Uprooted: Ontario Forest Resilience through Community-based Natural Resource Management & Indigenous Sovereignty

By: John-James Stranz

Major Research Paper

Supervisor: Dr. Dayna Scott

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Abstract

The predominant model for Canadian natural resource management continues to produce inequitable social outcomes and unsustainable processes, which are increasingly culminating into climate and social risks and vulnerabilities. These ecological and social vulnerabilities are emergent from colonial histories and the continued reliance of extractivist logics, which are failing to recognize Indigenous jurisdiction and protect essential earth systems, including the boreal forest. The forest's resilience is now degrading, which is further accelerated from extraction. Canadian sustainable forestry management has implemented nature-based solutions, vulnerability protocols, and community engagement processes to implement elements of sustainable and equitable forestry management. These developments impact the forestry management planning and implementation process, expanding its mitigation and adaptation strategies; however, they continue to be limited in their capacities to produce resilient forests in a changing climate with equitable social outcomes. Community-based natural resource management with a focus on Indigenous sovereignty has emerged as an approach with the capacity to produce transformational change through reconciliation and polycentric governance.

This paper will critically evaluate three Ontario Forestry Management Plans (FMPs) for (i) their capacities to foster climate resilience through sustainable nature-based solutions and vulnerability and adaptability mechanisms; and (ii) their capacity to produce polycentric governance, through Indigenous jurisdiction and community engagement, to explore how forestry management can be improved through enhanced sustainability, community engagement, and Indigenous jurisdiction to promote forest resilience in Ontario. Ontario forestry management has experienced profound shifts in community and Indigenous governance, through the diversification of licence frameworks which mandate Indigenous involvement and community capacity building. These frameworks, predominantly through Local Forest Management Corporations (LFMC), have more meaningful community engagements and legislative commitments which have an increased capacity at recognizing Indigenous sovereignty and jurisdiction. Yet, these community framework developments continue to exist on the margins of forestry management planning, and deeper transformational change is needed for forest and community resilience. A transformational shift towards nature-base solutions and polycentric governance is needed to build forest resilience, recognizing the need for reconciliatory justice for a more equitable and sustainable future.

Keywords: Community-Based Natural Resource Management; Environmental Justice; Vulnerability and Adaptability; Nature-Based Solutions; the Anthropocene

Foreword

This research paper further supports my studies throughout the joint Master in Environmental Studies and Juris Doctors program at Osgoode Law School and York University, in partial fulfillment of the requirements for the joint M.E.S./J.D. degree. Thank you to the dedicated faculty, my advisor and supervisor, as well as my family and friends. Any mistakes or omissions are my own.

I have always found connection, peace, and knowledge in nature. This program and its caring faculty allowed for the critical exploration of these interests, to better understand our shared reality and responsibilities. While environmental laws and regulations often fall short, they are meaningful developments, which can be aimed at fostering sustainability and equity as a method of restorative justice for societal harms.

While these tools and frameworks have taken decades to develop, built upon the personal sacrifice of Indigenous leaders, grassroot advocates, and communities, they are being disassembled and disempowered. Maintained economic prioritization continues to demonstrate its exploitative outcomes.

Climate change has exposed these failed processes, and the time for restoration is closing. Cascading changes are on the horizon, including transformational possibilities in sustainability and equity, in the hopes of a future for all of earth's children.

Dedication

For Michele, Nichole, & Laura.

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Section 1. Introduction

Natural resource management practices in Canada have historically failed to implement sustainable approaches or achieve equitable social outcomes; more often, they have destabilized ecosystems and their associated essential ecological services. Perhaps this is not surprising as the dominant approaches have broadly emerged from colonialization and imperialism. Climate change is an anthropogenic force, rooted in this traditional natural resource 'mismanagement' and the acceleration of exploitative logics which prioritize resource extraction.[1] Resource management has adopted mostly mitigative approaches to the environmental and social risks associated with resource extraction; however, these mitigative approaches are increasingly unable to produce sustainable outcomes in a changing climate and are limited in their effectiveness due to decades of deregulation.[2] This is identifiable in the industrial practices being dislocated from social and ecological crisis,[3] which is increasingly destabilizing climate systems and their associated life sustaining services.[4]

Forests play a foundational role in the earth's capacity to sustain life; and when resilient, in being able to respond to climate and social impacts,[5] they can react to these demands in a regenerative way. In Ontario, the boreal forest and the boreal permafrost provide worldwide climate maintenance, with their capacity to sequester carbon through natural processes which store irrecoverable carbon sources.[6] However, these fundamental earth systems are being impacted by climate change and continued resource extraction, leading to destabilized ecosystems which are failing to sustainably regenerate.[7] Forestry practices and associated industrial activities are resulting in ecosystem fragmentation and deleted biodiversity, shifting ecosystems through prioritized timber producing species which have impacts on forests and their capacity to be

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[1] Scott, D., "Extractivism: Socio-legal Approaches to Relations with Lands and Resources", (2020, *Osgoode Legal Studies Research Paper*), pp. 1-6, *[Scott, 2020]*.
[2] Winfield, M., "Institutionalizing Regulatory Capture as Regulatory Practice" (2021, *York University*), [*Winfield, 2021*]; see also, Winfield, M. "'Smart Regulation' and Public Safety: Transport Canada's Safety Management System (SMS) Model and the Lac-Mégantic Disaster", (2015, *York University*). pp. 1-42, [*Winfield, 2015*].
[3] Fraser, N., "Cannibal Capitalism: How Our System is Devouring Democracy, Care, and the Planet – and What We Can Do about It" (2023, *Verso*), [*Fraser, 2023*]; see also, Pasternak, S., et al., "Infrastructure, Jurisdiction, Extractivism: Keywords for decolonizing geographies" (2023, *Political Geography*) pp 1-9, [*Pasternak, et al, 2023*].
[4] Lenton, T., et al., "Global Tipping Points Report 2025", (*University of Exeter*), pp. 1-374, [*GTPR, 2025*].
[5] Forzieri, G., et al. "Emerging signals of declining forest resilience under climate change" (2022, *Nature*) 604:18. pp. 534-539, [*Forzieri, et al 2022*].
[6] Noon, M., et al., "Mapping the irrecoverable carbon in Earth's ecosystems" (2022, *Nature Sustainability*). 5. p. 37, [*Noon et al, 2022*]; see also, Harris, L., et al., "The essential carbon service provided by northern peatlands" (2021, *Frontiers in Ecology and the Environment*), 20, pp. 222–230, [*Harris et al, 2021*]; see also, Goodday, V., et al., "Assessing Peatland Law and Policy Across Canada: Is Canada Fulfilling Its Critical Stewardship Role? The National Peatland Policy Project" (2024, *Wildlife Conservation Society Canada*), pp. 1-11; see also, Government of Canada, "National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada", (2025, *Environment and Climate Change Canada*), pp. 1-276, [*Goodday et al, 2024*].
[7] *Supra* note 5, [*Forzieri, et al 2022*]; see also, *supra* note 6, [*Noon et al, 2022*].

resilient to these broader climate impacts and uncertainties.[8] This depleted resilience is associated with an increased intensity and severity of forest fires, floods and erosion, biodiversity and ecosystem loss, and social impacts.[9] As climate change continues to destabilize critical ecosystems which hold considerable deposits of carbon and we approach crucial Climate Tipping Points (CTP), the rate and intensity of climate change is likely to increase with an associated increase in frequency and intensity of climate emergencies.[10] Resilient forested ecosystems, especially ecologically intact and sensitive ecosystems, are essential for sustainable life on earth.[11]

Natural resource management and Canadian forestry practices have developed over recent years to integrate some of these climate considerations, and to move towards more sustainable and socially just outcomes. Sustainable Forestry Management (SFM) has emerged as a field of study internationally to react to these climate considerations, aiming to align economic production with social and ecological realities and limits.[12] While these SFM approaches and considerations have produced meaningful contributions to address climate change and build more equitable and resilient systems, there are still substantial gaps remaining. While SFM offers some mitigation of the worst effects of an extractive orientation to forestry management, it exists within regulatory retrenchment and may also serve to maintain unsustainable levels of harvest. Forestry production in Ontario is increasingly relying on industry self-assessment, with legislative requirements and policy recommendations which allow for substantial differences in practices and priorities.[13] These degraded requirements perpetuate unsustainable practices which are failing to meaningfully address the realities of climate change uncertainties and adaptation requirements.[14]

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[8] Gauthier, et al., "Climate change vulnerability and adaptation in the managed Canadian boreal forest", (2014, *Environmental Review: NRC Research Press*), 22, pp. 256–285, [*Gauthier, et al, 2014*]; see also, Wolf, C., et al, "A forest loss report card for the world's protected areas", (2021, *Nature, Ecology, & Evolution*), 5, pp. 520-529, [*Wolf et al, 2021*]; see also, Halofsky, J., et al., "Adapting forest management to climate change: The state of science and applications in Canada and the United States", (2018, *Forest Ecology & Management*), 421, pp. 84-97, [*Halofsky et al, 2018*]; see also, Aubin, I., et al., "Tree vulnerability to climate change: improving exposure-based assessments using traits as indicators of sensitivity", (2018, *Ecosphere),* 9:2, pp. 1-24, [*Aubin et al, 2018*]; see also, Watson, J., et al, "The exceptional value of intact forest ecosystems", (2018, *Nature ecology, & evolution*), 2, pp. 599-610, [*Watson et al, 2018*].

[9] *Supra* note 6, p. 37 [*Noon et al, 2022*]; see also, *supra* note 5, pp. 534-539, [*Forzieri, et al 2022*]; see also, Contosta, A., et al, "Early warning signals of changing resilience in the biogeochemistry and biology of a northern hardwood forest" (2023, Environmental Research Letters), 18, pp. 1-13, [*Contosta et al, 2023*]; see also, Waring, B., et al., "Forests and Decarbonization – Roles of Natural and Planted Forests" (2022, *Frontiers in Forests and Global Change*), pp. 1-6.

[10] *Ibid*; see also, *supra* note 4, [*GTPR, 2025*].

[11] Johnson, C., & Ray, C., "Proactive conservation is essential—but not sufficient: why biodiversity still needs species-specific protections", (2025, *FACETS*), 10, pp. 1-15, [*Johnson & Ray, 2025*]; see also, *supra* note 8, [*Watson et al, 2018*].

[12] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 8, [*Halofsky et al, 2018*].

[13] Winfield, M. & Benevides, H., "Industry Self-Inspection & Compliance in the Ontario Forest Sector", (2003, *Pembina Institute*), p. 63, [*Winfield & Benevides, 2003*]; see also, Parkins, J. et al., "Forest governance as neoliberal strategy: A comparative case study of the Model Forest Program in Canada", (2016, *Journal of Rural Studies*), 45. pp. 270-278, [*Parkins et al, 2016*].

[14] *Supra* note 8, [*Gauthier et al, 2014*]; see also, *supra* note 8, [*Aubin et al, 2018*]; see also, *supra* note 8, pp. 84-97, [*Halofsky et al, 2018*]; see also, Golden, D., et al., "'Blue-ice': framing climate change and reframing climate change adaptation from the indigenous peoples' perspective in the northern boreal forest of Ontario, Canada", (2015, *Climate and Development*), 7:5, pp. 401-413, [*Golden et al, 2015*].

Indigenous leadership and grassroots organizers have advocated for more sustainable and equitable environmental approaches, to recognize ongoing colonialism and its continued impact on Indigenous communities who are burdened by resource extraction without sufficient benefits.[15] Indigenous Knowledge Systems (IKS) have demonstrated how Indigenous sovereignty and stewardship is an ethical and practical solution to climate change, which is increasingly recognized.[16] However, its implementation is complex and requires true decolonization efforts to ensure it is meaningfully and respectfully implemented. Community-based natural resource management approaches strive to situate communities in the decision-making framework, to consider justice and equity through a democratization of resource management and regulation.[17] These approaches to natural resource management centralize concerns of sustainability and society, while recognizing the need for reconciliation as a solution to move these approaches forward.[18] These approaches also implement participatory management through community methods to develop contextualized knowledge, community capacity, and comprehensive regulatory assessments. These approaches may also be pragmatic and effective in the face of deregulation.

Broader social inequities and ecological considerations have pushed those working in natural resource management to consider critical approaches, which aim to recognize the finite resource limitations and the social and ecological impacts from extraction as well as industrial and technological developments. As such, sustainable resource management approaches are increasingly implementing nature-based solutions, which recognize ecosystem resilience as an adaptation to climate change and its associated risks, aiming to advance sustainable outcomes, predominantly through remediation, biodiversity protections, and conservation.[19] Despite these developments, climate change is still leading to ecological and social impacts, including a greater

[15] McGregor, D., "Mino-Mnaamodzawin Achieving Indigenous Environmental Justice in Canada", in Environment and Society, (2018), Vol. 9, Indigenous Resurgence, Decolonization, and Movements for Environmental Justice, pp. 7-24, [*McGregor, 2018a*]; see also, Simpson, L., "Indigenous Resurgence and Co-resistance", (2016, *Critical Ethnic Studies*), pp. 19-34, [*Simpson, 2016*]; see also, McGregor, D., "Reconciliation, Colonization, and Climate Futures", in Tuohy, C., et al., "Policy Transformation in Canada: Is the Past Prologue? (2019, *University of Toronto Press: Toronto*), 2899, pp. 139-147, [*McGregor, 2019*].

[16] McGregor, D., "Indigenous Knowledge Systems in Environmental Governance in Canada", (2021, *Knowledge Creation, Dissemination, and Preservation Studies*), 5(1), pp. 1-10, [*McGregor, 2021*]; see also, *Ibid*, [*McGregor, 2018a*].

[17] Agrawal, A., & Gibson, C., "Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation", (1999, World Development), 27:4, pp. 629-649, [*Agrawal & Gibson 1999*]; see also, Kellert, S., et al., "Community Natural Resource Management: Promise, Rhetoric, and Reality", (2000, *Society & Natural Resources)*, 13:8, pp. 705-715, [*Kellert et al, 2000*]; see also, Howard, T., "From international principles to local practices: a socio legal framing of public participation research", (2014, *Environmental Development and Sustainability*), 17. pp. 747-763.

[18] *Ibid*.

[19] Quinby, P., et al., "Decline of regional ecological integrity: Loss, distribution and natural heritage value of roadless areas in Ontario, Canada", (2022, *Environmental Challenges*), 8:100584, pp. [*Quinby et al, 2022*]; see also, Reed, G., et al, "Toward Indigenous visions of nature-based solutions: an exploration into Canadian federal climate policy", (2022, *Climate Policy*), 22:4, pp. 514-533, [*Reed et al, 2022*].

frequency and severity of extreme weather events and natural hazards.[20] Unsustainable social practices have caused and worsened these impacts, which have a more pronounced and deleterious impact on marginalized communities.[21]

Environmental researchers and advocates have also developed assessment frameworks which recognize ecological and social vulnerabilities, created and sustained primarily from socio-political and historical factors. Vulnerability & Adaptation assessments (V&A) entail comprehensive research into social and environmental risks which are often emergent from and compounded by historic and systemic factors.[22] V&As identify weaknesses in social and environmental systems and management practices, to generate adaptations to proactively solve or mitigate vulnerabilities.[23] As such, V&As provide an effective method to operationalize environmental justice, with considerations of social and ecological factors and the recognition that the exploitation in the environment and society is interrelated.

These new climate realities necessitate transformative approaches to produce sustainable outcomes. Specifically, this papers central analysis relates to Ontario forestry policy and its capacity for transformational change through environmental justice and praxis through decolonization and community-focused natural resource management. There are also broader challenges related to authoritarianism and continued regulatory shifts towards neoliberal models, which further entrench inequalities and expose communities to increased risk. This research identifies these risks and responses, and while specific to Ontario, it will have broader implications for more polycentric approaches to environmental governance.

1.1. Outline

This research explores why traditional Western approaches to natural resource management have not succeeded in producing resilient forests, which are forests that have the capacity to respond to climate change. Ontario's forestry management regime will be evaluated through an ecological and social framework, assessing how this regime is contextualized within

[20] Government of Canada, "Climate Change and Health Vulnerability and Adaptation Assessments: A Knowledge to Action Resource Guide", (2020, Health Canada), pp. 1-31.
[21] *Supra* note 3, [*Pasternak, et al, 2023*]; see also, *supra* note 1, [*Scott, 2020*], see also, LaDuke, W., & Cowen, D., "Beyond Wiindigo Infrastructure" (2020, *South Atlantic Quarterly*), 119:2, pp. 243–268 [*LaDuke & Cowen, 2020*].
[22] Berry, P., et al., "Assessing Health Vulnerabilities and Adaptation to Climate Change: A Review of International Progress", (2018, *International Journal of Environmental Research and Public Health*), 15:2626, pp. 1-25, [*Berry et al, 2018*]; see also, Dobbelsteyn, E., "Ecological Vulnerability and Socioecological Justice: A Vulnerability Approach to Ecological Law in Canada", (2024, *Justice, Ecology, Law, & Place*), 1, pp. 5-41, [*Dobbelsteyn, 2024*].
[23] *Supra* note 8, pp. 256–285, [*Gauthier, et al, 2014*].

earth systems undergoing climate change. I apply emerging fields of research which synthesize social and ecological factors for more holistic and ethical forestry management practices.

In the evaluative matrix that I develop and adopt, I consider nature-based solutions to climate change and their social implications with respect to the democratization of resource management, and its capacity to recognize Indigenous jurisdiction. This evaluative framework seeks to identify transformative approaches to natural resource management which dedicate themselves to sustainable practices and community justice. As such, this paper is situated within a broader discussion surrounding the Anthropocene, to provide a critical analysis into natural resource management,[24] its emergence from historical settler-colonial systems,[25] and the associated sustained extractive orientation.[26] In addition to identifying regulatory failures, this paper highlights potentially transformative solutions for Ontario forestry regulation, through grassroots processes, identifying pragmatic opportunities for communities and First Nations in the face of regulatory streamlining, climate change, and uncertainty.

As a white male settler, I recognize my limited capacity in 'speaking for' or 'researching' Indigenous communities, and my positionality which frames my understanding. This research will aim to compile essential Ontario forestry considerations and evaluate FMPs through a critical lens, focusing on timber production. Further, I would like to recognize Turtle Island and my connectivity here, specifically recognizing the Haldimand Tract as the land where I was raised and the treaty which I reflect on. I would also like to thank and recognize the countless grassroot advocates, Indigenous leaders, and teachers whose resilience has educated and inspired me.

The analysis proceeds in 8 sections. After this introduction, section 2 develops a theoretical analysis to assess foundational aspects of sustainable and equitable forestry management. This explores international climate considerations through earth systems theory, to recognize the importance of carbon sequestration and ecosystem services relevant to Ontario's forestry management practices. An environmental justice framework is introduced to guide assessment of the capacity for natural resource management to address systemic inequities through mechanisms for enhanced Indigenous jurisdiction sovereignty and local community engagement, as aspects of polycentric governance. Section 3 operationalizes these theories into a

[24] Fraser, N., "Climates of Capital: For a Trans-Environmental Eco-Socialism", (2021, *New Left Review*), 127, p. 94; Cielemęcka, O., & Daigle, C., "Posthuman Sustainability: An Ethos for our Anthropocenic Future", (2019, *Theory, Culture, Society*), 7(36). pp. 67-87, [*Cielemęcka & Daigle, 2019*]; see also, Chakrabarty, D., "The Politics of Climate Change is more than the Politics of Capitalism", (2017, *Theory, Culture, Society*), 34:2-3, pp. 25-37, [*Chakrabarty, 2017*].
[25] Davis, H., & Todd, Z., "On the importance of a date, or, decolonizing the Anthropocene", (2017, *An International Journal for Critical Geographies*), 16(4). pp. 761-780; see also, *supra* note 3, at p. 6, [*Pasternak, et al, 2023*].
[26] *Supra* note 1, pp. 1-6, [*Scott, 2020*].

methodology to review and evaluate forestry management practices, evaluating (i) their capacities to foster climate resilience through sustainable nature-based solutions and V&A indicators; and (ii) their capacity to produce polycentric governance, through Indigenous jurisdiction and community engagement. Section 4 explores historical developments in Ontario's natural resource management and forestry regulation, identifying systemic developments which have transformed the regime. This includes a detailed assessment of Ontario forestry regulation, examining the *Crown Forest Sustainability Act* (*CFSA*),[27] as the main authority over Ontario's Crown forests. Here, I delve into the regulatory requirements for timber producers, determined through their held forestry licence type and produced FMP, to explore some of the more disconnected forestry policies and the orientation of industry self-regulation. Section 5 applies the evaluative matrix to assess Temagami, Pic, and Bancroft-Minden FMPs.[28] I subsequently reflect on these FMPs and assess regulatory challenges in section 6, with capacities for sustainable and equitable change in section 7. The final section concludes with community opportunities and policy recommendations to transform Ontario forestry management to be more sustainable, equitable, and resilient.

1.1.1. Research Question

The primary research question is: *How can forestry management be improved through enhanced sustainability, community engagement, and Indigenous jurisdiction to promote forest resilience in Ontario?*

This research question contains a subset of questions and considerations, which are distributed across the sections. The initial research area explores sustainability in natural resource management, detailing the broader climate considerations which impact Ontario forestry and ecosystems and how they can be implemented in natural resource management practices and executed in FMPs. Considerations into community engagement will review how local community members can be placed into decision-making positions and afforded opportunities to influence regulatory processes to produce more equitable outcomes. This will rely on theories and principles of environmental justice, and community engagement frameworks in natural resource management.

In considering opportunities for enhancing Indigenous jurisdiction in relation to Ontario forest management, I focus on Anishinaabe laws due to the locations and applicable legal traditions in

[27] *Crown Forest Sustainability Act*, 1994, S.O. 1994, c. 25, [*CFSA*].
[28] **Note**: the Area of Undertaking is detailed in Appendix One, while the specific management units are detailed in Appendix Two.

the territories of the FMPs that I am focussed on. This allows for a deeper assessment of how Indigenous jurisdiction can be achieved in combination with environmental justice. Anishinaabe scholar Dr. Deborah McGregor has positioned these questions throughout foundational research articles, which consider: ‘‘[w]hat needs to be done to support Indigenous peoples to uphold, strengthen, revitalize Indigenous knowledge systems so they are able to share knowledge if they wish?” and ‘‘[h]ow can external institutions, agencies, and people engaged in sustainable management of […] ecosystems better prepare to engage with IKS respectfully and in the manner required by First Nations?”.[29] While this research will not provide a fulsome analysis into the entirety of these vital questions, it will contribute to the emergent discussion and advocation of increased Indigenous jurisdiction and community engagement for sustainable outcomes and forestry management.

This research relies on secondary sources, primarily focused on forestry documents from government Ministries, agencies, and private forestry producers. As such, further research into forestry monitoring, community praxis, and Indigenous sovereignty is required, and this research aims to provide an overview of some further emerging research and community developments.

1.1.2. Objectives

This research evaluates regulatory approaches in Ontario’s forestry management regimes for their ability to address climate change through sustainable resource management, a democratization of forestry policy, and increased Indigenous jurisdiction. The evaluation of the Ontario forestry regime and its reliance on FMPs provides a specific insight into the forest industry’s response to climate change, community engagement, and Indigenous jurisdiction. This regulatory dynamic is evaluated from the perspective of its capacity to address climate change in relation to earth systems, increased ecosystem disturbances and destabilized forest resilience.

This research does directly contribute to understandings of Anishinaabe law and constitutionalism, nor does it evaluate any Indigenous governance or grassroots practices.[30] However, I do provide an overview of the contributions of Anishinaabe scholars to forest management literature and practice, in order to inform my evaluative framework on Ontario forestry law, and to provide identification of future research directions for further research on

[29] McGregor, D., et al, “Towards meaningful research and engagement: Indigenous knowledge systems and Great Lakes governance” (2023, *Journal of Great Lakes Research*), 49. pp. 22-31, [*McGregor, 2023*].

[30] **Note:** I believe that as a settler, this is not my place, nor is it in my capacity; rather, this research aims to review Ontario forestry policy in a comprehensive and critical way, aiming to identify sustainable and equitable practices for Indigenous communities and governments, policy analysts, and grassroot advocates. As a treaty person, specifically to the Haldimand Tract, I recognize the importance in problematizing the settler-colonial state, its failed promises, and the need for transformational reconciliation through Indigenous leadership and repatriation.

decolonizing forestry regimes to increase their capacity to foster sustainability, equity, and justice. These legal frameworks and theories of Anishinaabe governance and approaches to natural resource management can strengthen Ontario forestry management through increased reconciliation, stewardship, co-management, and government-to-government relationships, by recognizing existing Indigenous jurisdiction and inherent rights to self-government. This approach places an emphasis on Indigenous rights and broader constitutional commitments, with consideration into the limits of current practices and the need for more transformative change through collaborative approaches. Furthermore, this research aims to identify policy and regulatory failure in Ontario forestry management, to further detail community-based practices and approaches for grassroot advocates, Indigenous communities and governments, researchers, and policy analysts to consider.

