note 39, at s 2.

- *Historical Culturally Modified Trees*[71]: management zones, with sufficient width to shield the tree(s) from local hazards and windthrow, must be created surrounding Historical Culturally Modified Trees; and

- *Aboriginal Tree Use*[72]: monumental cedar, western redcedar, yellow cedar, western yew and other tree species must be retained to the extent necessary to support Aboriginal Tree Use.

f. Aquatic Habitat

The GBR Order protects areas surrounding aquatic habitats, including important fisheries watersheds, upland stream areas and forested swamps. In general, reserve zones must be established adjacent to aquatic habitats with a minimum width of 1.5 tree lengths in which timber harvesting cannot occur. For important fisheries watersheds, an Equivalent Clearcut Area[73] of less than 20% must be maintained throughout the watershed. Management areas of 1.5 tree lengths are also required surrounding upland stream areas and forested swamps, in which 70% of functional riparian forests[74] must be preserved.

g. Biodiversity

The GBR Order requires that all instances of red-listed plant species and a minimum of 70% of every occurrence of blue-listed species be retained.[75] In areas in which a tenure holder is authorized to conduct logging operations, a minimum of 15% of the forest must be preserved for stand retention. If the area subject to a tenure holder's logging operations is greater than 20 hectares in size, the GBR Order requires that 50% of the stand be retained, subject to certain exceptions.[76] Furthermore, where practicable, the area preserved for stand retention must

71 Refers to "a tree that was modified more than eighty years ago by [F]irst [N]ations people as part of their cultural use of the tree": Great Bear Rainforest Order, see note 39, at Part 2, s 2.
72 Refers to "the use of Monumental Cedar, other cedar or other tree species to fulfill the domestic needs of the Applicable First Nation for such things as shelter, transportation, tools, fuel, and art, but does not include the use of Monumental Cedar, other cedar or other tree species for purposes of commercial production or sale": GBR Order, see note 39, Part 2, s 2.
73 Equivalent Clearcut Area quantifies the percentage of a forested watershed which is not functioning at normal levels. They are caused by timber harvesting, insects, fires, and disease: GBR Order, see note 39, at Part 2, s 2.
74 Refers to forest which has reached "height, stocking density and crown closure" of pre-harvest forest and "contains some large trees adjacent to streams to provide for large organic debris": GBR Order, see note 39, at Part 2, s 2.
75 Full lists of species designated as red or blue-listed are outlined in GBR Order, see note 39, Schedules N and O, respectively.
76 GBR Order, see note 39, at Part 2, ss 17(1)(b)(i) and (ii).

include ecologically and culturally valuable features such as Aboriginal Heritage Features, habitat for species at risk, and functional riparian forests.

h. Wildlife

The GBR Order has multiple objectives aimed at protecting the habitat and dens of a variety of bear species. It requires that 100% of land designated as class 1 grizzly bear habitat be maintained, as well as at least 50% of land designated as class 2 grizzly bear habitat. Both grizzly and black bear dens must be protected. Further, a reserve zone with a width of 50 metres must be established in the areas surrounding these dens. For the purposes of protecting Kermode bears, the GBR Order establishes Kermode Stewardship Areas[77] in which all critical black bear habitat must be retained. Further, in Kermode Stewardship Areas a maximum of 30% early seral forest and 40% mid seral forest must be maintained.

5. Summary of GBR Order

The GBR Order uses clear guidelines to ensure that the principles of EBM will be enforced throughout the GBR Order area and across a range of categories. In addition to various objectives preserving wildlife habitat, aquatic habitat, and biodiversity, the GBR Order recognizes the importance of retaining at least 30% of old growth forest across the GBR Order area. Further, the GBR Order identifies the importance of spatially defined landscape reserve designs and the implementation of restoration reserves in areas which have already been extensively harvested. The next section of this report will outline a series of recommendations for applying these important concepts to a province-wide forestry regime.

V. Recommendations for Implementing Solution Elements from the GBR province-wide

First, as explained earlier, old growth retention levels must be increased province wide. The GBR Agreements cannot be applied in their entirety across the province. Decisions like the goal to manage to low ecological risk (70% RONV) for all forest ecosystems should be the outcome of regional land use planning. The GBR minimum protection principle at landscape level and the goal to avoid management to 'higher than high risk' across the landbase, however, should be

77 GBR Order, see note 39, s 20 & Schedule R.

applied without delay on Vancouver Island, South Coast and – potentially with some modifications addressing regional ecological differences - in all other parts of the province. . As the EBM Planning Guidebook explains, when more than 70% of old growth forest habitat in a site series group is lost, ecosystems in the region cross the high risk threshold and begin to lose significant ecological functioning. This loss of ecological functioning is especially alarming when one considers that these changes may be irreversible. Mature old growth forests are resilient ecosystems that can handle changes to climate better than most other systems.[78] At younger ages, however, substantial changes to climate may prevent these trees from reaching maturity. It is imperative that the province increase old growth retention levels at a minimum to the high risk 30% threshold to ensure these ecosystems continue to function.