I am concerned here with pragmatic yet critical approaches to substantive and procedural justice for the natural world and society, identifying primary challenges posed towards Indigenous Nations and Ontario communities as they face unprecedented extractive developments and the climate crisis, to identify the methods that can be utilized to empower communities to assert sustainable and equitable decision-making and regulatory authority.

Section 2. Theoretical Orientation

Sustainable and equitable forestry management requires a complex harmonization of social processes which recognize broader historical, social, and ecological contexts. As such, I adopt various theoretical approaches which recognize the connectivity of these aspects, regarding the legal management of resources and risks, exploring how they are allocated and who is holding the decision-making authority. The dominant approach to natural resource management traditionally fails to recognize these critical considerations; rather, it largely functions and reproduces colonial understandings which further entrench social marginalization and disenfranchisement, while producing unsustainable practices.[31] These dominant approaches to natural resource management produce regulatory capture and lacking oversight, maintaining unsustainable practices which have developed particular social and ecological vulnerabilities to climate change and its related threats.[32] However, they also present an opportunity for further

[31] *Supra* note 1, [*Scott, 2020*]; see also, *supra* note 3, [*Pasternak, et al, 2023*]; see also *supra* note 21, [*LaDuke & Cowen, 2020*]; see also, Forsyth, M., et al, "A Future Agenda for Environmental Restorative Justice?" (2021, International Journal of Restorative Justice), 4:1 pp. 17-40, [*Forsyth, 2021*]; see also, Kotzé, L., "The Anthropocene, Earth system vulnerability and socio-ecological injustice in an age of human rights", (2019, *Journal of Human Rights and the Environment*), 10:1, pp. 62-85, [*Kotzé, 2019*].

[32] *Ibid*; see also Williamson, T., & Nelson, H., "Barriers to enhanced and integrated climate change adaptation and mitigation in Canadian forest management", (*2017, Canadian Journal of Forestry Research*), 47, at p. 1571, [*Williamson & Nelson, 2017*].

community engagement and Indigenous sovereignty as a transformational solution, which is both pragmatic and ethical in these contexts.

Ecological considerations under the context of climate change are essential for the sustainable management of natural resources, as well as producing systems which mitigate and adapt to climate change.[33] However, this requires sustaining vital earth systems, and their climate regulation processes, to prevent critical ecosystem services from irreversible destruction.[34] Historical processes have had an anthropomorphic impact on the earth, identifiable by ecological crisis, culminating in temperature increases, extreme weather events, biodiversity loss, and increasing presence of toxic human wastes.[35]

These historical processes have developed settler-colonial practices into a globalized capitalist system of extractivism, which exploits social and environmental resources, and functionally produces regulatory oversight to facilitate economic activity.[36] These practices systemically produce and entrench social injustices, whereby land dispossession, sacrifice zones, and an inequitable distribution of burdens and benefits functions as a byproduct of these extractivist processes.[37] However, community-based natural resource management, primarily through the resiliency and dedication of grassroot activists and Indigenous leaders, has also developed to better understand the relationship between social and environmental exploitation, and the need for more holistic and sustainable processes.

2.1. The Anthropocene & Natural Resource Management

The Anthropocene is a proposed new geological epoch which is meant to expose how the "present planetary status [is] characterized by human-induced climate change and overall environmental degradation".[38] It is a way of thinking about humanity's planetary impact and destructive capacity, solidified as a stratigraphic layer of mass extinction, contamination, extraction, and ecological loss, identifiable on the earth's crust.[39] Theorists employing this concept are interested in exploring the political arrangement of society and the science of the extraordinary

[33] *Ibid*.
[34] *Supra* note 6, [*Noon et al, 2022*]; see also, *supra* note 4, [*GTPR, 2025*].
[35] *Ibid*, see also, Baker, R., "The Question of Reconciliation in the Anthropocene: Naomi Klein and Dipesh Chakrabarty", (2024, *Interdisciplinary Studies in Literature and Environment*), at p. 2, [*Baker, 2024*]; see also, Scott, D., "Confronting Chronic Pollution: A Socio-Legal Analysis of Risk and Precaution", (2008, *Osgoode Hall Law Journal*), 4:1, pp., 293-343; see also, *supra* note 11, at p. 11, [*Johnson & Ray, 2025*].
[36] *Supra* note 2, [*Winfield, 2021*]; see also, *supra* note 3, [*Pasternak, et al, 2023*].
[37] *Supra* note 21, [*LaDuke & Cowen, 2020*]; see also, *supra* note 3, [*Pasternak, et al, 2023*].
[38] *Supra* note 24, [*Cielemęcka & Daigle, 2019*].
[39] *Ibid*, see also, *supra* note 24, [*Chakrabarty, 2017*].

scale of human influence on the planet and its environmental processes.[40] Thinking in terms of the Anthropocene therefore requires a deeper consideration of the "conceptual traffic between Earth history and world history"; whereby, we must contextualize the modern historical processes of the last 500 years and their destructive and irreversible impacts.[41] This recognizes anthropocentric forces on nature, as "natural history and human history collapse into one another",[42] through humanity's destructive forces.

The impact of inequitable sociopolitical practices, particularly through colonialism and its inter-related developments with capitalism, have produced an epochal level impact on the planet and its ecosystems. The epochal shift of the Anthropocene in the last 500 years is a drastic shift in the geological epochs of the past,[43] and through capitalism, has developed humanity "into the human-existential category of power and its sociological-institutional correlates" capable of producing large-scale planetary destructive forces.[44] These developments initially intensified with colonialism and the emergence of a world economy, which subsequently was followed by the industrial revolution and its associated reliance on fossil fuels and 'the Great Acceleration' of globalized consumerism.[45] These historical processes have culminated in the "depletion of soil, the acidification of the oceans, the destruction of habitats, the drying up of water sources, the widespread extinction of nonhuman species (possibly the sixth great extinction of life on earth), and climate change".[46]

These exploitative systems and relationships have been identified to emerge and function through settler-colonialism, which has structured an interdependent global network that is reliant on resource extraction, or extractivism.[47] This is intrinsically reliant on an understanding of the natural world and the structuring of societies relationship with it, to be one of exploitation through the extraction of value, which is emergent from an interwoven system of oppression. Thus, historical colonial dispossession and exploitation, with the environment and society, is shifted into capitalist modes of control and production.[48] Similarly, this system is hegemonic, reproducing ideological understandings of expansionism and imperialism, for increased capital exploitation.[49] Ideologies of extractivism produce sacrifice zones, which are locations which experience the deleterious

[40] Chakrabarty, D., "Anthropocene Time: The Seventh History and Theory Lecture", (2018, *History and Theory*), 57:1, at p. 7, [*Chakrabarty, 2018*].
[41] *Ibid*.
[42] Burdon, P., "The Anthropocene: New Trajectories in Law", (2023, *Routledge*), at p. 67
[43] *Supra* note 40, at pp. 5-7, [*Chakrabarty, 2018*].
[44] *Ibid*, at p. 9.
[45] *Supra* note 35, at p. 2, [*Baker, 2024*].
[46] *Ibid*.
[47] *Supra* note 1, *[Scott, 2020]*; see also 3, [*Pasternak, et al, 2023*]; see also *supra* note 35, [*Baker, 2024*].
[48] Beck, U., "Living in the world risk society", 35:3, (2006, *Economy and Society*) pp. 329-345, [*Beck, 2006*].
[49] *Supra* note 24, [*Fraser, 2021*].

impacts from economic development.[50] This system and its zones of extraction and destruction are identifiable through historically sustained inequities which function as a byproduct, and the saturation of social, cultural, and economic capital and other resources.[51] This relates to the "ecological crisis [being] a direct result of a broader social and spiritual one".[52] These processes have produced the Anthropocene to be a period whereby societies are increasingly being alienated from nature, while being reliant on the sustained exploitation of social and ecological systems.

The term Anthropocene requires a critical assessment which decerns the inequitable distribution of benefits and burdens, particularly with natural resource extraction and their respective sacrifice zones, and economic resources. This relates to the "economic system predicated upon accumulation and dispossession" which produces and targets marginalized communities, "in dramatically uneven ways, with Indigenous peoples and people of color bearing the brunt of toxicity, habitat destruction, and displacement".[53] Failing to critically assess how settler-colonial ideologies produce social systems which have culminated in the Anthropocene, poses a risk of erasing the historical and ongoing violence and dispossession.[54]

Analysis into the Anthropocene requires critical assessments of socio-legal approaches for policy and legislative developments, regarding its capacity to address climate change and social inequities. The socio-political management of environmental issues is historically unjust and has produced marginalized communities, such that the "extractive model of the capitalist economy thus organizes the interlinking of technological, class, geopolitical, and racist domination".[55] These processes are further supported through neoliberal rationalizations which are reliant on the market models which have produced these realities, while simultaneously eroding the scientific assessment of these impacts and societies capacity to democratically address them, through the "circulation [of] a social ideology that makes it especially hard to address this destruction", which operationalizes "deregulation, privatization, tax cuts for the wealthy, hostility to social programs, high-speed consumerism, and hyper-individualism".[56] These processes have developed and

[50] Scott, D., & Smith, A., "'Sacrifice Zones' in the Green Energy Economy: Toward an Environmental Justice Framework", (2017, *McGill Law Journal*), 62:3, pp. 861-898, [*Scott & Smith, 2017*]; see also *supra* note 35, [*Baker, 2024*].
[51] *Supra* note 3, [*Pasternak, et al, 2023*]; see also, *supra* note 1, *[Scott, 2020]*; see also, *supra* note 48, [*Beck, 2006*].
[52] *Supra* note 20, p. 244 [*LaDuke & Cowen, 2020*].
[53] *Ibid*, at p. 244.
[54] Rogers, N., "Judging the Future and the Future of Judging: The Anthropocene Judgments Project", Chapter One in Rogers, N., & Maloney, M., "The Anthropocene Judgments Project: Futureproofing the Common Law", (2024, *Routledge*), at p. 3: citing: Petersmann, M., "Response-abilities of Care in More-Than-Human Worlds", (2021, *Journal of Human Rights and the Environment*) 12, pp. 102-103.
[55] *Supra* note 35, at p. 5, [*Baker, 2024*].
[56] *Ibid*, p. 3.

impacted the dominant approach to environmental law and natural resource management, to be facilitative of extraction.[57]

Comparatively, analysis into the Anthropocene relies on pluralistic values, recognizing the marginalized approaches to natural resource management, specifically neglected stewardship traditions.[58] This approach recognizes the "need of creating a polycentric laboratory for sustainability",[59] which integrates collaborative approaches for social and ecological solutions. This is a critical approach which entails an interdisciplinary assessment into settler-colonialism, neoliberal politics, eco-national-chauvinism, and other capitalistic modes of exploitation, to produce transformational alternatives.[60] This accounts for the connectivity between environmentalism and human rights, recognizing the importance of perspectives and legal orders that have been historically excluded, which hold vital knowledge and solutions.[61] It is a complex process which requires ecological, and social considerations, including historical and contextual factors. In terms of Indigenous legal orders, theorists emphasize the need to "avoid the pitfalls of a pan-Indigenous approach", and recognize specific Indigenous nations' jurisdiction and sovereignty.[62] As such, this research will focus on Anishinaabe constitutionalism and rely on the leadership and resilience of some of its foundational researchers, as explored below.[63] These perspectives contrast with settler-colonial common law approaches to environmental law, which centralize anthropocentric considerations, rather than eco-centric approaches.[64] Further, these theoretical approaches will be used to examine the need for a holistic understanding of our ecological and social obligations, and the need for equitable shifts towards decolonization.[65]

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[57] Reed, G, et al., "There is no word for 'nature' in our language: rethinking nature-based solutions from the perspective of Indigenous Peoples located in Canada". (2024, Climatic Change), 177:32, pp. 1-24, [*Reed et al, 2024*]; see also, *supra* note 1, *[Scott, 2020]*; see also, *supra* note 3 [*Pasternak, et al, 2023*]; see also, *supra* note 21, [*LaDuke & Cowen, 2020*].
[58] *Supra* note 35, at p. 5, [*Baker, 2024*].
[59] Mazzocchi, F., "A deeper meaning of sustainability: Insights from indigenous knowledge", (2020, *The Anthropocene Review*) 7:1, pp. 77-79.
[60] *Supra* note 24, [*Fraser, 2021*].
[61] *Supra* note 15, [*McGregor, 2021*].
[62] Drake, K, "Indigenous Constitutionalism and Dispute Resolution Outside the Courts: An Invitation" (2020, *Federal Law Review*), 48:4, at p. 4, [*Drake, 2020*].
[63] *Ibid*; see also, *supra* note 15, [*Simpson, 2016*]; see also, Benton-Banai, E., "The Mishomis Book: The Voice of the Ojibway", (1979, *University of Minnesota Press*); see also, Mills, A., "The Lifeworlds Of Law: On Revitalizing Indigenous Legal Orders Today", (2016, *McGill Law Journal*), 61:4, pp. 847-884, [*Mills, 2016*]; see also, Borrows, J., "Canada's Indigenous constitution", (2010, *University of Toronto Press*), pp. 17-82, [*Borrows, 2010*]. **Note**: I have had the privilege of hearing some of these approaches, through the inherent resilience of the Anishinaabe ontologies and some of its incredible leaders; yet, their works must be explored directly, and reflexively.
[64] Potts, G., "The Land Is the Boss: How Stewardship Can Bring Us Together", in Engelstad, D., & Bird, J., "Nation to Nation: Aboriginal Sovereignty and the Future of Canada", (1992, *Don Mills, Ont: House of Anansi Press*), [*Potts, 1992*]; *supra* note 21, [*LaDuke & Cowen, 2020*]; see also, *supra* note 63, [*Mills, 2016*]; see also, Simpson, L., "Land as Pedagogy", Chapter 9 in "As We Have Always Done: Indigenous Freedom through Radical Resistance", (2017, *University of Minnesota Press*),
[65] McGregor, D., "Traditional ecological knowledge and sustainable development: Towards coexistence", Chapter Five in Blaser, M., et al., "In the Way of Development: Indigenous Peoples, Life Projects and Globalization", (2004, *Zed Books*), pp. 72–91, [*McGregor, 2004*].

2.1.1. Earth Systems Theory & Climate Tipping Points

The earth is increasingly undergoing climate change from anthropogenic degradation, destabilizing fundamental earth processes needed to sustain ecosystems and their life giving services.[66] Earth systems theory relates to the understanding of the interconnectivity of complex adaptive natural environments, through "the lithosphere (land), the hydrosphere (water), the biosphere (all living species), the cryosphere (ice), and atmosphere (air and climate), along with their physical, chemical, and biological interactions".[67] The concept of CTPs elaborates on the vital function of climate regulation, mainly through earth systems and specific ecosystems which are significant sources of sequestered carbon deposits and ecosystem services, necessary for life.[68] These ecosystems have sequestered carbon over centuries into globally significant and remote areas, whereby 50% of "Earth's irrecoverable carbon is concentrated on just 3.3% of its land".[69] The boreal forest is one of these connected systems, and its protection is urgent to prevent irrecoverable carbon release and further tipping point impacts with regional and global implications.[70]

However, as the global temperatures continue to rise and ecosystems are impacted from anthropogenic climate change, the stability of these CTPs pose serious concern; whereby, they can begin to act as a carbon source rather than a sequestrate, and the rate of warming will potentially 'tip' into an exponential increase in climate change.[71] These tipping points and their corresponding earth systems are currently "characterized by irreversibility, deep uncertainty and potential for cascading failures across natural and human systems".[72] These earth systems have stabilized the planet throughout the Holocene period, to allow for life to thrive; however, the precipice is approaching, and the window to address these tipping points is closing. This window is rapidly closing and necessitates transformational change and degrowth, to "accelerate radically to eliminate greenhouse gas emissions, to reduce non-climate stressors of ecosystems, and to

[66] Rockström, J., "Diagnosing earth's tipping points: where we stand in the Anthropocene" (2025, *Frontiers in Public Health*), at p. 1, [*Rockström, 2025*].
[67] *Ibid*.
[68] *Supra* note 4, [*GTPR, 2025*]. **Note**: These systems are integral to our climates functioning, and for the provision of life and as such they should not be reduced to 'services' or reduced to their capacity to provide for society. There is an inherent value of these systems, and they are all tied to life as the result of its development, which can be lost forever.
[69] *Supra* note 6, at p. 37, [*Noon et al, 2022*].
[70] *Ibid*. **Note**: 'Irrecoverable' is defined as deposits which have a "timeframe [for carbon recovery or sequestration that] still exceeds the time we have remaining to avoid the worst impacts of global warming". As such, the boreal forest in its entirety holds a significant amount of carbon, including: the Boreal wetland (7.36 Gt); Boreal forest (11.25 Gt); Boreal and temperate peat (23.44 Gt); Boreal and temperate grassland (5.38 Gt), at pp. 40-41.
[71] *Supra* note 4, at p. 20, [*GTPR, 2025*].
[72] *Ibid*, p. 22.

regenerate nature".[73] These CTPs being tipped will result, in "a state that planet Earth has not been in for the past 3 million years, and it could put an end to the current geological period".[74]

This has emerged in a poly-crisis of "climate change, overloading [of] novel entities, stratospheric ozone depletion, atmospheric aerosol loading, ocean acidification, interference in biogeochemical flows, freshwater change, land system change and change in biosphere integrity".[75] Despite developments in sustainable approaches to resource management, there is increasing evidence which demonstrates that the "biosphere's capacity to regulate climate is under severe threat", which is increasingly developing planetary instability.[76] Currently, various cryosphere tipping points "may have already been past", while biosphere tipping points are accelerating faster than previous research models identified, and the oceanic and atmospheric "circulation are already at risk of tipping points".[77] These CTPs have a complex interdependence, which further intensifies the risk of compounding impacts from tipping points being passed, further destabilizing other systems.[78]

Most of the earths vital CTPs are destabilizing; however, what few remain can still hold a stabilizing effect, but their window of regulative capacities is rapidly closing.[79] These CTP failures have manifested in "2024 being the hottest year in the past 175 years, the planet […] experiencing increasing extremes of flooding and drought, widespread glacial and ice sheet melt and sea level rise, and greater risk of wildfire and biodiversity loss."[80] Research is increasingly identifying the existential threat, which requires immediate and decisive action to prevent catastrophic effects. These are particularly pronounced if the earth exceeds a planetary average temperature of 2°C or more, which could likely result in a mass human mortality event of approximately 2 billion people.[81] This is a new reality which could quickly deteriorate, as we now "seem likely to easily surpass 2.0°C above that average during the decade of the 2030s".[82] Even below 2.0°C, severe impacts are occurring and will be experienced, disproportionately impacting

[73] *Ibid*, p. 45.
[74] *Supra* note 66, at p. 22, [*Rockström, 2025*].
[75] *Ibid*, at p. 5.
[76] *Ibid*.
[77] *Supra* note 4, at p. 22, [*GTPR, 2025*].
[78] *Ibid*.
[79] *Ibid*.
[80] Chandanpurkar, H., et al., "Unprecedented continental drying, shrinking freshwater availability, and increasing land contributions to sea level rise", (2025, *Science Advances*), 11, at p. 1, [*Chandanpurkar et al, 2025*].
[81] Institute and Faculty of Actuaries, "Planetary Solvency–finding our balance with nature: Global risk management for human prosperity", (2025, *Global risk management for human prosperity),* pp. 1-40; see also, Institute and Faculty of Actuaries, "Planetary Solvency: Risks and Recommendations", (2025, *Global risk management for human prosperity*), online: <https://actuaries.org.uk/media/v1ynflzj/planetary-solvency-risks-and-recommendations.pdf>
[82] Sáenz-Romero, C., "Arriving at a tipping point for worldwide forest decline due to accelerating climatic change", (2024, *The Forestry Chronicle*), 100:1, at p. 6, [*Sáenz-Romero, 2024*].

vulnerable communities and coastal nations, which have been marginalized and rendered vulnerable primarily through historical inequities and systemic exploitation.[83]

These CTP impacts have already begun as points are being passed, with the world now commencing a new 'climate reality'. This is indicated by the approaching exceedance of 1.5°C, with oceanic acidification, the potential collapse of the Atlantic Meridional Overturning Circulation (AMOC), monsoon disruptions, and other water impacts including "80% of the world's reefs, already weakened by cumulative damage and recurrent bleaching events".[84] The ice sheets are melting at accelerating rates, which operate as a CTP, while other cryosphere impacts include glacial melting events and widespread permafrost thaw.[85] Vital forest systems for the regulation of earths climate, including the Amazon and Boreal forests, are rapidly degrading in their climate services and becoming carbon sources.[86] These CTPs are deeply interconnected, as such any destabilizing impacts can have cascading environmental and social impacts.[87]

These impacts have corresponding biophysical impacts and further climate change degradation events, including water impacts particularly with fresh drinking water availability and hydrological process degradation,[88] decreased biodiversity and increased extinction events,[89] and soil impacts including nutrient richness and erosion.[90] Climate emergencies are also more frequent and severe, which are increasingly posing "the greatest threat to human health".[91] Climate change is directly impacting Canadian and Ontario forests,[92] leading to increases in the frequency and severity of forest fires,[93] insect and disease outbreaks and changes,[94] changes in hydrological processes,[95] and extreme weather events which can include heavy rain and wind, ice storms,

[83] Arnold, C., "Resilience Justice and Community-Based Green and Blue Infrastructure", (2021, *William & Mary Environmental Law and Policy Review*), 45(3), pp. 665-738; *supra* note 21, [*LaDuke & Cowen, 2020]*; see also, *supra* note 1, [*Scott, 2020*]; see also, *supra* note 24, [*Cielemęcka & Daigle, 2019*]; *supra* note 24, [*Chakrabarty, 2017*].
[84] *Supra* note 4. at p. 45, [*GTPR, 2025*].
[85] *Ibid*.
[86] *Ibid*, p. 150.
[87] *Supra* note 4, [*GTPR, 2025*].
[88] *Supra* note 80, [*Chandanpurkar et al, 2025*].
[89] Johnson, C., et al., "Biodiversity losses and conservation responses in the Anthropocene", (2017, *Science*), pp. 1-5, [*Johnson, et al 2017*]; see also, *supra* note 11, [*Johnson & Ray, 2025*]; see also, Hillebrand, H., et al., "Thresholds and tipping points are tempting but not necessarily suitable concepts to address anthropogenic biodiversity change—an intervention", (2023, *Marine Biodiversity*), 53:43, pp. 1-8.
[90] *Supra* note 8, at p. 602, [*Watson et al, 2018*]; see also, *supra* note 4, at pp. 117; 120, [*GTPR, 2025*]; see also, Chaste, E., et al., "Increases in heat-induced tree mortality could drive reductions of biomass resources in Canada's managed boreal forest", (2019, *Landscape Ecology*), 34, at p. 419, [*Chaste et al, 2019*]; see also, Alfaro-Sánchez, R., et al., "Permafrost instability negates the positive impact of warming temperatures on boreal radial growth", (2024, *PNAS Ecology*), [*Alfaro-Sánchez et al. 2024*].
[91] Government of Canada, "Climate Change and Health Vulnerability and Adaptation Assessments: A Knowledge to Action Resource Guide", (2020, Health Canada), p. 1; see also, *supra* note at p. 22, [*GTPR, 2025*]; see also, *supra* note 22, [*Berry et al, 2018*].
[92] *Supra* note 8, at pp. 256–285, [*Gauthier, et al, 2014*].
[93] *Ibid*; see also, *supra* note 90, at pp. 404-405, [*Chaste, 2019*]; *supra* note 82, at p. 5 [*Sáenz-Romero, 2024*]; see also, *supra* note 6, [*Noon et al, 2022*].
[94] *Ibid*.
[95] *Ibid;* see also, *supra* note 80, at p. 1 [*Chandanpurkar et al, 2025*].

drought, flooding, thaw, soil degradation, and heat damage.[96] These CTP changes and the management of decisions which impact them should be of "paramount concern to the general public, to resource managers, and to decision-makers around the world".[97]

Global water changes have included 'extremes of flooding and drought', glacial and ice sheet melt, sea level rise, and rapid ground water depletion.[98] These rapid developments have shifted terrestrial water storage, which is further intensified by the "interconnection of several regional drying patterns", which has resulted in prolonged droughts.[99] These shifts have rapidly led to the shrinking availability of freshwater and now the planet is in a new reality, where "83% of world's glaciers will likely melt out over the next 80 years; that the severity of drought has worsened in the past 5 years; that surface water storage in rivers, lakes, and reservoirs [are] in decline; and that half of the world's major aquifers are being rapidly depleted".[100] These water impacts are increasing in Canada, including significant portions of the north transitioning from high-latitude wetting into regional drying patterns.[101]

Forests have a deep connection with hydrological processes, acting as a regulatory system in the retention and distribution of water, akin to a pump.[102] The Canadian boreal forest is impacted by hydrological shifts, as its capacity to regulate water is impacted, which could "amplify tree mortality rates and the frequency and sizes of wildfires".[103] Further water related impacts from global warming have led to increases in evapotranspiration and soil moisture depletion and heat-induced mortality events for trees.[104] Ontario's northern regions have especially experienced profound shifts in ecohydrological processes due to climate change, including snowmelt and its impact on the soil thermal regime and spring run-off,[105] and other alteration in the "patterns of streamflow by diminishing the spring freshet and lengthening the growing season".[106] These shifts are accelerated by resource extraction.[107] The degradation of these vital environments has increased

[96] *Ibid*; see also, *supra* note 4, at pp. 117-136, [*GTPR, 2025*]; see also, *supra* note 90, [*Chaste, 2019*]; see also, *supra* note 90 [*Alfaro-Sánchez et al. 2024*].
[97] *Supra* note 80, at p. 10 [*Chandanpurkar et al, 2025*].
[98] *Ibid*, at p. 1.
[99] *Ibid*, at p. 3.
[100] *Ibid*, at p. 8.
[101] *Ibid*, at p. 3.
[102] Corlett, R., "The Ecological Consequences of Droughts in Forests", Chapter 35 in Routledge Handbook of Forest Ecology, Peh, K., et al., (2025) second edition, at p. 560.
[103] *Supra* note 90, at p. 404, [*Chaste et al, 2019*].
[104] *Ibid*.
[105] Bouchard, B., et al, "How does a warm and low-snow winter impact the snow cover dynamics in a humid and discontinuous boreal forest? Insights from observations and modeling in eastern Canada", (2024, *Hydrology and Earth System Science*), pp. 2745-2765, [*Bouchard et al, 2024*].
[106] Sutton, O., et al., "Mining and climate change alters water storage and streamflow dynamics of northern peatland-dominated catchments", (2024, *Water Resources Research*), 60, [*Sutton et al, 2024*].
[107] *Ibid*.

flooding events, requiring recurring evacuations for remote Indigenous communities, including Kashechewan First Nation on Ontario's James Bay Coast.[108]

These changes are devastating species diversity, and we are in a "globally recognized biodiversity crisis".[109] Species biodiversity "serve as key barometers of environmental health", serving vital processes in their respective environments, including keystone species which act as restorative 'ecological engineers' and ecosystem health indicators.[110] Many species are integral to Indigenous cultural identity, and researchers are increasingly identifying that "the world's remaining high value biodiversity", often reside on Indigenous territories.[111] Since the 1500s roughly one third of all species on earth have been threatened or driven into extinction;[112] however, the "current threats suggests that the rate of extinction could soon rise to at least five times higher than it has been in the recent past".[113] Researchers, grassroot advocates, and Indigenous leaders are increasingly advocating for proactive and preventative strategies to address the biodiversity crisis, which requires addressing the "systemic drivers of decline", primarily land-use change and unsustainable resource extraction.[114]

The number of Canadian species at risk is rising annually by roughly 4% despite the enactment of the *Species at Risk Act*,[115] in 2002.[116] There are currently over 5,000 species in Canada that are potentially at risk, and over 1,000 at need of prioritized status assessment to understand their species impacts.[117] The current federal species at risk assessments and reassessments are not sufficient to understand the extent of species impacts; whereby, at the targeted rate of "60 assessments and reassessments per year, it would take almost 30 years for the committee to assess the species currently prioritized and over a century to assess those that are potentially at risk".[118] Similarly, the backlog of species needing reassessment pursuant to the legislation "will

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[108] Khalafzai, M., et al., "Spring flooding and recurring evacuations of Kashechewan First Nation, northern Ontario, Canada", (2021, *International Journal of Disaster Risk Reduction*), 63, [*Khalafzai et al, 2021*]; see also, Khalafzai, M., et al., "Flooding in the James Bay region of Northern Ontario, Canada: Learning from traditional knowledge of Kashechewan First Nation", (2019, *International Journal of Disaster Risk Reduction*), 36.
[109] Office of the Auditor General of Canada, "Supporting Species at Risk Assessment and Reassessment— Environment and Climate Change Canada", (2024, *Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada*), Report 9, at p. 9.
[110] Stanturf, J., "Restoration of Forest Ecosystems", Chapter 28 in Routledge Handbook of Forest Ecology, Peh, K., et al., (2025) second edition, [*Stanturf, 2025*]; see also, *supra* note 89, [*Johnson et al, 2017*].
[111] Bulkan, J., et al., "Introduction", in Chapter 1, Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022), at p. 5
[112] *Supra* note 11, at p. 11 [*Johnson & Ray, 2025*].
[113] *Supra* note 89, at p. 2, [*Johnson et al, 2017*].
[114] *Supra* note 11, at p. 11 [*Johnson & Ray, 2025*].
[115] *Species at Risk Act* (S.C. 2002, c. 29).
[116] *Supra* note 11, at p. 5 [*Johnson & Ray, 2025*].
[117] Office of the Auditor General of Canada, "Supporting Species at Risk Assessment and Reassessment— Environment and Climate Change Canada", (2024, *Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada*), Report 9, at p. 9.
[118] *Ibid*.

grow from 389 to 574 by the end of 2030 at the current target";[119] yet, Environment and Climate Change Canada continues to reduce their assessments and reassessments, from the previous 80 annual assessments and reassessments in 2021-22. The current rate of assessments and reassessments makes it impossible for the committee to keep up with their decreasing targets, yet the biodiversity knowledge gap and severity continue to grow at an exponential rate.[120]

In Ontario, there were roughly 2,752 species considered vulnerable, rare or rapidly declining, increasing 22% in the total number of species at risk from 2009 to 2020.[121] Despite this, the Ontario government's "annual approvals to harm species at risk have increased by 6,262%" in 2021; while, protection and recovery annual approvals only increased by 59% and annual stewardship funding decreased by 10%.[122] The Ontario government exempted primary forestry operations from the *Endangered Species Act* (*ESA*) under the *Protect, Support and Recover from COVID-19 Act (Budget Measures), 2020,*[123] and has since been preparing for the revocation and replacement of the *ESA* under Bill 5, which emphasizes accelerated business approvals and resource extraction.[124] Ontario's boreal forests have also undergone shifts in biodiversity, species richness, and reductions in unfragmented wilderness areas which are vital for forestry resilience.[125] Beyond their intrinsic value, biodiversity and intact species assemblages in forests is essential for 'underpinning' "ecosystem functions such as tree productivity, nutrient cycling, seed dispersal, pollination, water uptake and pest resistance".[126] The greatest threat to biodiversity is "forest degradation from logging", which impact many taxonomic groups and worsen upon successional logging patterns.[127]

Global warming and other climate change impacts have also led to tree species shifts including an increase in species diversity due to shifting growth regions.[128] However, these shifts have introduced two potential tipping points which are impacting boreal trees, which include the northern edge tundra with its permafrost thaw and the southern boreal forest with its forest

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[119] *Ibid*.
[120] *Ibid*.
[121] Office of the Auditor General of Ontario, "Value-for-Money Audit: Protecting and Recovering Species at Risk", (2021), at p. 2; see also, Office of the Auditor General of Ontario, "Follow-Up on 2021 Value-for-Money Audit: Protecting and Recovering Species at Risk", (2023).
[122] *Ibid*.
[123] *Endangered Species Act*, 2007, S.O. 2007, c. 6; see also, *Protect, Support and Recover from COVID-19 Act (Budget Measures)*, 2020, S.O. 2020, c. 36 - Bill 229, Schedule 8.
[124] *Ibid*, schedule 8, s. 47.1(1), "Clause 9 (1) (a) and subsection 10 (1) of the *Endangered Species Act, 2007* do not apply to a person who kills, harms, harasses, captures or takes a member of a species at risk, or damages or destroys the habitat of such a species, while the person is conducting forest operations, (a) in a Crown forest; (b) in accordance with an approved forest management plan; and (c) on behalf of the Crown or under the authority of a forest resource licence."
[125] *Supra* note 19, [*Quinby et al, 2022*].
[126] *Supra* note 8, at p. 602, [*Watson et al, 2018*].
[127] *Ibid*.
[128] *Supra* note 4, at p. 120, [*GTPR, 2025*].

dieback.[129] In the north, some transitional forests are experiencing increased growth, however the drastic decline in “permafrost thaw or water and nutrient availability” along with the negative impacts in areas of extreme warming are leading to tree mortality.[130] These permafrost changes can have considerable impacts, as “44% of the managed boreal zone is located in the discontinuous permafrost zone”.[131] The permafrost exists as a complex process which is related to the peatlands, which contain preserved organic matter which degrades under these changes, emitting significant carbon deposits as well as other more harmful greenhouse gasses, notably methane in waterlogged areas.[132] These processes are highly contextual in the boreal; whereby, some locations are experiencing “localised abrupt thaw, leading to rapid carbon loss and landscape destabilisation” which results in “rapid slope slumping, ground subsidence and the formation of thermokarst landscapes”.[133] The forest plays an integral role in stabilizing soils and retaining essential soil freezing conditions, which are directly degraded from climate change and canopy discontinuity.[134] Overall, permafrost is degrading and disappearing, with feedback impacts on the forests integrity.[135] These changes could increase emissions by 40% globally, yet they are absent from most earth system models.[136]

Ultimately, the limited growth introduced by climate change in the boreal forest is likely to culminate in the “widespread reductions in radial growth in boreal forests, leading to lower carbon sequestration” and forest instability, with potentially cascading local and global impacts.[137] Any climate change positive growth impacts are “overshadowed by the stress in growth caused by ground instability in the plant rooting zone”, as well as broader cascading impacts.[138] The boreal forest could be “shifting from the current multi-stable state towards a unimodal semi-open state with 30-50 per cent tree cover in the coming decades”, which would increase the risks of forest fires and significant irrecoverable carbon releases.[139] Social impacts also include northern communities facing “massive ecosystem transformation affecting Indigenous populations whose traditional ways of life depend on stable permafrost, sea ice and boreal forest systems”, with 70%

[129] *Ibid*, at pp.118–120.
[130] *Ibid*, see also; *supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 90, [*Chaste et al, 2019*].
[131] *Supra* note 8, at pp. 258-262, [*Gauthier, et al, 2014*].
[132] *Supra* note 4, at p. 107, [*GTPR, 2025*]; see also, *supra* note 6, [*Harris et al, 2021*]; see also, *supra* note 6, [*Goodday et al, 2024*].
[133] *Supra* note, 4, at p. 117 [*GTPR, 2025*].
[134] *Supra* note 105, at p. 4725 [*Bouchard et al, 2024*].
[135] *Supra* note 8, at pp. 261-262, [*Gauthier, et al, 2014*].
[136] *Supra* note, 4, [*GTPR, 2025*], citing: Turetsky et al. 2020.
[137] *Supra* note 90, at p. 1 [*Alfaro-Sánchez et al. 2024*].
[138] *Ibid*, at p. 7.
[139] *Supra* note, 4, at p. 120, [*GTPR, 2025*].

of current northern infrastructure in permafrost regions "facing high thaw potential[ly] by 2050", which would likely require emergency relocation.[140]

Extreme forest fires are symptomatic of these new climate realities. The 2023 forest fires in Canada comprised "6,623 wildland fires [which] burned more than 15 million hectares (ha) of Canada's managed forests", which resulted in evacuation of over 230,000 Canadians.[141] The 2023 year was particularly severe, and drastically outpaced the 10-year average of 2.7 million hectares.[142] These forest fire events are increasing in occurrence and intensity, alongside insect 'pest' outbreaks and disease attacks.[143] While fires and biotic disturbances are natural, climate change and anthropogenic factors, including tree phenology and silviculture practices, have intensified their severity and frequency.[144] These intensified disturbances from climate change and anthropogenic factors are likely to increase and have rapidly led to tree mortality in the boreal forests, through compounding impacts of "hotter droughts causing foliage decay, carbon starvation, tree weakness, more pest outbreaks, and tree mortality, and then forest fires in this approximate order".[145] These severe fires can disrupt "ecohydrologic[al] processes and functions in forested watersheds, such as interception, infiltration, evapotranspiration, and storage" which can result in further cascading impacts.[146]

Canada houses irrecoverable CTPs through carbon storage ecosystems or significant carbon sinks, playing a vital role in the regulation of the world's climate systems and carbon sequestration, with nearly 10% of the world's forests.[147] Canadian forests are "considered by many to be the largest and most intensively managed forest in the world",[148] with roughly 62% of all Canadian forests being managed,[149] or roughly 2.06 million km^2,[150] and is the largest producer

[140] *Ibid*, p. 148; see also *supra* note 108, [*Khalafzai et al, 2021*].
[141] Government of Canada, *Forest fires*, (2025, *Natural Resources Canada*), online: <https://natural-resources.canada.ca/forest-forestry/wildland-fires/forest-fires>
[142] *Supra* note 82, at p. 5, [*Sáenz-Romero, 2024*].
[143] *Ibid*; see also, *supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 8, [*Aubin et al, 2018*].
[144] *Supra* note 8, at p. 262, [*Gauthier, et al, 2014*]; see also Farrell, C., et al., "Assessing the relative use of clearcuts, burned stands, and wetlands as breeding habitat for two declining aerial insectivores in the boreal forest", (2017, *Forest Ecology and Management*), 386, pp. 62-70; see also, David Suzuki Foundation, Nature Canada, Nature Quebec, Natural Resources Defense Council, Ontario Nature, Sierra Club BC, Sierra Club Canada, Wilderness Committee, "Accountability… or Advertising? A Critical Review of Canada's State of the Forests Report", (2025). **Note**: Glyphosate has increasingly been identified to entail potential impacts, see: Migneault, J., *Environmentalists raise concerns spraying forests with glyphosate makes them more vulnerable to wildfires*, (2025, *CBC News*), online: <https://www.cbc.ca/news/canada/sudbury/glyphosate-spraying-wildfires-1.7627844>
[145] *Supra* note 82, at p. 6, [*Sáenz-Romero, 2024*].
[146] Robinne, F., et al, "Wildfire impacts on hydrologic ecosystem services in North American high latitude forests: A scoping review", (2020, *Journal of Hydrology*), 581:124360, pp. 1-15.
[147] Government of Ontario, "Forest Resources Inventory" (2022), https://www.ontario.ca/page/forest-resources-inventory
[148] *Supra* note 82, at p. 5, [*Sáenz-Romero, 2024*].
[149] Government of Canada, "National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada", (2025, *Environment and Climate Change Canada*), at p. 188.
[150] So, K., et al, "Retention forestry as a climate solution: Assessing biomass, soil carbon and albedo impacts in a northern temperate coniferous forest", (2024, *Science of the Total Environment*), 947:174680, pp. 1-10, [*So et al, 2024*].

of forestry products in the world.[151] Canada's 347 million hectares of forest cover 38% of the nation, holding 9% of the Earth's forests, and housing 30% of the Earth's boreal forests.[152] Canada holds a substantial amount of carbon, sequestered mostly in the B.C. old growths, the Boreal forests, and the peatlands in the north; however, these ecosystems are increasingly at risk of tipping points, climate change degradation, and extractivism. The Canadian boreal forest is now a source of carbon and is undergoing dramatic shifts, compromising its capacity to regulate as a consequential earth system.[153]

This has been increasingly documented in Canadian managed forests, demonstrating a rapid deterioration, such that when:

> "*all direct and indirect emissions* and removals from lands impacted by natural disturbances are included, net fluxes *in managed forests* (reported and not reported) *amount[ed] to net removals of 50 Mt in 1990, net emissions of 140 Mt in 2005 and 1100 Mt in 2023.* Variations in net fluxes largely depend on the occurrence of *natural disturbances* in a given year […] which *have been increasing over the reporting period* […] culminating with the unprecedented 2023 wildfire year in which emissions from wildfires surpassed all anthropogenic emissions from all Sectors in Canada. Emissions and removals reported from the forest sector […] demonstrate that *the Canadian Forest sector acts as a net source of carbon transferred to the atmosphere and to the global waste stream as a result of short-and long-term impacts of human management*" [*emphasis added*].[154]

Despite these factors, the Ontario government is aiming to double timber production by 2030, which could reduce Ontario's remote roadless areas by 20%, which are regions and ecosystems denoted by the "highest native biodiversity, ecological integrity, and landscape resiliency".[155] Further, in Ontario "the average number of hectares lost to deforestation each year is almost quadruple the amount established as new forests."[156] However, the Canadian government defines deforestation by land use plan changes; rather than, tree removal, which exempts timber production and its capacity to have clear-cutting practices from land assessment models.[157] Overall, the Canadian boreal forest is a complex and interconnected system, which is increasingly vulnerable to climate change due to the rapid changes in climate degradation. Further, the

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[151] *Supra* note 90, at p. 404, [*Chaste et al, 2019*]
[152] Wang, S., et al., "Non-timber forest products in Canada: their role in bioeconomy", Chapter 3 in Smith-Hall, C., et al., "The Bioeconomy and Non-timber Forest Products", (2023, *Routledge*), at p. 30.
[153] *Supra* note 82, at p. 5, [*Sáenz-Romero, 2024*].
[154] Government of Canada, "National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada", (2025, *Environment and Climate Change Canada*), at p. 188.
[155] *Supra* note 19, at pp. 2; 4, [*Quinby et al, 2022*]; see also, Government of Ontario, "Sustainable Growth: Ontario's Forest Sector Strategy", (2020, *Ministry of Natural Resources*), at p. 10.
[156] Office of the Auditor General of Ontario, "The State of the Environment in Ontario" (2023), at p. 6.
[157] Government of Canada, "National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada", (2025, *Environment and Climate Change Canada*), at p. 22 see also, *supra* note 82, [*Sáenz-Romero, 2024*]; see also, Government of Canada, *Boreal Forest*, (2025, *Natural Resource Canada*), online: <https://natural-resources.canada.ca/forest-forestry/sustainable-forest-management/boreal-forest> **Note**: similarly, the Canadian government reporting on "the impacts on organic soils are not included, and therefore losses of peat C are also not included", *supra* note 6, [*Harris et al, 2021*].

"increase in disturbances combined with forest management may reduce the area of old forest" which has a direct impact on biodiversity and forest resilience.[158] The boreal forest is experiencing "cycles of clear-cutting […] [which] are also reducing old and large trees, deadwood diversity, and altering soil composition, causing a long-term decline in species richness".[159]

Ontario's boreal forest and the boreal permafrost function as CTPs.[160] Ontario's forests account for roughly 7.23 billion tonnes of carbon sequestration, 65% of which is stored in managed forests.[161] Therefore, forestry policy and legislative schemes can be evaluated on their capacity to protect CTP zones and associated ecosystems. Despite this, only about 10.72% of Ontario's land and waters are conservation zones or about 11.6 million hectares,[162] which is short of Ontario's projected target for 17% set in 2011.[163] Further, only about 10% of Ontario's forests are protected through provincial parks and conservation reserves.[164] These protective shortcomings also failed to establish 22.5 million hectares of continuous forest in Far Northern Ontario (FNO). These conservation zones are not ensuring the protection of Ontario's diverse ecosystems, especially its forests. Only 4.7 million hectares of the FNO was established as protective zones, which is roughly 1/5th of the target.[165]

The MNR is anticipating the forests to change, whereby the forests carbon sequestration could improve, as "the carbon stock in Ontario's productive forest will increase by 8.5 million tonnes by 2030, and cumulatively by 195 million tonnes by the end of the century".[166] These estimates are due to the nature of harvested forests having younger trees which are theoretically capable of more carbon sequestration. However, these projections fail to adequately account and assess the unpredictability of the changing climate from failed CTPs and its impact on forests, and their decreased resilience and resistance.[167]

While managed forested regions are mainly throughout central Ontario, these regions have interactivity with the FNO and its operation as "one of the world's largest remaining tracts of unmanaged boreal forest, the world's third largest area of wetland, and the most southerly area

[158] *Supra* note 8, at p. 265, [*Gauthier, et al, 2014*].
[159] *Supra* note 4, at p. 120, [*GTPR, 2025*].
[160] *Supra* note 6, [*Noon et al, 2022*]. **Note**: Peatlands include and overlap with the boreal permafrost.
[161] Office of the Auditor General of Ontario, "The State of the Environment in Ontario" (2023), at p. 60.
[162] Government of Ontario, "State of Ontario's Protected Areas: Protected Area Summary 2021".
[163] Office of the Auditor General of Ontario, "The State of the Environment in Ontario" (2023), at p. 6, **Note**: Ontario's Biodiversity Strategy target set in 2011.
[164] Government of Ontario, "State of Ontario's Protected Areas: Protected Area Summary 2021"; see also, Government of Ontario, "State of Ontario's Protected Areas: Forest Ecosystems 2021"
[165] Office of the Auditor General of Ontario, "The State of the Environment in Ontario" (2023), at p. 6.
[166] *Ibid*, at p. 60.
[167] *Supra* note 5, at pp. 534-539, [*Forzieri, et al 2022*]; see also, *supra* note 9, [*Contosta et al, 2023*].

of tundra".[168] The FNO is potentially some of the "least impacted ecosystems on Earth", with one of the largest peatland complexes.[169] The FNO is steadily decreasing in its ability to store carbon as a result of climate change and an increased soil carbon release, increased decomposition, and reduced frost.[170] These ecological factors are greatly exacerbated by increased human deforestation throughout the province with the entailed effects of carbon released from sequestration, decreased water retention, decreased natural mosaic of tree species and soil composition, and other climate feedback cycles.

CTPs are an "emerging threat to humanity and presents cascading risks that are rarely incorporated in environmental policy, management, and governance".[171] Sustainable development has fallen short, failing to identify and remedy underlying drivers of extractivism, while simultaneously eroding institutional capacities to understand and assess climate impacts and threats. Climate change is leading to increased environmental disasters which are imposing a substantial degree of risk, which is more harmful to disenfranchised communities which lack resources. To provide a more holistic and realistic assessment of sustainable processes, this research will rely on earth systems and the corresponding CTPs to further contextualize the role of the boreal forest. However, it must be recognized that we are in a changing and deteriorating reality, which necessitates imminent fundamental shifts for long-term survival. While our knowledge of the forests regulative and regenerative abilities is limited, our impact has not been limited despite these uncertainties.

2.1.2. Sustainable Natural Resource Management

Natural resource management has historically prioritized economic considerations, culminating in government retrenchment on social and ecological regulation through neoliberal policy developments which have increasingly led to privatized approaches and sustained extractivism.[172] These factors have limited the development of sustainable natural resource management, ushering in climate change and the degeneration of earths resilience, primarily through the extraction and depletion of finite natural resources.[173] The current approach to natural resource management, including SFM throughout Canada, is not sufficient to address potential

[168] Gonsamo, A., et al., "Global change induced biomass growth offsets carbon released via increased forest fire and respiration of the central Canadian boreal forest", (2017, *Journal of Geophysical Research: Biogeosciences*), at p. 1275, [*Gonsamo et al, 2017*].
[169] *Supra* note 6, [*Harris et al, 2021*].
[170] *Supra* note 168, at p. 1275, [*Gonsamo et al, 2017*].
[171] *Supra* note 80, at p. 10, [*Chandanpurkar et al, 2025*].
[172] *Supra* note 1, *[Scott, 2020]*; see also, *supra* note 2, [*Winfield, 2015*]; see also, Saucier et al, "Boreal Forests" Chapter 2, in Routledge Handbook of Forest Ecology, (2025), at p. 23; see also, Westoby, P., & Shevellar, L., "From "dilemmatic space" towards ecological practice Community development in disaster recovery in Queensland, Australia" Chapter 17 in The Routledge Handbook of Community Development Research, (2018), at p. 255.
[173] *Supra* note 31, [*Forsyth, 2021*]; see also, *supra* note 21, [*LaDuke & Cowen, 2020*]; see also, *supra* note 31, [*Kotzé, 2019*].