Second, there must be a province wide objective that conservation planning—both through provincial old growth retention targets and restoration reserves—take into account the principles of EBM as outlined in the EBM Planning Handbook. Along with other factors, conserved areas should be spatially located to ensure connectivity between landscapes and to maximize internal forest area.[79]

Third, the level of detail required in FSPs regarding how a tenure holder will meet government objectives must be increased. Instead of stipulating rules that will be followed during forestry operations, FSPs should require a detailed plan for how forestry operations will meet the objectives that are required by the provincial government—including meeting the EBM principles above.

The fourth recommendation is that forest land subject to "drawback policies" be phased out where necessary after a transition period. As mentioned above, the drawback policy outlined in section 5 of the Old Growth Order allows industry to reduce old growth retention by two thirds in nearly half of the land units in the province. While exceptions to the minimum old growth retention levels may be necessary in rare situations to address safety concerns and allow road access, the drawback policy under section 5 goes far beyond what would ever be logically required. Since old growth forests subjected to these drawbacks will likely never recover as a

78 Sierra Club BC, Vancouver Island and South Coast Rainforest at High Ecological Risk by Jens Wieting, ed (Victoria: Sierra Club BC, 2016), online: <https://sierraclub.bc.ca/wp-content/uploads/2015/08/South-Coast-Backgrounder_March-2016.pdf>.
79 CIT EBM Planning Handbook, see note 31, at 6.

result of a changing climate, it is vital that any exceptions to minimum old growth requirements be limited and strictly enforced.

Fifth, if the principles implemented in the GBR region are to be extended across British Columbia, the different realities that apply in different parts of the province must be acknowledged. Productive old-growth forest ecosystems on both Vancouver Island and the South Coast have already been heavily harvested: As of 2016. 17% of landscapes in the region have less than 10% of old growth forest remaining, signifying very high ecological risk.[80] The loss of these forests corresponds with tangible environmental effects: on Vancouver Island, for example, the loss of these forests has led to a severe decline in deer species ecologically vital to the region.[81] In these very high ecological risk areas, requiring retention of remaining forests will not be sufficient. Restoration reserves, described above and required for landscapes in the GBR region that have already been extensively harvested, should be legally required across the province for landscapes that are subject to such extreme ecological risk.

The final recommendation is that cooperation and communication between the province and each affected First Nation must take place on a government-to-government basis, to implement the stewardship priorities identified above. While the development of the GBR Agreements represented an example of this, it was not without its failures: in at least one case, a First Nation was not adequately consulted before major increases to timber harvesting were approved in its traditional territory.[82] To prevent similar experiences in the future, the provincial government should ensure that each affected First Nation is properly represented and that negotiations occur on a government-to-government basis.

Delays in finalizing reserve designs in the GBR and the lack of detailed ecosystem data showing forests set aside and harvested in recent years shows that implementation of these recommendations will only be successful if the BC government can ensure appropriate capacity for reserve planning and transparent monitoring

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80 Ibid.
81 Christian Engelstoft, "Black-tailed Deer ecology in and around Pacific Rim National Park Reserve" ed (Saanichton: 2007), online: <clayoquotbiosphere.org/wp-content/uploads/2017/02/11_Christian_EngelStoft_Blacktail-Deer-Ecology-in-and-around-PRNPR-2007.pdf>.
82 Erica Gies, "Great Bear Rainforest 'gift to the world' came at our expense, says Kwiakah First Nation" ed (Victoria: The Narwhal, 2019), online: <https://thenarwhal.ca/great-bear-rainforest-gift-to-the-world-came-at-our-expense-says-kwiakah-first-nation/>.

VI. Conclusion

The recommendations outlined above are necessary to ensure that British Columbia can continue to rely on its forests for future generations. And while imperative, these recommendations—even if fully implemented—are not sufficient on their own. As the effects of climate change worsen in the coming decades, disturbances to the province's forests (such as the mountain pine beetle epidemic in the interior of the province that occurred from 1999-2015)[83] will likely become more common.[84] Monitoring and adapting forestry practices in the face of ongoing climate change will be vital. The 30% retention of old growth forest advocated for in this report represents the minimum compromise scientifically possible between economic and ecological well-being required in the short term, across the province; setting old growth retention levels below this standard will have costs that far outweigh the economic benefits that the forestry industry might gain from keeping old growth retention levels low and allowing more logging. To truly address BC's responsibility in the context of the climate[85] and biodiversity crisis[86] will require much higher regional targets for forest ecosystems as an outcome of regional modernized land use plans. Scientists are calling for a global strategy with the objective to set aside half of the planet's land by 2050, and 30% by 2030[87]. The province is uniquely positioned to contribute to this goal. For the sake of British Columbia's forests, and for the ecological and socioeconomic health of the province, the time to act is now.

83 Natural Resources Canada, "Mountain Pine Beetle", online: <https://www.nrcan.gc.ca/forests/fire-insects-disturbances/top-insects/13381>.
84 Ibid.
85 https://www.ipcc.ch/sr15/
86 https://www.ipbes.net/news/Media-Release-Global-Assessment
87 https://www.nationalgeographic.com/environment/2019/04/science-study-outlines-30-percent-conservation-2030/