CTPs and have degraded the boreal forest into a carbon source that is highly vulnerable to climate change.[174] However, researchers are increasingly recognizing and identifying natural environmental processes, primarily in ecosystem regeneration and regulation, as nature-based solutions. CTPs instructs natural resource decisions to identify critical ecosystems, identified by their ecological resilience, associated with the ecosystems sustained biodiversity, ecological integrity, and ecosystem services including carbon sequestrate.[175] Nature-based solutions for natural resource management can broadly relate to ecosystem protection, restoration, management, and interventions combining created and natural ecosystems.[176]

These approaches are largely absent from the dominant approach to Canadian natural resource management, rather implemented in a limited quantity as mitigation approaches. Forests have historically been sites of extraction which has had a devastating impact on the earth. In Canada and Ontario, the forestry sector as detailed later in section four, has shifted forests drastically. The extraction and suppression of naturalized forest cycles for economic and social purposes led to a complete shift in tree species, where: "today's forest composition is significantly different from that in the past".[177] Similarly, fire suppression in some areas and logging practices have led to vast changes in the forests naturalized cycles. These fires would have promoted the tree species that saw the greatest decreases between 1890-1990 throughout Canada.[178]

While approaches to timber extraction have developed mitigation techniques to the environmental impact, aiming to have naturalized impacts which resemble nature,[179] it remains to be one of the greatest threats to the resilience of Canadian forests. Industrial scale logging "directly reduces carbon stocks through a combination of tree removal, collateral damage to non-target trees, decomposition of logging waste and wood fibre products, and the depletion of soil and peatland carbon stocks".[180] While replanting processes can offer some form of regeneration or remediation through replanting younger smaller trees, "the cyclical peaks in biomass typically do not return to pre-logging levels, and the time-averaged carbon stocks can be expected to decline progressively

[174] Government of Canada, "National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada", (2025, *Environment and Climate Change Canada*), at p. 22 see also, *supra* note 8, [*Gauthier, et al, 2014*]; see also, Robson, M. & Davis, T., "Evaluating the transition to sustainable forest management in Ontario's Crown Forest Sustainability Act and forest management planning manuals from 1994 to 2009", (2014, *Canadian Journal of Forest Research*), 45:4, pp. 436-443, [*Robson & Davis, 2014*].
[175] *Supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 6, [*Noon et al, 2022*].
[176] Chausson, A., et al., "Mapping the effectiveness of nature-based solutions for climate change adaptation", (2020, *Global Change Biology*), pp. 6134-6155, [*Chausson et al, 2020*].
[177] Pinto, F., et al., "Changes to preindustrial forest tree composition in central and northeastern Ontario, Canada" (2008, *Canadian Journal of Forest Research*), at p. 1853, [*Pinto et al, 2008*].
[178] *Ibid.*
[179] Government of Canada, *Boreal forest*, (2025, *Natural Resources Canada*), online: <https://natural-resources.canada.ca/forest-forestry/sustainable-forest-management/boreal-forest>
[180] *Ibid*, at p. 600.

over subsequent cutting cycles in many cases".[181] Thus, there is a deeper systemic issue in the extraction of resources and the mitigation of its impacts, or too much 'management'. This factor is evident by the damage of timber production, contributing 26% of anthropogenic atmospheric emissions since the 1870s, due to deforestation and forest degradation globally.[182] This relates to the concept of a staples producing nation, reliant on extractivism resulting in the "technical and social systems [which are] ill adapted to the effective and sustainable use of these resources".[183] There have been mitigative improvements, yet sustainable forest management has not been achieved.[184]

Nature-based solutions primarily aim to "maintain ecosystem integrity and resilience", through protecting and integrating natural processes.[185] This approach recognizes that 'the land is the boss', which aims to produce more sustainable outcomes "for the benefit of the land and the non-human life on the land", in a more harmonious way of living to protect all the linkages in the land and with the land.[186] Forestry harvesting is a reality, which is a vital source of income and community stability for many Ontario communities.[187] However, there are variations in the approaches to timber production, which can implement nature-based solutions as a proactive approach for environmental adaptation to the changing climate realities, to varying degrees. One simple and vital approach is the degrowth of timber extraction, through targeted conservation approaches to retain vital or resilient ecosystems. Nature-based solutions promote harvesting strategies which retain ecosystem connectivity, replicate natural processes, and prioritize the restoration of complex forested ecosystems with a goal to replicate the natural mosaic to assist in the development of tree species.[188]

The disturbances of timber extraction and the 'productive management of land' has led to drastic changes in the species that are having success in the forest regeneration process. While there are mitigation approaches, which will be explored as methodologies, conservation is still "the most effective and efficient terrestrial nature-based solution to decelerate the biodiversity-climate crisis and to maintain ecological integrity".[189] This requires decisions to protect vital ecosystems, in

[181] *Supra* note 8, at p. 599, [*Watson et al, 2018*].
[182] *Ibid.*
[183] Haley, B., "From Staples Trap to Carbon Trap: Canada's Peculiar form of Carbon Lock-In", (2011*, A Socialist Review*), at p. 126.
[184] *Supra* note 174 [*Robson & Davis, 2014*].
[185] Lestienne, M., et al., "Fire and Climate: Using the Past to Predict the Future", Chapter 34 in "The Routledge Handbook of Forest Ecology", Peh, K., et al., (2025) second edition, at p. 546.
[186] *Supra* note 64, [*Potts, 1992*].
[187] Government of Ontario, "Forestry Grow with Ontario", (2025), online: <https://www.investontario.ca/forestry> **Note**: 42,500 direct forestry jobs in 2024 as well as many indirect jobs and community investment aspects.
[188] *Supra* note 177, [*Pinto et al, 2008*]; see also, Rempel, R., et al., "An indicator system to assess ecological integrity of managed forests", (2016, *Ecological Indicators*). 60. pp. 860-869, [*Rempel et al, 2016*].
[189] *Supra* note 19, at p. 1 [*Quinby et al, 2022*].

areas of ecological integrity or remoteness, by "virtue of the absence of intensive human activities" and the harmful extractive processes inherent in timber production.[190] This approach recognizes that the forest's resilience is related to its integrity and associated processes including "providing habitat for wildlife, and for provision of ecosystem services such as flood mitigation, air and water purification, and pollination for human benefit".[191]

Conservation research has increasingly identified that forest conservation strategies are most successful when they minimize encroachment. This is due to the fragmentation of forested ecosystems through road and infrastructure developments, which limits their connectivity and resilience.[192] The "[i]nitial intrusion leads to rapid degradation of intact forests" through resource extraction and the ensued habitat loss further allows for "the coinciding effects of wildfires, overhunting, selective logging and biological invasions, alongside other stressors".[193] The removal of forested landscapes also allows for increased human access and further resource extraction, notably mining.[194] Conservation strategies can be implemented, as detailed primarily through the protection and retention of areas with high-ecological integrity and thereby resilience, but also by skillfully protecting migration corridors, which "enables genes and species to access new environments as conditions change".[195]

Conservation approaches often fail to recognize the importance of "intactness, forest quality or integrity", as detailed with the aim to double Ontario's timber production and the entailed reduction of ecological integrity.[196] This is contrasted with the underperforming conservation areas in Ontario at roughly 17%, and the disproportionately slow increase of "only 1.98% since 2011".[197] The preservation of natural areas with a high-degree of ecological integrity allows for the greater provision of essential habitats, allowing for more resilient biodiverse species populations which are more "resilient to stochastic effects that threaten many at-risk species".[198] Thus, the "marginalization of conservation means that fundamental drivers of biodiversity decline—such as rising per capita consumption, naïve economic models, and disconnection of people from nature— are often ignored while the conservation sector does [the] battle with their downstream

[190] *Ibid.*
[191] *Ibid.*
[192] *Ibid;* see also, Pashkevich, M., et al., "Forest Fragments and Fragmentation", Chapter 29 in Routledge Handbook of Forest Ecology, Peh, K., et al., (2025) second edition, at p. 447, [*Pashkevich, 2025*].
[193] *Supra* note 8, at pp. 602-603 [Watson et al, 2018].
[194] *Ibid.*
[195] *Supra* note 8, at p. 277, [*Gauthier, et al, 2014*]
[196] *Supra* note 19, at pp. 2; 4, [*Quinby et al, 2022*]; see also, Government of Ontario, "Sustainable Growth: Ontario's Forest Sector Strategy", (2020, *Ministry of Natural Resources*), at p. 10.
[197] Auditor General of Ontario, "The State of the Environment in Ontario", (2023), at p. 14.
[198] *Supra* note 11, at p. 8, [*Johnson & Ray, 2025*].

effects".[199] These failed approaches to sufficient conservation protocols is an element of unsustainable natural resource management, which degenerates Ontario's forest resilience, making them more vulnerable to climate change.[200]

Forest fragmentation "is the process of splitting large, continuous areas of forest into increasingly small and separate patches" creating "fragments that can become isolated and impacted by the surrounding environment".[201] Fragmentation emerges from reduce forest integrity, primarily from social infrastructure mainly the extension of roads for resource extraction.[202] Fragmentation effects are particularly pronounced in forests, identifiable through the 'edge effects' of the forests which are experiencing increased encroachment and extraction.[203] These effects are considerable, whereby forests within 500 meters of edges can have an average reduction in biomass carbon retention by 25%, and forests within 5 kilometres having roughly 10% less biomass carbon.[204] Studies have identified that forest fragments contain biological communities which are less resilient than the continuous forest, with five identifiable outcomes:

> "1. *Individual fragments only contain a subset of the original community*, especially where habitats were varied and species patchily distributed in the original habitat; 2. *Population sizes in fragments are lower*, increasing the likelihood of stochastic extinction events; 3. *Fragments are isolated* from other forest areas, reducing immigration and the chance of recolonization once local extinctions have occurred, and potentially increasing levels of inbreeding and loss of genetic diversity; 4. *Fragments are impacted by changing conditions* as a result of exposure to the surrounding, non-forest area (termed 'edge effects'), potentially further reducing the area for forest specialists; 5. *Fragments may be more vulnerable to other perturbations,* such as invasion by non-native species, increased hunting pressure, or climate change impacts." [*emphasis added*].[205]

Today, most of the world's forests are fragmented and thereby degraded,[206] with roughly "70% of the world's forests lie within 1 km of a forest edge".[207] Ontario has lost roughly 2.8 million hectares of roadless areas between 2005 and 2020, which entails a rapid loss in biodiversity, ecological integrity and resilience, and sequestered carbon.[208] Yet, Ontario still holds some of the most intact ecosystems in the world, with one of the most remote and largest continuous peatland complexes in the world.[209] However, the MNR managed forests in the AOU are increasingly facing

[199] *Supra* note 89, at p. 3, [*Johnson et al, 2017*].
[200] *Supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 8, [*Watson et al, 2018*].
[201] *Supra* note 192, at p. 447, [*Pashkevich, 2025*].
[202] *Supra* note 8, at p. 261, [*Gauthier, et al, 2014*]; see also, *supra* note 19, [*Quinby et al, 2022*].
[203] *Ibid*.
[204] *Supra* note 8, at pp. 600-601 [*Watson et al, 2018*]
[205] *Supra* note 192, [*Pashkevich, 2025*].
[206] *Ibid*.
[207] *Supra* note 8, at p. 600 [*Watson et al, 2018*]
[208] *Supra* note 19, at p. 9 [*Quinby et al, 2022*]
[209] *Supra* note 106, [*Sutton et al, 2024*].

fragmentation, where “52% of [roadless areas] were smaller than 10 ha, 76% were smaller than 100 ha, and 93% were smaller than 1000 [hectares]. However, 190 [roadless areas] in this region (1.3%) were larger than 10,000 [hectares] and 38 (0.3%) were larger than 50,000 [hectares]”.[210] While there is a significant reduction in Ontario’s continuous wilderness, the window for protection is not closed and Ontario can protect all roadless areas, which would conserve nearly 30% of the province meeting international commitments.[211]

Thus, resource management processes must skillfully identify forest patches and practices in targeted areas which have the capacity to yield timber sustainably, by retaining the forests resilience, mainly though the protection and “creation of functional ecological networks to provide landscape connectivity that prevents habitat fragmentation” and thereby rapid forest degeneration.[212] Tree retention allows foresters to locate certain regenerative regions or patches of forested land and retain it from being used as timber, with specific consideration and commitments to protect intact CTP sources and thereby resilient forests.

These identified approaches are not adequately implemented in the current natural resource planning process, whereby degraded forestry resilience has been identified as an increasing concern, as Ontario is rapidly depleting its continuous resilient forests through failed planning strategies and poor planning implementation. There are currently no provincial targets related to habitat connectivity, retaining carbon sequestration on land and in forests, or regarding invasive species.[213] Further, during the drafting of FMPs, the Ministry “had not ensured that the most accurate and up-to-date information on forest composition, wildlife habitat, and the protection of these habitats was made available at the time the plans were prepared”.[214] Yet, extraction continues to accelerate, as deforestation in Ontario “increased by 77% from 2009 to 2018”, with deforestation outpacing established forests at quadruple the rate.[215]

Harvesting strategies which retain ecosystem connectivity can replicate natural processes to a degree; however, they cannot recreate the naturally complex forested mosaic of intact forested landscapes.[216] Thus, there must be recognition that it is a spectrum of sustainability through mitigation approaches detailed in the methods. After conservation, this is largely carried out by remediation or restoration, which can serve as a method of restorative justice with a high degree

[210] *Supra* note 19, at p. 5 [*Quinby et al, 2022*].
[211] *Ibid*, at p. 1.
[212] *Ibid*, at p. 1.
[213] Auditor General of Ontario, “The State of the Environment in Ontario”, (2023), at pp. 6; 69; 88.
[214] *Ibid*, at p. 88.
[215] *Ibid*, at p. 73
[216] *Supra* note 192 [*Pashkevich, 2025*]; see also, *supra* note 19, at p. 5 [*Quinby et al, 2022*]; see also, *supra* note 8 [*Watson et al, 2018*].

of commitment to ecological resilience,[217] or alternatively it can often resemble the 'sustained yield' approach.[218]

Remediation is a complex process which involves reforestation or replanting after timber production, yet "much of the knowledge regarding seedling production techniques is based on commercially important tree species used for reforestation".[219] Forests have a complex natural mosaic, created through the interactive effects of natural processes.[220]

Various forestry management techniques have been established to retain the regenerative capacities of forests, as well as reforestation techniques to reinvigorate the landscape after timber practices and extraction. Despite this, timber production degrades the environment, and successional harvesting practices further these changes and lacking resilience, such that the "severity of harvesting determines its impact on key environmental resources, affecting seed germination, seedling emergence and survival, and advance regeneration".[221] These changes develop into long term forest shifts, further impacted by depleted forest stand resilience and the ensued "understory light levels, altered seedbeds, and changes in soil temperature and moisture".[222] Forests can be replanted as a nature-based solution, and silvicultural practices continue to replant preferred tress in the AOU for regeneration. However, they have substantial challenges in becoming healthy ecosystems as they are not as successful as naturally produced forests.[223]

These processes often simplify the complexities and overlapping nature of forests, have competing interests or processes, and are often vague decisions, thereby reducing biodiversity.[224] This is identifiable by the increased resilience of natural forests, whereby harvesting strategies "acts as a disturbance in the ecosystem, initiating secondary succession".[225] These impacts are further exacerbated from climate change and environmental resource availability. Regeneration is most successful when it is done by nature, which can be implemented through nature-based systems, mainly rewilding, or "ecological restoration that seeks to restore biodiversity through a net work of interconnected reserves and reintroduction of missing keystone species that serve

[217] *Ibid*; see also, *supra* note 176 [*Chausson et al, 2020*]; see also, *supra* note 31, [*Forsyth, 2021*].
[218] *Supra* note 150, [*So et al, 2024*].
[219] Macdonald, E., et al., "Forest restoration following surface mining disturbance: challenges and solutions", (2015, *New Forests*), 46, at p. 715.
[220] *Ibid*, see also, *supra* note 8 [*Watson et al, 2018*].
[221] Thiffault, N., et al., "Natural Regeneration After Harvesting", Chapter 26 in Routledge Handbook of Forest Ecology, Peh, K., et al., (2025) second edition, at p. 401, [*Thiffault, 2025*].
[222] *Ibid*.
[223] *Ibid*, see also, *supra* note, 219 [*Macdonald et al, 2015*].
[224] *Ibid*, see also, *supra* note 89, [*Johnson, et al 2017*]; see also, *supra* note 11, [*Johnson & Ray, 2025*].
[225] *Supra* note 221, at p. 408, [*Thiffault, 2025*].

as ecological engineers".[226] Forestry practices have been identified to convert habitats and result in terrestrial biodiversity loss, placing varying degrees of pressures on nature and its processes.[227] It is vital for biodiversity outcomes and associated ecosystem integrities, that forestry practices have synergies with targeted conservation routes, specific indicator species, and area-based conservation on large regional scales.[228]

Thus, restoration necessitates the elimination or mitigation of anthropogenic degradation, including resource extraction.[229] Targeted restoration projects have proven to be particularly effective at landscape-scale levels to "protect remaining intact forest patches and restore degraded forest fragments of watersheds".[230] This approach relied on nature-based processes to allow for remediation aimed at "returning and maintaining natural vegetation in watersheds to preserve water supply".[231] This allows for resource managers to prioritize the restoration of complex forested ecosystems thereby protecting their services.

These nature-based solutions can be implemented into natural resource management as a method to adapt to climate change and are increasingly implemented in forestry management.[232] The Ontario Tree Seed Transfer Policy (OTSTP) as detailed later in section four has some of these considerations implemented through assessment tools including geographical scanning systems, simulated disturbances, and the monitoring of biodiversity. This is an adaptive management approach.[233] Despite this, documenting and understanding the changes in the forests responses is an increasingly uncertain practice with climate change, and the processes provide managers with a significant amount of discretion.[234] The process of forestry management to sustain ecological integrity and resilience to climate change is especially untested.[235]

When applying these measurement approaches on indicator systems and ecological integrity, it is vital that it is beyond a pass/fail system, rather it should be observed on a scale.[236] This is in the consideration of the naturalized composition and cycle of forests, which managed forests can

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[226] *Supra* note 110, at p. 428 [*Stanturf, 2025*].
[227] Leclère, D., et al., "Bending the curve of terrestrial biodiversity needs an integrated strategy", (2020, *Nature*), 585, at p. 551.
[228] *Ibid*, at p. 557; see also, Maxwell, S., et al., "Area-based conservation in the twenty-first century", (2020, *Nature*) 586, at p. 217, [*Maxwell, et al, 2020*].
[229] *Ibid*.
[230] *Supra* note 176, at p. 6142, [*Chausson et al, 2020*].
[231] *Ibid*.
[232] Government of Canada, Forest renewal, (*2025, Ministry of Natural Resources*), online: <https://www.ontario.ca/page/forest-renewal>; see also, Government of Canada, Nature-based climate solutions, (*2025, Natural Resources Canada*), online: <https://www.canada.ca/en/services/environment/our-environment/nature-based-climate-solutions.html>
[233] Kerkhof, et al, "Enhancing forest resilience: Advances in Ontario's wild tree seed transfer policy", (2022, *The Forestry Chronicle*), 98:1, [*Kerkhof et al, 2022*]; see also, *supra* note 188, [*Rempel et al, 2016*].
[234] *Ibid*.
[235] *Supra* note 188, at p. 860 [*Rempel et al, 2016*].
[236] *Ibid*.

never attain. As such, forest managers need to assess how close is close enough, through what is socially acceptable, practically feasible, and in the policies mandate.[237] This higher level of sustainability in practices is not generally required in Ontario policy, but rather a recommendation. A significant portion of this flexibility for forestry managers is determined by climate projections for the forested regions and enables forestry workers to use their judgment when determining which seeds to use out of an acceptable listing of seeds. Economic considerations is a primary factor for timber producers when determining which seeds to use for reforestation. This enables forestry managers to use their discretion when deciding on local or migrated seeds for their afforestation; although, they are encouraged to use a mix of local and non-local seeds.[238] However, climate projections are increasingly uncertain, especially in Ontario forests.[239]

2.2. Environmental Justice

Environmental Justice focuses legal analysis towards “fairness in the distribution of environmental benefits and burdens and in the processes, biases and structures that determine those distributions”.[240] This approach explores the historical materialist realities of society, with a critical praxis aimed at redetermining a just distribution of environmental benefits and rewards for communities.[241] This theoretical approach is primarily focused on grassroots approaches to addressing inequalities, which directly explores and challenges systems of racism, poverty, exclusion, and colonialization through community-based research methodologies.[242]

Traditional approaches to environmental law have failed to protect the environment in a meaningful way, whereby historical tort law delayed the development of environmental doctrines and principles, including: “private property rights, the assumption of assimilative capacity, notions of strict liability and but-for causation” and the later developments in “sustainable development, the polluter pays principle, intergenerational equity, [and] the precautionary principle” which have been outpaced by extractivism and its exploitative outcomes.[243] Administrative decision makers in environmental law are a foundational component throughout the process, which are increasingly relied upon for discretionary decision-making authorities, with the centralization of

[237] *Ibid*.
[238] *Supra* note 233, [*Kerkhof et al, 2022*].
[239] *Supra* note 8, [*Halofsky et al, 2018*]*; see also, supra* note 62, [*Ter-Mikaelian et al, 2021*]; see also, *supra* note 168, [*Gonsamo et al, 2017*].
[240] Scott, D., “Environmental Law for a Just Transition”, Chapter 6 in VanNijnatten, D., “Canadian Environmental Policy & Practice: Moving the Green Transition Forward”, (2024, *Oxford University Press*), pp. 107-125, [*Scott, 2024*].
[241] Scott, D., "What is Environmental Justice?", (2014, *Osgoode Legal Studies Research Paper Series*), 4.
[242] *Ibid*.
[243] *Ibid*, at p. 5.

approval processes.[244] This emerges from public servants statutory interpretation and the 'balancing' of economic and ecological considerations, while applying environmental statutes which are largely "drafted in such a way as to give Canadian governments the power to take action or meet specified standards but no duty to take action or meet those standards".[245] These legislative mechanisms often rely on regulative authorities, however they can exist in a 'legal black hole', whereby the "failure to issue regulations is not justiciable, regulations are subject only to vires review, and they are not subject to the requirements of procedural fairness".[246] They also allow for exceptions of industries from regulatory requirements, and discretion to prosecute environmental offences, even "when existing standards were violated".[247] These approaches are under-protective, especially in the context of globalized climate change, which "undermines the sustainability of agriculture, fisheries, and forestry".[248]

These discretionary centralizations of authority can also, as further explored in section 4, allow for industry wide exemption to environmental assessments.[249] Environmental assessments are foundational for comprehensive and actionable frameworks and processes for understanding sustainability in a specific context.[250] They are "'quasi-constitutional' in nature because of the vital role it plays in generating publicly justified decisions".[251] There are significant social considerations, including public health and safety, public inquiry, and procedural fairness, as well as Aboriginal and treaty rights, which are designed to allow for a "robust exchange and mutual learning amongst those affected by the project proposal".[252] While the Supreme Court of Canada (SCC) has recognized that environmental assessments are "a planning tool that is now generally regarded as an integral component of sound decision-making",[253] natural resource management is increasingly reliant on discretionary applications for previously mandated and integral assessment processes, such that "its deliberative potential remains unfulfilled".[254] Ontario's case demonstrates its lacking application in preference for industry focused 'smart-regulation'

[244] Collins, L., & Sossin, L., "In Search of an Ecological Approach to Constitutional Principles and Environmental Discretion in Canada", (2019, *U.B.C. Law Review*), 52:293, pp. 1-28, [*Collins & Sossin, 2019*].
[245] *Ibid*, at p. 1.
[246] Stacey, J., "The Environmental Emergency and the Legality of Discretion in Environmental Law", (2015, *Osgoode Hall Law Journal*), 52.3, at p. 1006, [*Stacey, 2015*].
[247] *Supra* note 244, at p. 3 [*Collins & Sossin, 2019*].
[248] *Ibid*.
[249] *Supra* note 246 [*Stacey, 2015*].
[250] Gibson, R. "Sustainability assessment: basic components of a practical approach", (2006, *Impact Assessment and Project Appraisal*), 24:3. pp. 170–182, [*Gibson, 2006*].
[251] Stacey, J., "Vulnerability, Canadian Disaster Law, And The Beast", (2018, *Alberta Law Review*), 55:4, at p. 867, [*Stacey, 2018].*
[252] *Ibid.*
[253] *Friends of the Oldman River Society v. Canada (Minister of Transport)*, 1992 CanLII 110 (SCC), [1992] 1 SCR 3, at para 71; see also, *supra* note 251, at p. 869, [*Stacey, 2018].*
[254] *Supra* note 251, at p. 867, [*Stacey, 2018].*

approaches.[255] Environmental justice aims to recognize the need for sound decision making processes, recognizing procedural failures, historical inequities, and unsustainable approaches.

Environmental justice is "grounded in the grassroots struggles of marginalized communities", requiring a critical assessment which recognizes how historical factors have manifested into the vast wealth disparities which have systemically emerged from colonialism and imperialism.[256] Environmental justice advocates continue to identify extractivist ideologies embedded in colonialism, as well as the need to value IKS and recognize Indigenous peoples' rights to self-determination and inherent sovereignty.[257] Colonialism's operation through extractivism understands humanity's relationship with the natural world to be primarily exploitative, to derive its value from its potential to be exploited for natural resources and transformed into capital.[258] Extractivism is an action, relationship, and a logic, which produces sacrifice zones or areas of social and ecological exploitation.[259] Thinking through the lens of environmental justice provides an alternative approach which can implement environmental restorative justice, through distributed environmental management and participatory conservation.[260] This aims to produce a relational approach which is holistically just, and can be implemented through regulatory approaches which place an emphasis on environmental stewardship.[261]

Reconciliation is a core foundation of environmental justice. This requires a respectful relationship between the Canadian government and Indigenous nations, through nation-to-nation processes. This requires the settler-colonial systems to have an "awareness of the past, acknowledgement of the harm that has been incited, atonement for the causes, and action to change behaviour".[262] Thus, "reconciliation is for the colonizer".[263] Environmental justice recognizes Indigenous law and ontologies, recognizing the distinct cultural histories of specific communities and its relation to ongoing environmental and social harms. This requires a praxis in the implementation of these principles, through the recognition of Indigenous rights to self-government and thereby their sovereignty.

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[255] *Supra* note 2, [*Winfield, 2015*]; see also, *supra* note 2, [*Winfield, 2021*].
[256] *Supra* note 240, at p. 5, [*Scott, 2024*].
[257] *Supra* note 15, [*McGregor, 2018a*]; see also, McGregor, D., "Reconciliation and environmental justice", (2018, *Journal of Global Ethics*), 14:2, at p. 222, [*McGregor, 2018b*].
[258] *Supra* note 50, [*Scott & Smith, 2017*].
[259] *Ibid*.
[260] *Supra* note 31, [*Forsyth, 2021*].
[261] *Supra* note 15, [*McGregor, 2018a*]; see also *supra* note 257 [*McGregor, 2018b*].
[262] *Supra* note 15, at p. 139, [*McGregor, 2019*].
[263] Landry, A., "This reconciliation is for the colonizer", Chapter 4 in Datta, R., "Indigenous Reconciliation and Decolonization", (2021, *Routledge*), pp. 38-45.

2.2.1. Critical Indigenous Studies

Anishinaabe constitutionalism must be recognized for its laws, ontologies, and jurisdiction for true reconciliation, rectifying historical inequities through transformational change.[264] This section will briefly explore how scholars of Anishinaabe constitutionalism can provide a framework for understanding how Ontario forestry law can be revised to advance reconciliation, social justice, and environmental sustainability.[265] According to these scholars, this requires repatriation of land and resources, with meaningful and permanent shifts towards nation-to-nation processes which recognize Indigenous jurisdiction and develop co-management approaches.

Anishinaabe philosophies and governance have stewarded Turtle Island since time immemorial. One Anishinaabe philosophy is of particular importance, referred to as '*mino-mnaamodzawin*' ('living well' or 'the good life'). This philosophy is a foundational component for Anishinaabe epistemologies, and considers the "critical importance of mutually respectful and beneficial relationships among not only peoples but all our relations".[266] This offers guidance for relational development and healing, whereby "Indigenous and non-Indigenous peoples need to heal their damaged relationships with each other and to the land".[267] These resources for Indigenous leadership in Ontario are available, as there is a "renaissance occurring in Indigenous law, with Indigenous, academic, legal, and professional communities affirming the tremendous value of using and engaging with Indigenous legal traditions".[268] This requires a deeper form of reconciliation, that is "founded on Indigenous intellectual and legal traditions", and "encompass reconciliation with the natural world as a path forward to achieve justice".[269]

Rooted constitutionalism exists as a legality tree, with Anishinaabe legal "roots, trunk, branches and leaves [that] differ considerably from those of the liberal legality tree" which is "reconcilable to a different sort of legal tradition, a different sort of constitutional order, and a different sort of creation story".[270] Anishinaabe law "centres humanity and law immanently within the land",[271] with rooted creationism to recognize how it "holds as a gift worthy of our respect, in need of our gratitude" as creations order which fosters an interdependence and freedom of co-

[264] *Supra* note 62, [*Drake, 2020*].
[265] **Note**: This research cannot fully cover the complexity nor is it intended to, which necessitates further reflexive review and analysis.
[266] *Supra* note 15, [*McGregor, 2018a*]; see also, Van Wagner, E., "The Legal Relations of 'Private' Forests: Making and unmaking private forest lands on Vancouver Island", (2022), pp. 1-47.
[267] *Supra* note 257, at p. 222, [*McGregor, 2018b*].
[268] Nosek, G., "Re-Imagining Indigenous Peoples' Role In Natural Resource Development Decision Making: Implementing Free, Prior and Informed Consent In Canada Through Indigenous Legal Traditions", (2017, *U.B.C. Law Review*), 50:1, pp. 95-160, [*Nosek, 2017*].
[269] *Supra* note 257, at p. 222, [*McGregor, 2018b*].
[270] Mills/ Ma'iingan, A., "Miinigowiziwin: All That Has Been Given for Living Well Together One Vision of Anishinaabe Constitutionalism", (2019, *University of Victoria*), at p. 67.
[271] *Ibid*.

creativity through mutual aid.[272] This is a law that recognizes and respects connection throughout the environment, to act in accordance with the natural law;[273] whereby, “Anishinabek law also has force when it accords with the earth’s biological rhythms and where individuals and communities recognize and abide by its order.”[274] This law exists throughout life, centralizing roles and responsibilities, including the holistic judgment expressed throughout Anishinaabe cultural practices.[275]

This constitutionalism is a different system of law to settler-law, whereby Anishinaabe society and its “legal traditions are empowered and constrained by its constitution, just as branches grow from a trunk”. This is an accessible law, that “structures constitutionalism in respect of ongoing lived relationships” which teaches “community members what healthy, workable relationships are, to give them the tools and training necessary to realize them”.[276] This is *mino-mnaamodzawin,* as it is taught through capacity-building and applied through legal reasoning, engaged throughout stories, traditions, and other community processes.[277] This is a process of “‘judgment’ in the sense of internal discernment”, through culturally imbedded deliberation with interpretive applications that are founded on reciprocity.[278] This is a “good governance and political relationships [that] begin with individuals and how they relate to each other in families”,[279] which extends through social and ecological communities and environments.[280] Sustainability is integral to this approach, though intergenerationally principled decision-making approaches, where Anishinaabe decisions are in the contexts of seven generational impacts, creating “a web of responsibilities to all of creation”.[281] Anishinaabe theory is operationalized “to dismantle colonialism while simultaneously building a renaissance of *mino bimaadiziwin*”.[282]

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[272] *Ibid*, pp. 68-70. See: “‘Miinigowiziwin’ means that each and every one of you have been given and been blessed with a gift that has come from the higher source of power, that our people have always acknowledged, and we say ‘the Great Spirit’ and ‘the Great Mystery’.” at p. 69. See: “miinigowiziwin’s sacred gifting is a path. The important thing to know, then, is how to walk it”, at p. 72.
[273] *Ibid,* at p. 74, see: “Elder Harry Bone explains that “Kihche’othasowewin (natural law) was provided to us to ensure that we continue to act in accordance with our environment.” at p. 47
[274] *Ibid*, citing: Borrows, J., “Canada's Indigenous Constitution”, (2010, *University of Toronto*), at p. 240.
[275] *Ibid*, at pp. 129; 148, citing: Ontario Human Rights Commission, To Dream Together at 25.
[276] *Ibid*, at pp. 129-130.
[277] *Ibid*; see also, “songs, dances, legends, elders’ teachings, legends, and earth teachings” which create “rooted legal traditions [that] teach ordinary community members legal reasoning, which centres their agency” at p. 135
[278] *Ibid*, at pp. 142-145.
[279] *Ibid*, citing: Simpson, L., “Looking after Gdoo-naaganinaa: Precolonial Nishnaabeg Diplomatic and Treaty Relationships”, (2008, *University of Minnesota Press*), 23:2, pp. 29-42, [*Simpson, 2008*].
[280] *Ibid*; see also, *supra* note 64, [Potts, 1992].
[281] Craft, A., “The Two-Track Approach: Foundations for Indigenous and Western Frameworks in Environmental Evaluation”, Chapter 13 in “In Our Backyard : Keeyask and the Legacy of Hydroelectric Development”, (2022, *University of Manitoba Press*), at p. 335.
[282] Simpson, L., “Theorizing Resurgence from within Nishnaabeg Thought”, in “Dancing On Our Turtle's Back: Stories of Nishnaabeg Re-Creation, Resurgence, and a New Emergence” (2011, *Arbeiter Ring Publishing*), at p. 19.

Because of the settler-colonial system's limited capacity to recognize Indigenous sovereignty, the struggle for Indigenous jurisdiction must be led by Indigenous nations and communities. This is an ontology, epistemology, and spiritual process, that:

> "[y]ou can't read [in] an academic paper or a book about it and think you know what you are talking about. That's not the way our intelligence systems work. This kind of knowledge needs to be learned in relationship to the place that generated it, with or in our languages, using Indigenous processes and expertise. It is different for unique Indigenous nations and communities."[283]

Thus, the process must relate to inherent rights to self-governance. However, there exists a deeper systemic issue with the settler-colonial system's 'constitutional capture' of Indigenous governance, and "a clear unwillingness to recognize Indigenous jurisdiction and Indigenous understandings of land as systems of reciprocal relations".[284] Recognizing and respecting Indigenous sovereignty is thus argued to be of paramount importance, necessary to remedy the incomplete process of reconciliation as a procedural and substantive form of social and environmental justice. As Karen Drake argues, for this approach to be successful, it must avoid the pitfall of filtering "Indigenous laws through the lens of liberal constitutionalism", recognizing Indigenous philosophies, law, and jurisdiction.[285]

The reclamation process is therefore a deeper process which must consider how Indigenous Nations and communities are able to exert their authority over access and control of lands and resources. While co-management processes can entail greater Indigenous access and control, they often fall short of meaningful change in respect of Indigenous legal orders actually governing alongside legal repatriation. True reconciliation must expand the considerations of Indigenous reclamation to consider broader legal principles and processes, considering nationhood, personhood, law, property, ownership, and rights.[286] This relates to the inherent jurisdiction First Nations have, because of their sovereignty and pre-existing legal orders.

It is well established in this literature that co-management approaches can be co-opted, subtly shifting the functionality of the policies to facilitate extraction rather than more sustainable and relational approaches, when read through the settler-colonial legal system. Often, Indigenous principals or primary designers and grassroot advocates are not recognized for their contributions, while Indigenous governments are not respected for their inherent authority to approve and regulate. Rather, Indigenous peoples' contributions are stripped of their contextual aspects and

[283] *Supra* note 15, at p. 26, [*Simpson, 2016*].
[284] *Supra* note 19, [*Reed et al, 2022*].
[285] *Supra* note 62, at p. 1 [*Drake, 2020*].
[286] *Supra* note 15, [*McGregor, 2018a*]; see also *supra* note 257 [*McGregor, 2018b*].

deeper authorities to land and community. This relates to the differing ontologies, where the settler legal system recognizes and receives Indigenous laws and governance through, as Drake says, a 'lens of liberal constitutionalism'.[287] This approach tends to co-opt processes which can embed colonialism further. Here, "a hybrid institution—combining features of both liberalism and Indigenous constitutionalism", because of the embedded hierarchy that favours liberalism, "would merely reproduce the constitutional capture of Aboriginal rights jurisprudence".[288] This often also simplifies Indigenous laws and histories into a 'pan-Indigenous approach'; rather, meaningful change will need to recognize the contextual and historical features of Indigenous ontologies and governance specific to the territory.

Some scholars recognize IKS as a "viable alternative to the status quo that caused the problems in the first place".[289] These systems are being recognized for their effective approaches at stewarding natural resources for more sustainable outcomes, through the scholarship and grassroots advocacy of Indigenous governments and communities. However, scholars caution that the settler-colonial system and researchers should not seek to 'validate' the inherent authority of Indigenous law and knowledge, which is a perpetuation of the power imbalances produced by settler-colonialism.[290] Rather, for these systems to be implemented effectively and ethically, Indigenous sovereignty must be recognized in a meaningful way with actions that foster relational respect, which can be operationalized through the recognition of Indigenous jurisdiction and sovereignty. Through First Nation advocacy, IKS has increasingly been integrated into the Crown's approaches and have led to more effective nature-based solutions and more sustainable social and environmental processes.[291] However, decolonization is obviously not achieved, considering the ongoing challenges Indigenous nations face when developing and operationalizing their inherent rights to self-governance, their limited decision-making and regulative capacities, and the lacking repatriation of economic resources and land through the 'land-back' movements.[292]

Settler-colonial processes have manifested throughout Canadian history to produce marginalized communities, which are "shouldering more than their fair share of environmental harms related to pollution, contamination, toxic waste, and heavy industry".[293] These sacrifice zones and their

[287] *Supra* note 62, [*Drake, 2020*].
[288] *Ibid*, p. 1.
[289] *Supra* note 65, p. 72, [*McGregor, 2004*].
[290] *Supra* note 62, [*Drake, 2020*]; see also, *supra* note 15, at p. 26, [*Simpson, 2016*].
[291] *Supra* note 16, [*McGregor, 2021*].
[292] *Supra* note 21, [*LaDuke & Cowen, 2020]*; see also: *supra* note 3, [*Pasternak, et al, 2023*]; see also, Pasternak, S., & King, H., "Land Back: A Yellowhead Institute Red Paper", (2019), at p. 10, [*Pasternak & King, 2019*].
[293] *Supra* note 50, [*Scott & Smith, 2017*].

associated extractive mindsets entail a “structural legacy of colonization and capitalism, a problem of human values, and climate change as a cumulative impact from industrial disturbances”.[294] Environmental harms and Indigenous land dispossession and marginalization have further exacerbated inequities. This has created distinct social challenges, where “Indigenous peoples are more vulnerable to the impacts of climate change than other peoples due to distinct connections to the natural world”.[295]

To break out of this pattern, scholars of critical Indigenous studies argue that we must recognize long-standing and continuing Anishinaabe stewardship over Turtle Island. There is a connectivity between social and environmental rights, which must recognize extractivism and its impact which requires deeper shifts in understanding. As detailed, “no policy, either climate-based or otherwise, is going to be successful in the long run if it does not result in genuine restructuring and transformation of contemporary relationships between the state and Indigenous peoples.”[296] This scholarship rejects the “state-sanctioned conceptions of reconciliation”, which fail to recognize Indigenous law and “suppress the emergence of contemporary Indigenous formulations”.[297]

Broader questions into how multiple Indigenous legal orders, principles, and ontologies produce sustainable outcomes must be pursued, yet the settler-colonial approach aims to maximize exploitation. Thus, Ontario forestry practices must have a transformational shift to address climate change and social inequities, as well as establishing resiliency. This requires recognizing Indigenous self-governance, with land-back and jurisdiction-back movements and other capacity building opportunities. The legal system has made substantial developments, however Indigenous rights are not fully recognized, nor are they respected, and they remain to be largely absent from decision making frameworks.[298] This relates to the sustained deeper colonial ideologies, which hierarchically arrange Indigenous law as lesser to colonial law, and despite “the promise of ‘reconciliation’, the legal tests developed by the courts protect frozen rights instead of self-determination, and Aboriginal title is closer to a property interest in land than a power to exercise jurisdiction over territory”.[299] Indigenous law has an inherent complexity and sovereignty, and has developed through the resilience of its communities and nations, who are “continually

[294] *Supra* note 57, [*Reed et al, 2024*].
[295] *Supra* note 15, at p. 139, [*McGregor, 2019*].
[296] *Ibid,* at p. 140.
[297] *Supra* note 257, at p. 223, [*McGregor, 2018b*].
[298] *Ibid*; see also, *supra* note 21, [*LaDuke & Cowen, 2020]*; see also: *supra* note 3, [*Pasternak, et al, 2023*]; see also, *supra* note 292, [*Pasternak & King, 2019*].
[299] *Supra* note 62, [*Drake, 2020*].

moving the gauge towards Indigenous self-determination even in the face of ramped up nationalist rhetoric fueled by a divisive politics of extraction".[300]

Ontario's forestry legislation and policy regime has some considerations for Indigenous knowledge and values, including the heritage value requirements in management plans in accordance with the *CFSA* and the entailed Forest Management Guide for Cultural Heritage Values.[301] The Forest Management Planning Manual mandates First Nation involvement through consultation requirements, which can be customized with the Ministry for specific projects. This can allow for Indigenous involvement in management and planning of forestry units.[302] These are required for all "First Nation and Métis communities in or adjacent to a management unit" and entail the capacity to "participate in the forest management planning process".[303] The Ministry involves First Nation communities through planning teams in districts, which can be reimbursed positions although this is not required. The Ministry evaluates whether there is a need to incorporate First Nations in consultation requirements based on outlined factors.[304] Forestry management plans which undergo consultation requirements are summarized by the Ministry. There are additional consultation requirements in FNO where First Nation elders can include providing advice, communicating with community members, building consensus and can be involved with the steering group.[305] Management agreements can be created with First Nation communities to offer increased regulatory requirements and mechanisms to include Indigenous communities and recognizes Indigenous sovereignty.[306]

While there have been substantial developments in Indigenous forestry, it is "still largely ignored in forest planning and management and mere modifications to the prevailing science-and-technology-based forestry regimes will not suffice".[307] Rather, a paradigm shift is required. As such, this scholarship demonstrates that meaningful decolonial efforts must entail the recognition

[300] Pasternak, S., & Scott, D., "Introduction: Getting Back the Land, (2020, *The South Atlantic Quarterly*), 119:2, at p. 205, [*Pasternak & Scott, 2020*].
[301] Government of Ontario, "Forest Management Guide for Cultural Heritage Values", (2007, *Ministry of Natural Resources*), pp. 1-87.
[302] Government of Ontario, "Forest Management Planning Manual", (2024, *Ministry of Natural Resources and Forestry*), at, p. A-109.
[303] Government of Ontario, First Nation and Métis community involvement, (2023), online: , Note: "may choose to have a representative on the planning team; can work with the Ministry of Natural Resources and Forestry to develop a customized consultation approach; can identify values or important ecological features they want protected; can participate in the development and review of related reports; can review and comment on the FMP while it is being prepared"
[304] Government of Ontario, "Forest Management Planning Manual", (2024, *Natural Resources and Forestry*), at p. A-131 "(a) whether the community's established or credibly asserted Aboriginal or treaty rights may be adversely impacted by forest activities, governed by this manual, in the management unit. (b) whether the community has traditional uses that may be affected by forest activities, governed by this manual, in the management unit. (c) whether the community has a local governance body or reserve in or near the management unit. (d) whether the community has expressed interest in forest management planning or forest operations specific to the management unit".
[305] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*).
[306] *CFSA*, s. 23. **Note**: "Agreements with First Nations: The Minister may enter into agreements with First Nations for the joint exercise of any authority of the Minister under this Part".
[307] Asselin, H., "Indigenous Forest Knowledge", Chapter 41 in Routledge Handbook of Forest Ecology, Peh, K., et al., (2025) second edition, at p. 642.

of Indigenous sovereignty and self-governance with the associated land repatriation and regulative authorities through nation-to-nation agreements and recognized Indigenous sovereignty.

2.2.2. Local Community Engagement

Scholars in this field have increasingly identified community based approaches which offer policy analysts, advocates, and researchers applicable approaches and grassroot solutions, acknowledging the power involved with knowledge production and management, aiming to radically redistribute that power through research with direct community relevance with the goal of action and change.[308] Community based approaches have historically advocated and developed conservation approaches, and environmental justice scholarship identified the need for community involvement;[309] however, these developments have often been postured as oppositional to the economy, and have been largely absent from traditional natural resource management.[310] Yet, natural resource management researchers have increasingly acknowledged that communities are the "best managers of resources" with localized knowledge, commitments, and interests to protect the resources and ecosystems, through "decentralization, meaningful participation, cultural autonomy, and conservation".[311] These approaches have increasingly been recognized for their capacity to effectively address social and ecological challenges, providing sustainable approaches which integrate environmental justice, reconciliation, and community engagement.[312]

The literature demonstrates that communities cannot be categorized as a single cohesive unit; rather, community-based natural resource management provides a decentralized approach to decision-making processes, which rely on accountability frameworks, cooperation and co-management, and justice. These principles provide alternative approaches to natural resource management which centralize sustainability and justice, through mechanisms of accountability, dispute resolution, institutional support, and the relinquished control of previous approaches.[313] It is a complex process, which must reconcile "social norms of public participation with legal norms

[308] Ochocka, J. Janzen, R., "Breathing Life into Theory Illustrations of Community Based Research: Hallmarks, Functions & Phases", (2014, *International Journal of Community Research and Engagement*), 7, pp. 18-33.
[309] *Supra* note 1, [*Scott, 2020*].
[310] *Supra* note 17, [*Agrawal & Gibson 1999*].
[311] *Ibid*, at pp. 633; 630.
[312] Ojha, H., et al, "Delocalizing Communities: Changing Forms of Community Engagement in Natural Resources Governance", (2016, *World Development*), 87, pp. 274-290; see also, Gaspar, C., & Ballantyne, C., "Humanizing community-engaged participatory research through relational practice", in Indigenous Reconciliation and Decolonization Narratives of Social Justice and Community Engagement, (2021, *Routledge*); see also; *supra* note 31, [*Forsyth, 2021*]; see also, *supra* note 268 [*Nosek, 2017*].
[313] *Supra* note 17*,* [*Agrawal & Gibson, 1999*].

of procedural justice", to ensure there is meaningful participation.[314] This is democratic process, which must ensure quantity and quality in engagement, while supporting local practices and initiatives, offering sufficient funding to grassroot organisations, shifting conservation efforts to serve communities and Indigenous peoples while generating know through these community-based processes to build capacity.[315] This is characterized by a "commitment to involve community members and local institutions in the management and conservation of natural resources", specifically empowering Indigenous communities and nations and recognizing their rights, with a desire to "reconcile the objectives of socioeconomic development and environmental conservation".[316]

Community management scholars identify that the management process must therefore provide environmental justice, through a conceptual framework which identifies community values in a holistic way, applies "integrated assessment tools to balance social and biophysical priorities", and is premised on environmental justice that is "supported by participatory data collection, facilitated integrated decision-making and the engagement of Indigenous communities".[317] This is a community engagement process, which meaningfully incorporates the community throughout the entire natural resource management process, through knowledge co-creation, with a particular emphasis on Indigenous stewardship knowledge for a more complete socio-ecological and locally based understanding and process.[318] Scholars have identified that this is a complex process which must be cognisant of historical inequities to restore relationships, built upon 'power-sharing' and 'trust-building'.[319]

The democratization of natural resource policy decisions and regulations is increasingly developing, with an emphasis on polycentric approaches to governance.[320] Community-based natural resource management is an alternative approach to "technocratic management [which] overshadows human responsibilities for the multiple crises of the Anthropocene, [instead] humanistic approaches focusing on collective processes and risk, bring them to light".[321] These

[314] *Supra* note 17, at p. 747, [*Howard, 2014*].
[315] Alcorn, J., "Dances around the Fire: Conservation Organizations and Community-Based Natural Resource Management", pp. 37 – 69, Chapter 1 in Brosius, P., et al., "Communities and Conservations: Histories and Politics of Community-Based Natural Resource Management", (2005, *Bloomsbury Publishing USA*), [*Alcorn, 2005*].
[316] *Supra* note 17, at pp. 705-706, [*Kellert et al, 2000*].
[317] Vall-Casas, P., et al., "Reviewing the evidence on riparian community engagement: A conceptual framework of community-based river management", (2024, *Environmental Science & Policy*), at pp. 5-6, [*Vall-Casas, 2024*].
[318] *Ibid*.
[319] *Ibid*, at p. 9.
[320] Winfield, M., & Dolter, B., "Energy, economic and environmental discourses and their policy impact: The case of Ontario's Green Energy and Green Economy Act", (2014*, Energy Policy*), 68, pp. 423-435; see also, Teitelbaum, S., "Introduction: A Shared Framework for the Analysis of Community Forestry in Canada", Chapter 1, in Teitelbaum, S., "Community Forestry in Canada: Lessons from Policy and Practice", (2016, ACUP), pp. 3-28, [*Teitelbaum, 2016a*].
[321] Bonatti, M., et al., "Global analysis of social learning's archetypes in natural resource management: understanding pathways of co-creation of knowledge", (2024, *Humanities and Socials Sciences Communications*), 11:1161, pp. 1-16.

approaches shift the traditional natural resource management approach, which relies on technocratic processes, to instead produce a co-creation of social and ecological strategies.

Community-based natural resource management is largely absent from the dominant models. There is insufficient institutional support while, the "organized body of knowledge to systematically promote community engagement is still lacking".[322] This is related to the existing forestry SFM model throughout Canada "not [being] conducive to enabling community involvement", resulting in its underdevelopment.[323] Yet, various applications have proven themselves successful, including community forestry management throughout Canada.[324] It presents an opportunity to "foster greater stewardship of the forest resource by aligning community development and resource management objectives".[325]

Community forestry and regulation became a broader concern in the 1980s, however it has still not been largely implemented and a rift between forestry practices and communities continues to divide communities from forestry management.[326] Despite this, it has presented an effective alternative to expand the presence and advocacy of alternative perspectives throughout the community, to be "more articulated than in forests managed by (remote) governments or single-minded commercial companies".[327] It is an assessment focused approach, which identifies its role in addressing social and environmental harms in the face accelerated of anthropogenic climate change, through "strengthened tenure rights, distributive equity, transparency, and good governance".[328] Community forestry has successfully been implemented to foster improved biodiversity conservation, exercising resource rights including Indigenous rights, timber production, and non-timber forestry products and services.[329]

In 1991, Ontario initiated the sustainable forestry program, which aimed to establish various policies for greater community involvement in the forestry process. At the time, it was the largest

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[322] *Supra* note 317, [*Vall-Casas, 2024*]
[323] Bullock, R., et al., "Conclusion: Lessons from Community Forestry Practice, Research, and Advocacy", Chapter 13 in "Growing Community Forests: Practice, Research, and Advocacy in Canada", (2017, *University of Manitoba Press*), pp. 227-241, [*Bullock et al, 2017*].
[324] Andrews-Key, S., et al., "The Mistik Story: A community forestry approach to large-scale industrial forest management and production", Chapter 17 in Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022), at p. 273; see also, Doyle-Yamaguchi, E., & Smith, T., "Listening Watchfully: Following the Líl̓wat pathway towards reciprocal and relational forest research in Líl̓wat Indigenous Territory, British Columbia, Canada", Chapter 18 in Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022). pp. 288-301; see also, Curran, D., "'Legalizing' the Great Bear Rainforest Agreements: Colonial Adaptations Toward Reconciliation and Conservation", (2017, *McGill Law Journal*), 62:3, pp. 815-860; see also, Teitelbaum, S., "Practicing Participatory Governance through Community Forestry A Qualitative Analysis of Four Canadian Case Studies", Chapter 11, in Teitelbaum, S., "Community Forestry in Canada: Lessons from Policy and Practice", (2016, ACUP), pp. 282-307, [*Teitelbaum, 2016b*].
[325] Harvey, S., & Hillier, B., "Community forestry in Ontario", (1994, The Forestry Chronicle), 70:6, at p. 725.
[326] *Ibid*; see also, Bouthillier, L., et al., "The Difficult Art of Carving Space(s) For Community Forestry in the Quebec Regime", Chapter 2 Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022).
[327] Bulkan, J., et al., "Introduction", in Chapter 1, Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022), at p. 2.
[328] *Ibid*, at p. 8.
[329] *Ibid*, at p. 8.

adaptive approach to management in natural resource management in Ontario and led to four community forestry projects.[330] Throughout the development, community processes established fundamental themes in community forestry, self-determination; wealth retention; local control, decentralization and partnerships; and sustainable development and resource stewardship,[331] which can continue to guide its implementation. These themes require support through various processes, including community consensus, a credible lead agency with a clear mission, a meaningful delegation with an inclusive process, and an integration with existing processes.[332] Since then, community forestry has continued to prove its value, developing through various community led initiatives which have further elaborated on vital characteristics in the process. This requires the government to grant a degree of authority and responsibility to the local community for forestry management, which must sustainably provide social and economic benefits to these communities.[333] These approaches aim to allow for collaboration, trust, respect, mutual learning, and social capital building, through a more participatory framework.

While there have been substantial developments in forestry reserve analysis,[334] the traditional technocratic approaches have produced a high level of uncertainty in the assessment and interpretation of forest changes, especially regarding extraction impacts which requires continuous assessments for long-term ecological monitoring and analysis. This relates to a "persistent uncertainty and inconsistency in mapping forest land" which provide foundational indicators of landcover change.[335] There are also localized impacts on the boreal forest from climate change, which are increasingly uncertain and absent from many forestry analysis and evaluation practices.[336] Community regulators are therefore more effective to provide further direct monitoring opportunities, with a local capacity and awareness, engagement of various knowledge holders, an expansion of communication frameworks and relationships which are adapted to their contexts.[337] Scholars have demonstrated that these approaches are cost-

[330] **Note**: Town of Geraldton, Wikwernikong First Nation on Manitoulin Island, the Town of Elk Lake, and the 6/70 Area Economic Diversification Committee (AEDC) in the Kapuskasing area. Before these projects, Nipigon Forest Village in 1944 existed in a proposal format and the establishment of the Algonquin Forest Authority in the 1970s. Citing: Harvey, S., & Hillier, B., "Community forestry in Ontario", (1994, The Forestry Chronicle), 70:6, at p. 727; see also, Palmer, L., et al., "Community Forestry on Crown Land in Northern Ontario Emerging Paradigm or Localized Anomaly?", Chapter 4, in Teitelbaum, S., "Community Forestry in Canada: Lessons from Policy and Practice", (2016, ACUP), at p. 97, [*Palmer et al, 2016*].
[331] Harvey, S., & Hillier, B., "Community forestry in Ontario", (1994, The Forestry Chronicle), 70:6, at p. 727.
[332] *Ibid*, at p. 729.
[333] Andrews-Key, S., et al., "The Mistik Story: A community forestry approach to large-scale industrial forest management and production", Chapter 17 in Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022), at p. 273.
[334] Forestry Futures Trust Ontario, *Forest Resource Inventory (FIR)*, (2024), online: <https://www.forestryfutures.ca/add>
[335] Pond, B. "Across the grain: Multi-scale map comparison and land change assessment", (2016, *Ecological Indicators*), 71, at p. 667.
[336] *Supra* note 4, [*GTPR, 2025*]; see also, *supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 168, [*Gonsamo et al, 2017*]; see also, *supra* note 62, [*Ter-Mikaelian et al, 2021*]; see also, Malcolm, J., et al., "Emulation or Degradation? Evaluating Forest Management Outcomes in Boreal Northeastern Ontario", (2025, *Environmental Management*), 75, pp. 1901-1922, [*Malcolm et al, 2025*].
[337] *Supra* note 317, [*Vall-Casas, 2024*]; see also, *supra* note 320, [*Teitelbaum, 2016a*]; see also, *supra* note 330, [*Palmer et al, 2016*].

effective and restorative for social and environmental outcomes, however it is still an emergent area.[338]

Enhanced community monitoring presents various potentials to identify and resolve SFM oversight issues, through its ability to "fill the gaps of existing government regimes by strengthening the voice of marginalised interests, monitoring governance performance and compliance with obligations".[339] This emerges through monitoring having the strategic capacity to identify ecological indicators relevant to specific forested ecosystems, enhancing the monitoring process and including Indigenous nations, the community, and other local stakeholders.[340] This approach increases monitoring frequency, thereby increasing the understanding and evaluation of changes in forests, through a cost-effective and pragmatic process.[341] Previously identified and successful indicators can be implemented alongside existing processes, which can include indicators for composition such as biodiversity and species abundance, structural indicators including height, diameter, and canopy closure, drone-mounted cameras and Light Detection and Ranging (LiDAR) for repetitive sampling, soil nutrient, and land degradation.[342] This community focused approach also allows for social, political, and cultural considerations such as human well being, household surveys, labor force responses, and Indigenous jurisdiction.[343]

This drastically contrasts with the traditional forest monitoring approach, which "often focuses on merchantable woody volume increase and historic forest inventory data [which] are not suitable to account for both the biophysical and biochemical impacts of forest management".[344] While these identified approaches have proven their effectiveness and significance at achieving sustainable justice, it is often postured against industry due to its broader considerations, and it has not seen any large-scale implementation and remains a rarely used alternative.[345]

Section 3. Methodology

The methodology employed relies on critical policy analysis, focussed on natural resource management strategies as they are detailed in their respective FMPs. This is supplemented by a

[338] *Ibid.*
[339] *Supra* note 17, at p. 750, [*Howard, 2014*].
[340] *Supra* note 110, [*Stanturf, 2025*].
[341] *Ibid*.
[342] *Ibid*, at p. 438.
[343] *Ibid*; see also, *supra* note 320, [*Teitelbaum, 2016a*]; see also, *supra* note 330, [*Palmer et al, 2016*].
[344] *Supra* note 150, at p. 2, [*So et al, 2024*].
[345] Harvey, S., "Thirty Years of Community Forestry in Ontario: Bridging the Gap Between Communities and Forestry", Chapter 3 in "Growing Community Forests: Practice, Research, and Advocacy in Canada", (2017, *University of Manitoba Press*), pp. 75-89, [*Harvey, 2017*]; see also, *supra* note 320, [*Teitelbaum, 2016a*]; see also, *supra* note 330, [*Palmer et al, 2016*]; see also, *supra* note 323, [*Bullock et al, 2017*].

deeper analysis into the legislative provisions of the *CFSA* and their outcomes in three selected case studies. For each case, I analyse the FMP and additional supplementary documentation to evaluate its capacity to foster climate resilience through sustainable nature-based solutions and V&A indicators; and its capacity to produce polycentric governance, through Indigenous jurisdiction and community engagement. Further supplementary Ontario resources, as well as research and community materials will be briefly explored. These factors are compiled into a forestry evaluative matrix, alongside a tabulation indicating specific FMP objectives with their indicators, targets, and assessment criteria which will be used to inform the matrix as a management evaluative scheme.

3.1. Climate Resiliency

Climate resilience is a complex process, which can be addressed by resource management, predominantly through nature-based solutions which sustain forestry resilience with sufficient V&A indicators as they are detailed through vulnerability protocols. Climate resilience requires sustainable practices which recognize the broader context of the boreal forest as an earth system with CTP implications.[346] Sustainability must be understood in its contexts, applications, and how it is being defined as an evaluation process for comprehensiveness.[347] As detailed later in section four, the definition of sustainability as it applies to Ontario forestry allows for an industry led flexible application. This permits the industry to apply a variety of approaches and practices pertaining to the timber extraction process and the reforestation process including the silvicultural selection of species. These practices allow the forestry managers to define and produce their equivalence of sustainable processes, which will be explored through its capacity to address climate resilience.

The methodological assessment for climate resiliency will evaluate the FMPs capacity to address vulnerability protocols and nature-based solutions, as they are implemented through mitigative and adaptive approaches. This recognizes the spectrum of application, whereby nature-based solutions and vulnerability protocols can be implemented to mitigate harvesting impacts or adapt to emerging climate realities.

3.1.1. Nature Based Solutions & Forestry

Nature-based solutions in forestry as an evaluation scheme must analyze the forestry management approach and their abilities to retain the integrity of nature-based processes in the

[346] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 8, [*Aubin et al, 2018*]; see also, *supra* note 22, [*Dobbelsteyn, 2024*].
[347] *Supra* note 250, [*Gibson, 2006*].

ecosystem and regenerate the forested ecosystem after disturbances, specifically from timber production. This will primarily evaluate the FMPs capacity to adapt to climate change realities and uncertainties, while mitigating practices in accordance with the planetary and ecosystem boundaries. This is applicable to the timber production cycle, including management principles and priorities to conserve forests, the mitigation of disturbances from forestry extraction through forestry planning and practices, and remediation through regeneration with connectivity to intact forests and reforestation with silvicultural selections.

Evaluating forestry managements capacity to use nature-based solutions requires analysis into the applicable approaches, including restoration, specific ecosystem-based adaptation and mitigation, applicable infrastructure, management considerations, and area-based conservation approaches.[348] These approaches require clear principles which embrace conservation, apply rigorous implementation and assessment processes, site-specific natural and cultural contexts and knowledge, promote social justice and accountability, maintain biological and cultural diversity and ecosystem development, and address economic and ecosystem services.[349]

This initially requires a complex planning process, which prioritizes forest integrity through conservation planning, to retain ecosystem regeneration. Forests are high conservation value sites, which have a direct impact on CTP factors, forest resilience, and ecosystem services.[350] These processes can be evaluated through the forests integrity, which is identifiable through biodiversity outcomes and targeted conservation processes.[351] Ecological integrity in managed forests is "the ability of an ecosystem to support a community of organisms with a similar species composition and functional organization as found in nearby natural systems".[352] Forestry retention to ensure ecosystem integrity requires conservation. Conservation is therefore an "evaluative component of natural resource management, through its capacity to maintain biological diversity through sufficient levels of species and their habitats".[353] This relates to ecological integrity, which must consider how forestry management practice impact the "sustainable provision of a range of ecosystem goods and services while conserving biodiversity and ecological processes".[354] This is evaluated by the forests connectivity to a large biological

[348] Cohen-Shacham, E., et al., "Core principles for successfully implementing and upscaling Nature-based Solutions", (2019, Environmental Science and Policy), 98, at p. 22.
[349] *Ibid*; see also, Calliari, E., et al, "An assessment framework for climate-proof nature-based solutions", (2019, *Science of the Total Environment*), 656, pp. 691-700; see also, Albert, C., et al., "Planning nature-based solutions: Principles, steps, and insights", (2021, Nature-based Solutions In River Landscapes), 50, pp. 1446-1461.
[350] *Supra* note 4, [*GTPR, 2025*]; see also, *supra* note 8, [*Watson et al, 2018*]; see also, *supra* note 19, [*Quinby et al, 2022*].
[351] Plumptre, A., et al., "Targeting site conservation to increase the effectiveness of new global biodiversity targets", (2024, *One Earth*), 7, at p. 14.
[352] *Ibid*, at p. 860.
[353] *Supra* note 315, at p. 37, [*Alcorn, 2005*].
[354] *Supra* note 188, at p. 860 [*Rempel et al, 2016*].

support system of organisms, with similar composition and function of neighboring regions. This measures a forest's resilience and ability to undergo disturbances without fundamental change through patterns of ecosystem structure or forestry conditions, and their function through diversity and quality of habitats.[355]

There are substantial limitations in the forestry sectors capacity at managing species diversity and forest integrity in timber producing areas, which necessitates “the protection of areas large enough to sustain ecosystem functions, along with meaningful limits on the overall forest harvest footprint”.[356] Regarding the overall process of natural and unnatural disturbances, the forestry resources being managed for timber needs to remain no higher than 18-32% to maintain 90% richness of species. Similarly, “logging of 50% of a naturally disturbed forest led to a decrease of around 60% of the original species”.[357] While these markers are generally applied throughout the forestry process, the Ontario forestry system is especially sensitive, spanning over several unique yet interdependent ecozones.[358] Yet, foresters continue to promote increased timber extraction. The adaptivity of these forested ecosystems are being compromised by a lacking commitment to sustainable forestry methods. The complete permeance of forested areas offers the greatest carbon sequestration of emissions and sustains biodiverse and adaptive ecosystems.[359]

The next methodological assessment in the timber production cycle must explore the mitigation of disturbances from forestry extraction through forestry planning and practices. This mainly involves utilizing the most effective harvesting practices available to ensure the disturbances of forestry practices are understood and minimized. Forestry harvesting can entail planning processes which aim to retain forest integrity, through the protection of forestry corridors which minimize forestry fragmentation and enhance the forest’s ability regenerate.[360]

Variable Retention Harvesting (VRH) practices has been identified as an effective nature-based solution, through its capacity to assess the biochemical and biophysical impact of forest management decisions. VHR “is a silvicultural thinning treatment that incorporates heterogeneity into forest management by manipulating the type, amount, and spatial pattern of forest stands retained after harvest”, shifting its approach from the traditional approach which incorporates

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[355] *Ibid*, at p. 861.
[356] *Supra* note 336, at p. 1918, [*Malcolm et al, 2025*].
[357] Thorn, S., et al., “Estimating retention benchmarks for salvage logging to protect biodiversity”, (2020, *Nature Communications*), 11:4762, at p. 3, [*Thorn et al, 2020*].
[358] Webster, K., McLaughlin, J., “Application of a Bayesian belief network for assessing the vulnerability of permafrost to thaw and implications for greenhouse gas production and climate feedback”, (2014, *Environmental Science & Policy*), 38. pp. 28-4; see also, *supra* note 168, [*Gonsamo et al, 2017*]; see also, *supra* note 62, [*Ter-Mikaelian, et al, 2021*].
[359] Yemshanov, D., et al., “Effects of permanence requirements on afforestation choices for carbon sequestration for Ontario, Canada” (2012, *Forest Policy and Economics*), 14. pp. 6-18.
[360] *Supra* note 19, [*Quinby et al, 2022*]

"clearcut, patch cut, or shelterwood that focus on maximizing timber production" to instead "focus on what is retained to preserve forest structural complexity".[361]

Ontario's predominant approach to forestry management and harvesting practices rely on clearcut, patch cuts, and shelterwood cuts, which have been increasingly identified to entail potential environmental and social harms.[362] Clearcutting is the most popular forest harvesting method in Ontario and Canada, making up most FMP harvest volumes at 88% and 85%, respectively.[363] It is relied upon and considered by the industry to replicate natural processes like forest fires, allowing for new growth. Forest fires are integral to boreal forest health, through their ability to help "alter light, moisture and nutrient conditions, increase habitat complexity, and create stands of varying age including areas of early successional forest".[364] However, researchers are increasingly identifying that the suppression of fires natural processes and the simultaneous forest harvesting practices creates a "non-natural disturbance regime".[365] Clearcutting practices have been identified to have differing moth species assemblages and a lower bird species diversity when compared to burned forest stands.[366] Further research is needed, however clearcutting entails significant risks.

Forest harvesting practices can affect water and mercury dynamics in the forests, potentially resulting in mercury transportation which can entail cascading impacts, becoming a more bioavailable methylmercury, with "greater bioaccumulation in stream biota and its subsequent biomagnification in the food web".[367] Forest practices entail a degree of "heavy machinery and the removal of vegetation compacts forest soils, reducing water permeability and increasing soil erosion and the run-off of nutrients", which can impact nearby streams.[368] Other soil disturbances, including water pooling, can become significant sources of contamination.[369] The extent and approach to forest extraction directly increases the potential for mercury transmission, through

[361] *Supra* note 150, at pp. 2, [*So et al, 2024*].
[362] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (natural disturbance*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>; see also, David Suzuki Foundation, Nature Canada, Nature Quebec, Natural Resources Defense Council, Ontario Nature, Sierra Club BC, Sierra Club Canada, Wilderness Committee, "Accountability… or Advertising? A Critical Review of Canada's State of the Forests Report", (2025), at p. 21; see also, *supra* note 336, [*Malcolm et al, 2025*].
[363] *Ibid*; see also, Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (natural disturbance*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>; see also, Government of Canada, Clearcutting in the forest, (*Natural Resources Canada*), online: <https://natural-resources.canada.ca/maps-tools-publications/satellite-elevation-air-photos/clearcutting-forest>
[364] Farrell, C., et al., "Assessing the relative use of clearcuts, burned stands, and wetlands as breeding habitat for two declining aerial insectivores in the boreal forest", (2017, *Forest Ecology and Management*), 386, at p. 62.
[365] *Ibid*.
[366] *Ibid*, at pp. 62-63.
[367] Lajoie, C., et al., "Temporal and regional effects of forest harvesting on mercury bioaccumulation and biomagnification in boreal stream food webs", (2025, *Environmental Research*), 287, pp. 1-14.
[368] *Ibid*, at p. 1.
[369] *Ibid*.

increased input potentials, "mobilized via runoff and erosion".[370] Harvesting impacts hydrological processes through the alteration of root-zone storage capacity, and clearcutting in particular increases water catchment through 'quick flow' events, which continue beyond harvest and "for the entire postharvest period and the first 9-year postharvest".[371] Natural resources managers have implemented mitigation approaches, including "wider buffer zones, avoiding crossing streams with machinery, and reducing harvesting intensity"; however, "management practices do vary depending on the site".[372] Specific forest site contexts can impact the forests vulnerabilities to these impacts, and require significant assessments, which consider downstream impacts, watersheds, and improvements in the mapping and planning to address small steams.[373] Clearcutting approaches to harvesting have been shown to increase mercury loads and discharge risks through the "increase in available hillslope soil water during and post-harvest".[374] It is a practice which must entail significant degrees of mitigation. Clearcutting aims to replace or simulate forest fires, but they cannot provide for a release of mercury accumulation to clean soils and prevent water contamination, like natural fires.[375]

Thus, forestry harvesting and replanting practices have been identified to lead to long-term shifts in forests natural mosaic of mixed wood to more planted coniferous stands. Further, clearcutting practices in particular shift the forest structure and require foresters to address the "fast-growing broadleaf plants [which] often take over a site, potentially impeding the rate of growth of conifer species for future harvests", which requires management responses, primarily through glyphosate.[376] Glyphosate "can persist in forest ecosystems far longer than previously believed. It can remain in shoots and roots for up to 12 years and in plants like blueberries and raspberries for up to three years, posing a potential risk to humans and animals",[377] which have impacts that harms people, pollinators, and ecosystems.[378] These impacts are particularly pronounced for Indigenous communities with a direct connection to the forests, where the directive force of

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[370] *Ibid*; see also, Lam, W., et al., "Mercury concentrations and export from small central Canadian boreal forest catchments before, during, and after forest harvest", (2024, *Science of the Total Environment*), 912, pp. 1-11, [*Lam et al, 2024*].
[371] Buttle, J., et al., "Quickflow response to forest harvesting and recovery in a northern hardwood forest landscape", (2019, *Hydrological Processes*), at p. 48
[372] *Ibid*, at p. 12. **Note**: minimum buffer of 30m in Ontario, Canada
[373] *Supra* note 370, [*Lam et al, 2024*].
[374] *Ibid,* at p. 8.
[375] Canadian Environmental Law Association, *Media Release: Grassy Narrows sues Ontario over mercury health threat from clearcut logging*, (2015), online: <https://cela.ca/grassy-narrows-sues-ontario-over-mercury-health-threat-from-clearcut-logging/>
[376] David Suzuki Foundation, Nature Canada, Nature Quebec, Natural Resources Defense Council, Ontario Nature, Sierra Club BC, Sierra Club Canada, Wilderness Committee, "Accountability… or Advertising? A Critical Review of Canada's State of the Forests Report", (2025), at p. 21.
[377] *Ibid*.
[378] *Ibid*, at p. 21, citing: International Agency for Research on Cancer, *Monograph on Glyphosate,* (2018), https://www.iarc.who.int/featured-news/media-centre_iarc-news-glyphosate/; see also, Farina, W., et al., "Effects of the herbicide glyphosate on honey bee sensory and cognitive abilities: Individual impairments with implications for the hive", (2019, *Insects*), 10:10, 354.

forestry management prioritizes economic models at the expense of Indigenous sovereignty. These practices have had significant impacts on Indigenous nations and communities in proximity to forest industry, impacting food gathering and cultural practices.[379] Anishinaabe anti-clearcutting activism has an ongoing history in Ontario,[380] and mercury poisoning impacts have had generational impacts on Indigenous communities throughout Ontario.[381]

After the harvesting of forestry resources, a comprehensive monitoring and assessment process must consider the management decision impacts, as they are actualized on the forestry, mainly measured through indicators. These "indicators of forest condition (landscape pattern and compositional mosaic) and habitat (for a broad range of forest birds) reveal what directional changes in the forest pattern and compositional mosaic are required to improve ecological similarity with natural systems".[382] Indicators should include specific species based on their relationships with ecosystems, serving as 'ecological engineers' who have an impact on the forests resilience and processes.[383] The forests 'productivity', or "rate of accumulation of organic material" can assist in the identification of forest resilience through its capacity to provide ecosystem services including carbon sequestration throughout the forests life cycle.[384] However, these approaches must consider the lacking resilience of young forests with limited ecosystem connectivity, when compared to old-growth forests with a high degree of ecosystem integrity.[385]

Replanting processes often simplify the complexities and overlapping nature of forests, have competing interests or processes, and are often vague decisions, thereby reducing biodiversity resulting in forestry practices with a proclivity for "reforestation to well-stocked, even aged conifer plantations", which are less resilient compared to natural forests.[386] Ontario SFM processes can aim to implement nature-based solutions through process which simulate natural forest disturbances, further protecting and relying on their regenerative processes and ecosystems services.[387] However, this approach necessitates conserving the forests resilience and integrity

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[379] *Ibid*, pp. 20-21; see also, Syed, F., "Logging in Ontario's boreal forest is 'far in excess of what's sustainable,' study finds*"(*2025*, Narwhal),* online: <https://thenarwhal.ca/ontario-forest-management-study/>

[380] Willow, A., "Strong Hearts, Native Lands: The Cultural and Political Landscape of Anishinaabe Anti-Clearcutting Activism", (2008, *University of Wisconsin-Madison*), pp. 1-416, [*Willow, 2008*].

[381] Canadian Environmental Law Association, Media Release: Grassy Narrows sues Ontario over mercury health threat from clearcut logging, (2015), online: <https://cela.ca/grassy-narrows-sues-ontario-over-mercury-health-threat-from-clearcut-logging/>

[382] *Supra* note 188, at p. 868, [*Rempel et al, 2016*].

[383] *Supra* note 110, at p. 428 [*Stanturf, 2025*].

[384] Auditor General of Ontario, "The State of the Environment in Ontario", (2023), at p. 72.

[385] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 19, [*Quinby et al, 2022*].

[386] David Suzuki Foundation, Nature Canada, Nature Quebec, Natural Resources Defense Council, Ontario Nature, Sierra Club BC, Sierra Club Canada, Wilderness Committee, "Accountability… or Advertising? A Critical Review of Canada's State of the Forests Report", (2025), at p. 24.

[387] Government of Canada, *Nature-based climate solutions*; (2025), online: <https://www.canada.ca/en/services/environment/our-environment/nature-based-climate-solutions.html> see also, *supra* note 176, [*Chausson et al, 2020*].

to regenerate, especially under climate changes uncertainties.[388] Thus, nature-based solutions should prioritize conservation and environmental justice.

3.1.2. Vulnerability & Adaptability in Natural Resource Management

Governments and international agencies are recognizing and assessing community specific climate V&As to address environmental and social harms through mitigation and adaptation measures.[389] These approaches are effective at enabling policy makers to understand the increasing impacts of climate change which are having an intensified effect on marginalized communities due to systemic failures and limited resources. These sustained inequities also create community risks and vulnerabilities to climate disasters and emergencies, with limited resources to mitigate and respond, which are increasing due to climate change and the corresponding extreme weather events.[390] Natural resource management can incorporate V&A considerations to understand the "systemic, synergistic, cascading or compounding health effects from climate change […] to prepare for potentially severe, or catastrophic events".[391] These approaches have expanded policy makers capacity to identify and manage risks, hazards, exposures, and vulnerabilities in social and ecological systems.[392] These V&A assessments initially scan policy and research materials for impacts and vulnerabilities associated with climate change, to analyze and develop a deeper institutional awareness. This is intended to develop an interjurisdictional and interdisciplinary approach which aims to manage environmental impacts, cognizant of climate change and the increased uncertainty and extreme weather events.[393]

Vulnerabilities can be understood to extend social and environmental realities, emerging from changing climate realities with embedded and embodied risks from historical processes.[394] Vulnerability analysis recognizes the "interdependence and complexities of ecological vulnerability", which are universal, yet they are exacerbated from social processes and "influenced by the distribution of power and material resources in society".[395] This process "prioritizes the values of relationality and interdependence" to implement ecological

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[388] *Supra* note 8, [*Watson et al, 2018*]; see also, *supra* note 19, [*Quinby et al, 2022*].
[389] Pörtner, H., et al., "IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change", (*Cambridge University Press*), [*Pörtner et al, 2022*]; see also, Health Canada, "Climate Change and Health Vulnerability and Adaptation Assessments: A Knowledge To Action Resource Guide", (2020), online: <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/healthadapt-report-eng.pdf>; see also, World Health Organization, "Climate change and health vulnerability and adaptation assessment" (2021, WHO & Government of Canada). Geneva: World Health Organization, online: <https://iris.who.int/bitstream/handle/10665/345968/9789240036383-eng.pdf?sequence=1>
[390] *Supra* note 22, at p. 13, [*Berry et al, 2018*].
[391] *Ibid.*
[392] *Supra* note 389, [*Pörtner et al, 2022*].
[393] *Ibid*, at p. 15.
[394] *Supra* note 22, [*Dobbelsteyn, 2024*].
[395] *Ibid*, at pp. 10; 12.

responsibilities throughout environmental and social relationships, which require the creation of "institutions and relationships necessary for distributing resilience-conferring resources", to monitor their implementation, and to ameliorate ecological and social inequities.[396] Vulnerability analysis and ecological law is therefore a complex process which must consider intersectionality throughout its processes, while ensuring it is critical of systemic injustices and the "discursive construction of socio-materiality".[397] These considerations must be commitments to ensure it does not rely on universalized language or understandings of complex socio-political realities. Environmental vulnerabilities and harms from environmental disasters continue to be "disproportionately suffered by communities that are already marginalized", especially Indigenous communities. Traditional emergency management fails to recognize vulnerability assessments, which exacerbates the vulnerability.[398]

Mitigation relates to minimizing forestry impacts from resource production and extraction. For forests, this directly refers to the "measures or actions that reduce the release of carbon from forest carbon stocks" and to protect ecosystem services and functions.[399] Scholars have identified mitigation approaches to apply throughout the forestry process, including the planning phase to ensure sufficient harvesting strategies and risk averse practices where able.[400] Sustained mitigation approaches compromises adaptability capacities, as it primarily facilitates sustained extraction. Forestry practices have produced vulnerabilities through the extraction and degradation of forests, which have produced climate change and necessitated mitigation approaches, and more importantly adaptation processes.[401]

Adaptation strategies aim to recognize and proactively prepare for climate change and its impacts, and can emerge from "adjustments in natural or human systems".[402] This can include the "the reduction of atmospheric pollutants, the reduction of forest landscape fragmentation due to land use (including coordination of road construction and other associated infrastructures by the forestry, energy, and mining sectors), and protection against nonnative pests and plant species through port-of-entry surveillance and control measures".[403] Adaptive management entails sufficient research through monitoring and evaluation, providing a framework to identify

[396] *Ibid*, at pp. 13-14.
[397] *Ibid*, at p. 16.
[398] *Supra* note 251, at p. 865, [*Stacey, 2018].*
[399] *Supra* note 32 [*Williamson & Nelson, 2017*].
[400] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 150, [*So et al, 2024*]; see also, *supra* note 176, [*Chausson et al, 2020*]; see also, *supra* note 221, at p. 408, [*Thiffault, 2025*].
[401] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 8, [*Halofsky et al, 2018*]; see also, *supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 336, [*Malcolm et al, 2025*]; see also, *supra* note 31, [*Kotzé, 2019*].
[402] *Supra* note 32 [*Williamson & Nelson, 2017*].
[403] *Supra* note 8, at p. 267 [*Gauthier, et al, 2014*].

knowledge gaps, and to implement responses to changing ecosystems through a cyclical process.[404]

Specific adaptation processes identified for forestry processes in Canada have detailed the need to design an iterative process which incorporates key concepts including "establishing a science-management partnership; evaluating current forest conditions and management objectives; conducting detailed science-based vulnerability assessments; developing adaptation approaches and on-the-ground tactics; implementing adaptation tactics; and monitoring outcomes and adjusting as needed".[405] Scholars have detailed that these approaches must be cognisant of broader climate change impacts. This requires an appropriate analysis into the multiple co-occurring changes, from forest management effects including "changes in forest health, regeneration success, growth and productivity, distribution and composition of species, forest structure, and age-class distribution", and implications for forest management goals must include outcomes related to "biodiversity, ecosystem health, carbon, timber supply, non-timber goods and services, habitat, outdoor recreation, conservation, public safety, and social and cultural values".[406]

Mitigation approaches have failed to prevent climate change, while adaptation capacities are significantly impeded from lacking collaborated government, scientific, and community capacities. The poly-crisis facing humanity from climate change and extractivism now requires more transformational changes, as well as community preparedness. However, these V&A tools often fall short of community approaches to decision making, Indigenous sovereignty, and the transformational change required to build community resilience. As such, this research will also rely on a critical approach to incorporate these methodological tools of assessment with a deeper theoretical analysis and community focused praxis.

3.2. Polycentric Governance

The evaluative framework will examine the FMPs capacity to produce polycentric governance, through recognized Indigenous jurisdiction and forested community engagement. This approach evaluates the representation, inclusive and meaningful participation, and

[404] Argent, R., "Components of Adaptive Management", Chapter 2 in Allan, C., et al., "Adaptive Environmental Management: A Practitioner's Guide", (2009, *Springer*), pp. 11-32.
[405] *Supra* note 8, at p. 84, [*Halofsky et al, 2018*]; see also, Edwards, J.E., et al., "Climate change and sustainable forest management in Canada: a guidebook for assessing vulnerability and mainstreaming adaptation into decision making", (2015, *Canadian Council of Forest Ministers, Climate Change Task Force*). **Note**: This source provides six specific criteria which are elaborated in more detail and relevant to the methodology.
[406] *Ibid*, at p. 85.

empowerment of local communities,[407] and considers reconciliation through recognizing Anishinaabe jurisdiction.[408] This approach recognizes the spectrum of Indigenous and community decision-making authority, which will be evaluated by engagement processes and recognized authorities.

3.2.1. Anishinaabe Law & Enhanced Indigenous Jurisdiction

Indigenous authorities must be recognized through their jurisdictions which are related to unceded lands, treaty, and inherent rights to self-governance.[409] These jurisdictions are recognized through IKS, Indigenous jurisdiction over land, the full and effective participation of Indigenous Peoples, and Indigenous Peoples as rights-holders.[410] This approach will examine how FMPs are implementing broader principles and mechanisms of Indigenous rights to self-governance, implementing co-management approaches, providing consultation processes, and identifying values throughout the natural management process. This will recognize how reconciliation exists through land-back and self-government agreements, while also recognizing how it exists through capacity building and recognition to a lesser extent with co-management regimes and engagement processes. These considerations must be particularly sensitive to the settler-colonial legal systems capacity to reproduce constitutional capture. The FMPs capacity to recognize Indigenous jurisdiction will be explored to evaluate their capacity to recognize Anishinaabe jurisdiction, evaluated on a spectrum.

Environmental justice research is increasingly being led by Indigenous advocates, to incorporate IKS, recognizing their jurisdiction over land, implementing processes which entail the full and effective participation of Indigenous peoples, and respecting Indigenous peoples as rights-holders.[411] Anishinaabe knowledge has had considerable developments in forestry management, however Indigenous peoples and governments are inequitably represented in the land, forest, and conservation planning processes.[412] Despite this lacking representation, surveyed land studies have identified that Indigenous territories and jurisdictions throughout Canada have comparable biodiversity outcomes, notably concentrations of vertebrate species, to large scale conservation and protected areas.[413] Anishinaabe nations and jurisdictions are advancing

[407] *Supra* note 324, [*Teitelbaum, 2016b*].
[408] *Supra* note 15, [*McGregor, 2018a*]; see also, *supra* note 15, [*McGregor, 2019*]; see also, Ma'iingan/Mills, W/A., *"Aki, Anishinaabek, kaye tahsh Crown",* (2010, *Indigenous Law Journal*), 9:1, pp.109-166, [*Ma'iingan/Mills, 2010*].
[409] *Ibid*.
[410] *Supra* note 19, [*Reed et al, 2022*]
[411] *Ibid*, at p. 514; see also, Scott, D., & Boisselle, A., "If There Can Only Be 'One Law', It Must Be Treaty Law: Learning from Kanawayandan D'Aaki", (2019, *University of New Brunswick Law Journal*), 70: 230, pp. 1-43.
[412] *Supra* note, at p. 223, [*Maxwell, et al, 2020*].
[413] *Ibid*, [*Maxwell, et al, 2020*].

Indigenous resurgence through a variety of grassroot practices which have meaningful and measurable impacts on environmental indicators.[414]

IKS and Anishinaabe leadership have continued to advocate for approaches in environmental stewardship, which problematize the notion of natural resource management to instead formulate a holistic, relational, and sustainable approach which recognizes the life-providing services of the land.[415] Broader Indigenous legal developments in Ontario, specifically entailing self-government agreements and interjurisdictional co-management, identify their capacity to empower First Nation governments to have authorities over decision-making processes and natural resource regulation, through respected Indigenous jurisdictions.

Anishinaabe law has identified the holistic importance of relationships within society and the natural world, to provide reciprocal relationships which entail sustainable outcomes.[416] This emerges from the Anishinaabe teachings which recognize that "[h]umans are not dominant over the natural world", rather we are the "last in the order of creation, least in the order of dependence, and weakest in bodily powers".[417] This concept is essential to Anishinaabe law and contrasts with the colonial approach, which has manifested in unsustainable approaches to natural resource management.[418] Anishinaabe harvesting principles are "regulated by families working within Anishinaabeg governance systems" in a deeper constitutional order.[419] These processes can be understood as a "relational jurisdiction with the lands, water, and beings".[420] While historical treaty processes have been used to exert colonial governance, the "treaty [processes] merely establishes a shared boundary; it does not relinquish one party's constitutional basis for governing itself in shared territory" and can "call into question Canada's presumed sovereignty over Indigenous territories".[421] These deeper constitutional commitments necessitate respected Indigenous sovereignty and its operationalization through jurisdictional authorities.

Principles related to natural resource developments and their abilities to meaningfully engage Indigenous communities relate to their capacities to uphold "public land values [which] are

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[414] *Supra* note 15, [*McGregor, 2018a*]; see also, *supra* note 15, [*McGregor, 2019*]; see also, *supra* note 408, [*Ma'iingan/Mills, 2010*].
[415] *Supra* note 64, [*Potts, 1992*]; see also, *supra* note 315, [*Alcorn, 2005*]; see also, *supra* note 17, [*Kellert et al, 2000*]; see also, *supra* note 268, [*Nosek, 2017*].
[416] *Supra* note 57, [*Reed et al, 2024*].
[417] Mills, A., et, al., "An Anishinaabe Constitutional Order", in The Honourable Justice Patrick Smith, ed, Reconciliation in Canadian Courts: A Guide for Judges to Aboriginal and Indigenous Law, Context and Practice (*2017, Ottawa: National Judicial Institute*), at p. 7; citing: Basil, J., "The Vision of Kitche Manitou" in Basil Johnston, Ojibway Heritage: The Ceremonies, Rituals, Songs, Dances, Prayers and Legends of the Ojibway (*1976, Toronto: McClelland and Stewart*) 11.
[418] *Supra* note 57, [*Reed et al, 2024*; see also, *supra* note 64, [*Potts, 1992*].; see also, *supra* note 300, [*Pasternak & Scott, 2020*].
[419] Lee, D., "'Because our law is our law': Considering Anishinaabe Citizenship Orders through Adoption Narratives at Fort William First Nation", (2017, *University of Manitoba*), at p. 184, [*Lee, 2017*].
[420] Sy, C., "Following ininaahtigoog Home: Anishinaabeg Womxn iskigamiziganing", (2019, *Trent University*), at p. 9, [*Sy, 2019*]. **Note**: see also "The Tale of Making Maple Syrup" for a deeper understanding of these jurisidictional and relational processes.
[421] Supra note 419, [*Lee, 2017*].

managed for the benefit of the public", ensuring that "[e]conomic, environmental and social needs and opportunities are identified and supported" which requires recognizing First Nation communities. Decisions should be timely, well-considered and transparent to ensure relational accountability.[422] These values are implemented and evaluated by the FMPs capacity to recognize treaty rights and uphold consultation and engagement processes. Further, these processes should aim to recognize Indigenous jurisdiction, implement co-management agreements, and develop community capacity in the community's interests.[423]

Scholars have identified the importance of incorporating gender analysis into natural resource management dynamics, to examine land and water alienation, particularly targeting and disempowering Indigenous women, transgender, queer, and two-spirit people.[424] These approaches allow for an evaluative lens which explores whether industries recognize the historical inequities throughout natural resource management and extraction. Indigenous women have experienced harms from these processes, through economic exclusion and industrial contamination which has a particularly pronounced impact on women and fertility, and direct harms predominantly from settler-colonialism and its perpetuation of hyper-masculinity, patriarchy, and misogyny.[425] Anishinaabe law and jurisdiction recognizes the importance of Anishinaabeg women and their economic sovereignty, and "ability to generate knowledge of the harvest, and develop social capacity to carry it out", which relates to relational jurisdictions.[426] This relates to how "Indigenous women's knowledge that is uniquely situated in culture, history, resource practices, and oral traditions that shape knowledge production", which requires respect and meaningful inclusion in decision-making positions of authority.[427] This requires facilitating a meaningful exchange and dialogue, the revitalization of Indigenous women's responsibility to engage in governance, and the pluralized norms throughout resource governance.[428] Forestry practices should be cognisant of these considerations, and their historical and systemic exclusion.

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[422] Adkins, S., Jamieson, L., Oleniuk, T., Spencer, S., "UNDRIP as a Framework for Reconciliation in Canada: Challenges and Opportunities for Major Energy and Natural Resources Projects" (2020, *ALR*).
[423] *Supra* note 8, [*Halofsky et al, 2018*]
[424] *Supra* note 292, at p. 10, [*Pasternak & King, 2019*].
[425] Deonandan, K., and Bell, C., "Discipline and Punish: Gendered Dimensions of Violence in Extractive Development", (2019, *Canadian Journal of Women and the Law*), 31:1, pp. 24-57 [*Deonandan & Bell, 2019*]; see also, *supra* note 21, [*LaDuke & Cowen, 2020*].
[426] *Supra* note 420, at p. 246, [*Sy, 2019*].
[427] Hania, P., & Graben, S., "Stories and the Participation of Indigenous Women in Natural Resource Governance", (2020, Canadian Journal of Women and the Law), 32:2, at pp. 332-333, [*Hania & Graben, 2020*].
[428] *Ibid*. **Note**: This can be achieved through a variety of regulatory mechanism, including gender quotas for management and governance positions, "presenting knowledge through a story takes decision-making away from an administrative risk management model and moves it towards a social-ecological-cultural method that ensures diverse participation in resource planning"; and facilitating and supporting the mobilization of Indigenous feminist scholars, organizations, and agencies, at pp. 335-339.

Indigenous jurisdiction relates to the "assertions of inherent Indigenous territorial governing authority",[429] and must entail a rights-based approach which results in restitution and repatriation, respecting Indigenous power over lands and resources.[430] In natural resource management, there must be "formal protocols for providing consent" and "formal permitting system[s] once consent has been provided" which recognize specific and local Anishinaabe law. Further evaluative criteria should examine Anishnaabe community's authorities in the boreal forests to determine their perspectives and rulings on dimensions of landscape values and their abundance, quality, access, and experience.[431] This incorporates local expertise, scientific forestry modeling, advanced local monitoring, and cumulative impact assessments to produce sustainable conservation and resource management outcomes. These approaches have substantial outcomes in restorative justice and sustainability, accentuating the need for more holistic processes in forestry, recognizing timber productions inherent extraction and exploring the need for adaptation strategies in "reducing timber harvesting rates, implementing wildfire-prevention measures, and valuing alternative forest uses".[432]

Researchers analyzing the connectivity with Indigenous rights and sustainability have continued to identify the importance of establishing a system of reciprocal relationships. Colonialism has led to a "displacement of power that led to a diminished reliance on Indigenous systems as a basis for a better relationship with the land",[433] marginalizing Indigenous perspectives and laws. Thus, a transformative nature-based orientation must "invest in the revitalization of Indigenous knowledge systems", establishing reciprocal relationships which are built on reconciliation and Indigenous self-governance, operationalized through recognized jurisdiction and their respective decision-making authorities, co-management, and the co-production of knowledge.[434] Thus, a restorative justice lens is essential to reconcile historical inequities and produce more sustainable practices.

3.2.2. Community Engagement & Monitoring

The indicators to monitor the quality and quantity of community-based natural resource management relates to the degree of "equity, empowerment, conflict resolution, knowledge and awareness, biodiversity protection, and sustainable resource utilization" throughout the

[429] Scott, D., "Critical Approaches to Jurisdiction: The Struggle for Control of Indigenous Lands and Resources", Chapter A-3 in McGill, J et al., "Critical conversations in Canadian public law", (2025, *University of Ottawa Press*), at p. 63.
[430] *Supra* note 292, [*Pasternak & King, 2019*].
[431] Bélisle, A., et al., "Indigenous knowledge, forest landscape modeling, and the cumulative effects of environmental changes", (2025, *Ecological Applications*), 35.
[432] *Ibid*, at p. 2.
[433] Supra note 57, at p. 32 [*Reed et al, 2024*].
[434] *Ibid*.

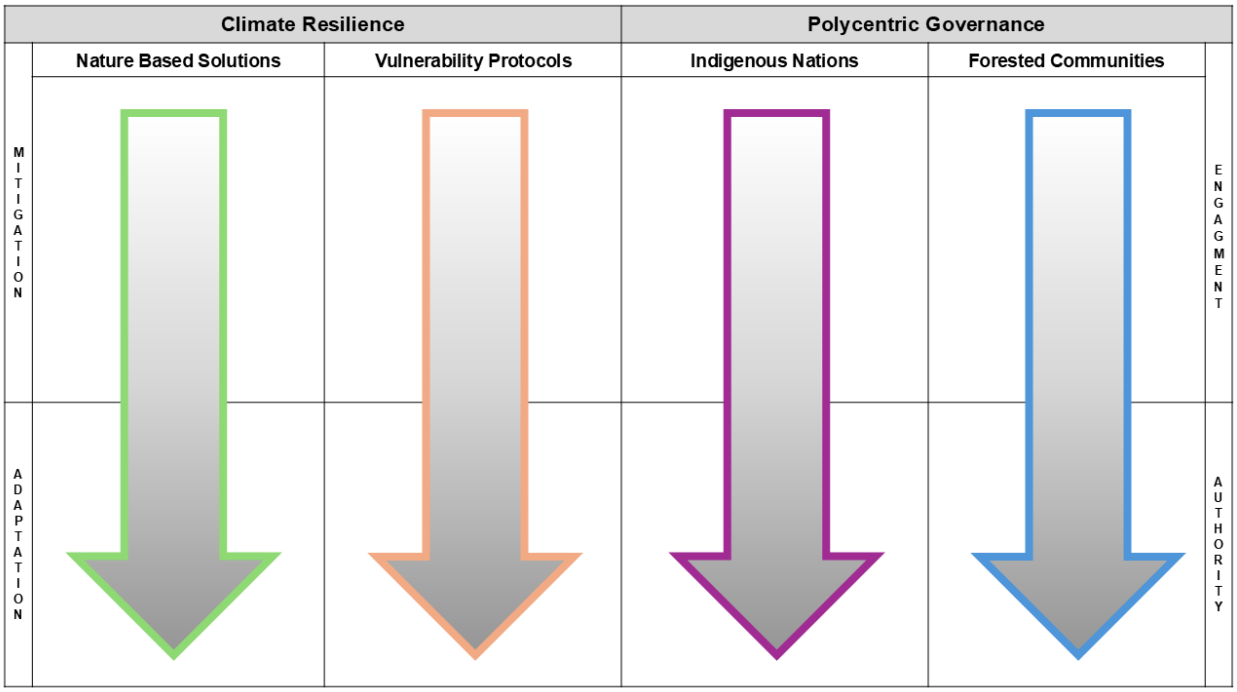
process.[435] These indicators can be operationalized through a variety of forestry management practices, including “community wildlife management, cooperative or co-management, buffer zone management, participatory multipurpose community projects, [and] communal area management for Indigenous resources”.[436]

Specific considerations to examine forestry management and its capacity to involve the community relates to its ability to meaningfully engage stakeholders and local leadership to develop commitment, trust, and accountability; regular communication channels with an emphasis on accountability; scheduling goals and objectives which recognize limitations such as funding and capacity; and its ability to focus on “sustainable resource management as the end goal, acknowledging the many climate-smart activities that are already in practice”.[437] This requires procedural justice levers throughout the natural resource management process, evaluating how they operate through policy and regulatory levers. Researchers have identified effective community processes to emerge through specific contexts with a scalar fit in communities, developing free, prior, and informed consent, integrating local knowledge systems, and providing adaptable and flexible processes.[438] These are key components of incorporating those affected into the decision-making process as an equitable human right, which promotes management legitimacy and fosters compliance.[439] These polycentric forms of governance recognize community agency, through communication streams which are receptive to community interests, needs, and priorities which entail community involvement and decision-making authority.[440]

Overall, this approach aims to evaluate the FMPs capacity to establish increased regulation and assessment processes, through the mobilization of community values, recognition of governance contexts, and accountable engagement pathways and its capacity to integrate the community through a disbursement of forestry planning, authorizations, monitoring, and evaluation processes.[441]

[435] *Supra* note 17, at p. 705, [*Kellert et al, 2000*].
[436] *Ibid*, at pp. 705-706.
[437] *Supra* note 8, at p. 95, [*Halofsky et al, 2018*].
[438] Ruano-Chamorro, C., et al., “Advancing procedural justice in conservation”, (2021, *Conservation Letters*), 15, at p. 6
[439] *Ibid*, at p. 1.
[440] *Ibid*.
[441] *Supra* note 317, [*Vall-Casas, 2024*]

3.3. Forestry Management Evaluative Matrix



Section 4. Ontario Forestry Management

This section offers a critical overview of the settler-colonial and exploitative processes which have enabled contemporary approaches to natural resource management. This foundation sets the stage to consider whether modern approaches to SFM are improvements towards environmental and social adaptation practices; or, rather, whether they maintain fundamental extractivist logics which are eroding their effectiveness and forest resilience with degrading mitigative measures.

Contemporary Canadian forestry law, policy, and regulation emerged from colonial legacies of extraction and Indigenous oppression, which are still embedded within these systems. Early settler-colonialists relied on industry as a means of expanding 'civilization', seeing the land as a replenishing resource without limits.[442] This colonial resource extraction resulted in rapid

[442] Charlton, G., "Deforestation and Opposition to Scientific Forest Management in 19th-Century Australia, Canada, New Zealand and the United States: Lessons for the Climate Change Debate" (2021, *New Zealand Journal of Environmental Law*), 25, at p. 119, [*Charlton, 2021*].

deforestation,[443] wetland loss,[444] environmental degradation and Indigenous dispossession and disenfranchisement.[445] Colonial sentiments towards the environment and forests originated as understanding it as an impediment to civilization, associating nature with 'barbarism' and 'waste'.[446] Deforestation allowed for land change to facilitate colonial settlement and pastoralism, while providing timber resources for economic development.[447] Environmental, social, and economic degradation developed quickly, limiting crop production, decreasing water retention, and exacerbating extreme heat and cold.

The environment was being destroyed at an alarming rate which brought existential concerns and shifts in the approach to natural resource management starting around 1883.[448] Environmental management approaches were developed to establish various conservation zones through the *Public Lands Act*,[449] and the use of 'Crown land'.[450] These changes in forestry management offered improvements; however, "it was evident that various areas were not amenable to agricultural production and settlement after the cutover".[451] Subsequent developments after roughly 1898 established further preventions for deforestation and offered mitigation approaches against drastic climate change. Core aspects of our Canadian forestry processes emerged throughout these phases, such as conservation zones, land use planning, protection from deforestation, and reforestation and afforestation projects.[452]

Ontario forestry developments can be broadly distinguished into three historical developments. Initially, Canadian forestry management focused only on economically generative processes and promoted revenue maximization. The *1883 Tree Planting Act of Ontario,*[453] acted as a considerable development for initial regeneration, but came alongside other regulations focused on timber production.[454] Developments in Ontario forestry legislation shifted with *The Forest*

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[443] *Ibid*, at p. 124; see also, Office of the Auditor General of Ontario, "The State of the Environment in Ontario", (2023). **Note**: "over the past two centuries, southern Ontario went from being almost continuously covered in forests to having only about 25% forest cover today", at p. 12.
[444] Office of the Auditor General of Ontario, "The State of the Environment in Ontario", (2023), at p. 6. **Note**: Nearly 75 percent of all wetlands in Southern Ontario have been lost since settler-colonialization. Currently, roughly 97% of Ontario's wetlands are in the North.
[445] *Supra* note 21, [*LaDuke & Cowen, 2020]*, at p. 244; see also: *supra* note 3, [*Pasternak, et al, 2023*].
[446] *Supra* note 442, p. 121, [*Charlton, 2021*].
[447] *Ibid*, at p. 122.
[448] *Ontario Tree Planting Act*, 1883, S.O., 1883, c. 26; see also, Ross, M., "A History of Forest Legislation in Canada 1867-1996", (1997, *Canadian Institute of Resources Law*), CIRL Occasional Paper #2, pp. 34-36, [*Ross, 1997*].
[449] *Public Lands Act*, R.S.O. 1990, c. P.43.
[450] **Note**: While this paper will use the term 'Crown land' in evaluative and referential terms, there must be recognition that it exists as a failed erasure which the term presents to Indigenous laws and governance; see also, *supra* note 300, at pp. 205-213, [*Pasternak & Scott, 2020*].
[451] *Supra* note 442, p. 125, [*Charlton, 2021*].
[452] *Supra* note 13, [*Winfield & Benevides, 2003*]; see also, *supra* note 448, [*Ross, 1997*].
[453] *Ontario Tree Planting Act*, 1883, S.O., 1883, c. 26.
[454] *Supra* note 442, p. 124, [*Charlton, 2021*]; see also Government of Ontario, "Afforestation Guide for Southern Ontario" (2019, *Ministry of Natural Resources and Forestry*), pp. 1-320, online: <https://files.ontario.ca/ndmnrf-afforestation-guide-for-southern-ontario-en-2022-01-06.pdf>.

Reserve Act of 1898,[455] placing complete forestry management authority with the Ontario government, through the establishment of public lands to begin conserving forests to prevent overharvesting.[456] This led to forest industrialists and the government to focus on economically viable timber, being the largest and most developed forests and trees, which are also seed bearing. Subsequently, out of fear of overharvesting and destroying the forests' regenerative capacities, the government implemented a 'sustained yield' approach.[457] The *Forest Management Act of 1947*,[458] was implemented as a response from federal concerns over failing sustainable Ontario forestry regulation and outcomes, establishing provincial requirements for industrialists to provide on their planning and itemization reports.[459]

These subsequent developments led Ontario to introduce the *Crown Timber Act,*[460] and its amendments in 1963, emphasizing extraction with some minimal refinement on industrialist requirements.[461] The Class Environmental Assessment of Timber Management on Crown Lands in Ontario was of public concern throughout the late 1980-90s, outlining the need for further regulation and monitoring. Similarly, the federal government implemented a nationwide Model Forest Program in 1992.[462] The Canadian Council of Forest Ministers introduced the present goal, of SFM, to "maintain and enhance the long-term health of our forest ecosystems for the benefit of all living things, both nationally and globally, while providing environmental, economic, social, and cultural opportunities for the benefit of present and future generations".[463] The SFM approach is intended to produce beneficial ecological and social practices through the training and encouragement of private corporate compliance for sustainable timber management practices.

The SFM approach exists throughout the international forestry market and was implemented in Canada to offer some standardized ecological considerations and outcomes.[464] These developments began deeper considerations into climate changes impact of forests and adaptive capacities to mitigate those changes. These developments included management criteria which recommended conservation and biological diversity, the maintenance and enhancement of forest ecosystem services, global ecological factors, societal needs, and responsibilities for sustainable development.[465] These processes are mainly implemented in Canada through policy documents,

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[455] *The Forest Reserve Act of 1898, S.O., 1898, c. 10.*
[456] *Supra* note 13, [*Winfield & Benevides, 2003*]; see also, *supra* note 177 [*Pinto et al, 2008*].
[457] *Ibid.*
[458] *The Forest Management Act*, *1947, S.O., 1947, c. 38.*
[459] *Supra* note 13, [*Winfield & Benevides, 2003*].
[460] *The Crown Timber Act*, 1952, S.O., 1952, (1st Sess.), c. 15.
[461] *Supra* note 13, [*Winfield & Benevides, 2003*]; see also, *supra* note 448, [*Ross, 1997*].
[462] *Supra* note 13, [*Parkins et al, 2016*].
[463] *Ibid*, at p. 271.
[464] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 448, [*Ross, 1997*].
[465] *Supra* note 8, at p. 261, [*Gauthier, et al, 2014*].

which are not as enforced as legislative requirements, but rather recommendations and evaluation criteria. However, critics point out that these adaptive capacities are fundamentally reactive to climate change and are failing to provide sufficient planned resilience.[466]

The SMF process exists as a concept in both federal and provincial jurisdictions. Its implementation initially in 1947 and updates in 1979 shifted Ontario's forestry legislation, policy, regulatory frameworks, and assessment strategies.[467] These legislative systems finally developed through the Timber Management Class Environmental Assessment (1988-1994) and its final shift into the *CFSA* in 1994.[468] The *CFSA* introduced and implemented self-assessment requirements for forestry industrialists, which currently offers legislative instruction surrounding SFM in Ontario. This shifted the Forest Management Agreement process into a Sustainable Forest Licence (SFL) process, which was characterized as 'alternative service delivery arrangements' led by the private market.[469]

This began the establishment of forestry managing units, with regulatory requirements mainly downloaded through the self-regulation of foresters and coincided with a significant reduction in Ministry spending with budget cuts resulting in a 50% reduction in forestry management staffing.[470] It entailed compliance measurements and a stronger outline of roles and responsibilities for industry managers, where industry experts assisted more as policy advocates in identifying practices while performing their own inspections. This approach aimed to have more industry knowledge for economic and environmental considerations, ushering in transitions throughout the province's forestry industry with certification and self-regulation requirements, which exists as neoliberal processes entrenching regulative oversight gaps.[471] These neoliberal shifts and reductions in regulatory approaches are largely present today.

Government policy approaches to forestry management have shifted the natural biodiversity and ecosystem wellbeing vastly throughout Ontario, ultimately leading to its reduction and alteration.[472] While these historical developments in Ontario's legislation surrounding forestry management show significant yet incremental environmental and social improvements through mitigation, the underlying focus is still on resource extraction with underdeveloped sustainability

[466] *Ibid*.
[467] *Supra* note 448, at pp. 35-36, [*Ross, 1997*].
[468] *CFSA,* see also, *supra* note 13, at p. 4, [*Winfield & Benevides, 2003*]; see also, *supra* note 448, at pp. 35-36, [*Ross, 1997*].
[469] *Supra* note 13, at p. 4, [*Winfield & Benevides, 2003*].
[470] *Supra* note 13, [*Winfield & Benevides, 2003*]
[471] *Ibid*; see also, Auld, G. & Bull, G., "The institutional design of forest certification standards initiatives and its influence on the role of science: the case of forest genetic resources", (2003, *Journal of Environmental Management*), 69. pp. 47-62, [*Auld & Bull, 2003*].
[472] *Supra* note 11, [*Johnson & Ray, 2025*]; see also, *supra* note 442, [*Charlton, 2021*]; see also, Office of the Auditor General of Ontario, "The State of the Environment in Ontario", (2023), pp. 1-132.

obligations through disconnected policies and strategies.[473] This is problematic for social and ecological wellbeing, given Ontario's particularly sensitive forests, that play an integral role in international climate regulation and carbon sequestration.[474] This is especially true for FNO as it is comprised of sensitive ecosystems with peatmoss acting as substantial carbon deposits; watersheds and wetlands; home for native, migrating, and endangered species; and most importantly, 95% of it being 'unmanaged Crown land'.[475]

The definitions of 'Crown land' must be understood critically, as it represents an erasure of Indigenous law and governance, through a settler-colonial approach to rationalize Indigenous land dispossession. As critical scholars have argued, we need to recognize how "Canada's claim to exclusive territorial authority across all the lands and waters is a failed project", yet it continues to exist in "underlying assumptions of settler state legality", such as the default positioning of all land as belonging to or being owned by the Crown.[476] Further, the definition of 'productive forests' and its contrast with the FNO entails prescriptive colonial and capitalist ideals which further the underlying force of extraction, and its connectivity with broader ideological shifts which ascribe value to exploitation and fail to limit economic 'growth'.[477]

While boundaries can be drawn to establish ecological zones, they are not natural; rather, the forest is an interconnected and understudied system.[478] Although various developments have implemented some mitigative factors to the environmental destruction, the fundamental processes of resource extraction are ongoing.

4.1. Ontario Forestry Regulation

Ontario's forestry legislation and policies apply differently for private land,[479] public land,[480] conservation zones,[481] and Indigenous territories.[482] Ontario's forests are considerable, comprising 66% of the province, or "70.5 million hectares […] [which] represents about 2% of the world's forests and 20% of Canada's forests."[483] Most of these forests are considered Crown land,

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[473] *Supra* note 13, [*Winfield & Benevides, 2003*]; see also, *supra* note 442, [*Charlton, 2021*].
[474] *Supra* note 168, [*Gonsamo et al, 2017*]; see also, Ter-Mikaelian, M., et al., "Historical and future carbon stocks in forests of northern Ontario, Canada", (2021, *Carbon Balance Management*), 16:21. pp. 1-18, [*Ter-Mikaelian, et al, 2021*].
[475] *Ibid*, see also, Government of Ontario, "State of Ontario's Natural Resources", (*2021, Ministry of Northern Development, Mines, Natural Resources and Forestry*), at p. 5.
[476] *Ibid*.
[477] *Supra* note 3, [*Fraser, 2023*]; see also, Han, B., "Capitalism and the death drive", (2021, *Polity Press*), at p. 1.
[478] *Ibid*.
[479] *Forestry Act*, R.S.O. 1990, c. F.26.
[480] *CFSA*.
[481] Government of Ontario, "Ontario's parks and protected areas" (2024), online: <https://www.ontario.ca/page/ontarios-parks-and-protected-areas>
[482] *Haida Nation v. British Columbia* (Minister of Forests), 2004, 3 S.C.R. 511, SCC 73.
[483] Government of Ontario, *Forest Resources Inventory* (2022), online: <https://www.ontario.ca/page/forest-resources-inventory>; see also, Government of Ontario, "State of Ontario's Protected Areas Forest Ecosystems 2021", at p. 2.

which accounts for 77% of the province, while FNO is 95% Crown land.[484] Crown forested land is divided into various administrative zones which guide industrial developments. The Ontario government classifies the forestry in Ontario with administrative zones, which are detailed as:

> "*Northern Boreal* – all area north of the Managed Forest Zone (mostly Crown land and low productivity forests to tundra).
> *Managed forest Zone* – all area within the central portion of the province (Crown forests are sustainably managed within this zone).
> *Southern Ontario / Great Lakes* – all area south of the Managed Forest Zone including southern Ontario and the islands and water of the great lakes (little Crown forest but contains privately managed forest, dominated by agriculture and urban area) [*emphasis added*]".[485]

The managed forest zone, or the Area of Undertaking (AOU), accounts for 27.7 million hectares, with roughly 100,000 hectares harvested annually, producing $6.7 billion in exports.[486] Ontario Crown land resource production is managed by the Ministry of Natural Resources (MNR). Their forestry practices are assessed through submitted forester plans, which are reviewed in a Forest Resources Inventory report every 10 years, with the last report produced in 2021.[487] The *Public Lands Act*[488] is the general authority for the planning and management of Crown Land, in accordance with the Guide for Crown land use planning, which oversees the Crown land policies below the Far North boundary.[489]

The main source of authority for forestry management is the *Crown Forest Sustainability Act*,[490] which establishes the managed forest production zone for timber extraction, which is held by license holders and managed through a subsequent forest authority.[491] This regime is reliant on FMPs, which are authorized by the Ministry with legislative requirements and supported by policy documents with evaluation criteria and recommendations. Industry regulation emerges through the control of these FMPs and third-party FMP assessments, which implement market certifications, legislative requirements, policies, manuals, and handbook implementation processes. These foundational documents are implemented by the industry in the FMPs, allowing for a high degree of discretionary forestry practices and amount to a form of industry self-regulation through their completion and implementation. This industry relationship in turn informs

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[484] Government of Ontario, *Crown land management* (2024). online: https://www.ontario.ca/page/crown-land-management>
[485] *Ibid*; see also, Government of Ontario, *Interactive Tableau*, online: <https://public.tableau.com/app/profile/larlo/viz/TheForestResourcesofOntario2021/Landbase>
[486] Government of Ontario, "Sustainable Growth: Ontario's Forest Sector Strategy", (2020, *Ministry of Natural Resources*), at p. 8.
[487] Government of Ontario, "Forest Resources Inventory" (2022), online: <https://www.ontario.ca/page/forest-resources-inventory>; see also, Government of Ontario, "State of Ontario's Natural Resources", (2021).
[488] *Public Lands Act*, R.S.O. 1990, c. P.43.
[489] Government of Ontario, "Guide for Crown land use planning" (2024), online: <https://www.ontario.ca/document/guide-crown-land-use-planning>; see also, *Far North Act, 2010*, S.O. 2010, c. 18.
[490] *CFSA*.
[491] *Supra* note 13, [*Winfield & Benevides, 2003*].

the Ministry throughout its developments of the regulatory processes, primarily through industry engagement and the Ministries reliance on FMPs to understand Ontario's forests for further planning and management developments. The reliance on timber producers for creating FMPs has significant assessment limitations through this industry FMP creation and self-regulatory practice, which formulates the Ministries delayed understanding of the forests and produces oversight gaps.

4.1.1. The Crown Forest Sustainability Act

Ontario's legislative management of its forests is detailed in the *CFSA*, which oversees the industrial timber production for the Province's Crown land.[492] The *CFSA* details the MNR's authority and the industries requirements for accessing Crown land for timber production. The minister's role is considerable, detailing the authority to designate management units within forest ecosystems,[493] and approve FMP within those units.[494] FMPs must be certified by professional foresters,[495] and are evaluated in accordance with the "sustainability of the Crown forest, having regard to the plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values, of the Crown forest".[496] They must be adhered to and can be canceled or altered by the minister.[497] The minister also has the capacity to "make an exception if the term of the licence does not exceed one year and the total area covered by the licence does not exceed 25 hectares".[498] The FMPs are foundational documents for timber production and natural resource management, which must consider social and ecological factors and seek input from various public and private bodies, including:

> "ensur[ing] sustainability while finding a balance of social, economic and environmental values; are prepared by a registered professional forester with input from local citizens, Indigenous communities, stakeholders and the public; are prepared/approved for a 10-year period; determine how much/where harvesting can occur, where roads can be built and how much forest will be renewed; include opportunities for public involvement; Annual reports of management activities (size, volume of harvest, replanting, monitoring)".[499]

These reports instruct the foresters and government regulators to oversee production and development, evaluating its capacity to meet statutory requirements and policy recommendations.

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[492] *CFSA*, s. 1.
[493] *CFSA*, s. 7.
[494] *CFSA*, ss. 1; 8(2). **Note**: "forestry management plans shall be approved in regards to them satisfying the ministers classification of sustainability, in accordance with s. 9(2), being "the sustainability of the Crown forest, having regard to the plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values, of the Crown forest".
[495] *CFSA*, s. 8(3).
[496] *CFSA,* 9(2).
[497] *CFSA*, s. 41.1(1).
[498] *CFSA*, s. 29; see also, CED 4th, *Legislation—Ontario* at § 35 "Timber Summary", (2024).
[499] Government of Ontario, *Forest management planning*, online: <https://www.ontario.ca/page/forest-management-planning>

One such requirement, relates to the sustainability or the "long term Crown forest health".[500] The minister's guiding principles to determine FMPs level of sustainability include:

> "1. Large, healthy, diverse and productive Crown forests and their associated ecological processes and biological diversity should be conserved.
> 2. The long term health and vigour of Crown forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values".[501]

FMPs are submitted by authorized timber producers in specific management zones with held licenses. FMPs are the primary documents for natural resource forestry management and timber production in their respective management units. Additional planning submissions may be required for license holders, to address changes related to plan amendments, plan extensions, contingency plans, as well as prescribed burn plans, herbicide project plans, and insect pest management programs as needed.[502]

Licences can run for 10 years with the classification of 'Other licence', but can go up to 20 years with further approval, requiring the licence to be classified as a SFL.[503] The Ontario forestry regime has also introduced license variants with unique forestry practices. Indigenous governments and agencies have increasingly acquired natural resource management authorities in the Ontario forestry industry as forest managers, and to a lesser extent licence holders.[504]

Notably, Indigenous authorities have expanded, although to a limited capacity, mainly through Enhanced Sustainable Forest Licence holders (ESFL),[505] and Local Forest Management Corporations (LFMC),[506] which are accorded more sustainability initiatives, community mandates and considerations, and Indigenous resources and support.[507] The development of LFMCs was led through Ontario Regulation 111/12,[508] made under the *Ontario Forest Tenure Modernization*

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[500] *CFSA*, s. 2(1)
[501] *CFSA*, s. 2(3).
[502] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), p 9.
[503] *CFSA*, ss. 27(2). **Note**: [Other licenses - for 10 years only requires Minister approval], s. 26 [Sustainable forest licenses - for up to 20 years with Minister and Lieutenant Governor in Council].
[504] Miisun Intergrated Resource Management Company, *Forest Management*, online: <https://miisun.ca/forest-management/>; see also, The Whitefeather Forest Initiative, *About Us*, online: <https://www.whitefeatherforest.ca/>; see also, Nawiinginokiima Forest Management Corporation, *Our Organization*, online: <https://nfmcforestry.ca/organization/>; see also, Ne-Daa-Kii-Me-Naan Inc., *Shaping Plans for the Future*, online: <https://www.nedaak.ca/shaping-plans-for-the-future>; see also, Obishikokaang Resources Corporation/Ondaadiziwin Forest Management Inc., online: <https://www.obishikokaangresources.com/>
[505] Obishikokaang Resources Corporation/Ondaadiziwin Forest Management Inc., *Learn more about Obishikokaang Resources Corporation*, online: <https://www.obishikokaangresources.com/>
[506] Nawiinginokiima Forest Management Corporation, *Our Organization*, online: <https://nfmcforestry.ca/organization/>;
[507] Ministry of Natural Resources, *Enhanced Sustainable Forest Licence implementation*, (2019, Government of Ontario), online: <https://www.ontario.ca/page/enhanced-sustainable-forest-licence-implementation>
[508] O. Reg. 111/12: *Ontario Local Forest Management Corporations.*

Act, 2011,[509] which established Nawiinginokiima Forest Management Corporation as the first LFMC in Ontario, which holds Pic Forest and White River Forest followed by the Temagami Forest Management Corporation.[510] However, these developments have since ceased to expand further, existing as a limited set of status tenures.[511] The of Enhanced Sustainable Forestry Licences (ESFL) were also developed through an Order in Council 302/2018,[512] which established a single ESFL forest practice which continues to be the only one of its kind.[513]

The licence holders must ensure that they meet a variety of requirements, which include:

> "work with government and others to prepare and implement a forest management plan for their licence area; prepare an annual report of activities completed; monitor compliance with the plan; renew the forest after harvesting trees (grow a new forest); pay a stumpage fee to the province for the right to harvest timber; pay Crown charge fees toward renewing the forest".[514]

The minister has the capacity to "grant a licence, not exceeding a term of ten years, to harvest forest resources in a management unit or to use forest resources in a management unit for a designated purpose",[515] which they can renew for 2 years if the project is not completed.[516] Ministers may also grant licences for up to 20 years, with extensions up to with the approval of Cabinet, which can also be renewed for 5 to 20 years.[517] These 20 year approvals and their extensions are subject to additional review requirements,[518] where ministers may review SFLs every 5 or 7 years to ensure their adherence to the forestry management plan.[519] This process was implemented in "the mid 1990s, [when] the Ministry of Natural Resources downsized and, as a result of legislative changes, it allowed various forest management companies to enter into 20 year licenses for the purpose of administering Crown land."[520] All licences classified as SFLs, ESFLs, and LFMCs under this section must comply with the more rigorous approved FMPs,

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[509] *Ontario Forest Tenure Modernization Act,* 2011, S.O. 2011, c. 10.
[510] O. Reg. 111/12: *Ontario Local Forest Management Corporations*; see also, Ministry of Natural Resources, *Nawiinginokiima Forest Management Corporation*, (Government of Ontario), online: <https://www.pas.gov.on.ca/Home/Agency/366>
[511] Ministry of Natural Resources, *Management Units and Forest Management Plan Renewal Schedules*, (Government of Ontario), online: <https://www.ontario.ca/page/management-units-and-forest-management-plan-renewal-schedules#foot-**>
[512] Government of Ontario, Order in Council 302/2018, online: <https://www.ontario.ca/orders-in-council/oc-3022018>
[513] Ondaadiziwin Forest Management Inc., *Certificate of Registration*, online: <https://www.obishikokaangresources.com/wp-content/uploads/2024/12/10181153-ENG-SFI-FM-Ondaadiziwin-Forest-Management-Inc.pdf>; see also; see also, King, G., "Forest Tenure in Ontario: Indigenous Participation, Canadian Institute of Forestry, Pembroke, Ontario October 9, 2019, Indigenous Advisor, Forest Industry Division, MNRF" slide 5, online: <https://www.cif-ifc.org/wp-content/uploads/2019/10/2019ConfPres_S12P1_Forest-Tensure-in-Ontario-Indigenous-Participation_Gord-King.pdf>
[514] Government of Ontario, *Sustainable forest management,* (2022), online: <https://www.ontario.ca/page/sustainable-forest-management>
[515] CED 4th, *Legislation—Ontario* at § 35 "Timber Summary", (2024).
[516] *Ibid*, citing: *CFSA* s. 27(1)(2).
[517] *Ibid*, citing: *CFSA* ss. 26; see also, s. 24(1); see also *Crown Forest Sustainability Act*, 1994, S.O. 1994, c. 25, s. 3 "forest resource".
[518] *CFSA*, s. 26(5). **Note**: sustainable forest licenses must have "1. Requirements for the preparation by the licensee of inventories and forest management plans. 2. The silvicultural and other standards to be met by the licensee in carrying out forest operations. 3. Requirements for the submission of reports by the licensee to the Minister. 4. Procedures for the periodic review of the licensee's performance under the licence. 5. The term of the licence and any conditions applicable to the renewal of the licence."
[519] *CFSA*, ss. 26(3), (3.1).
[520] Decision No. 1830/08, 2008 ONWSIAT 2571 (CanLII), at para 5, online: <https://canlii.ca/t/22ck4>

including details on their inventories and silviculture, as well as producing reports, reviews, and following their terms.[521] These licences can be held by multi-party holders, individual companies, or government agencies.[522] If there is no licence holder for a management unit, MNR is the manager and can "issue licenses or contracts as needed to handle forest management".[523]

Ministers hold a considerable degree of power throughout this process and can set up further management systems and control the timber industries' financial incentives. Ministers may establish committees and management boards, which provide advice and insight on all matters under the *CFSA*.[524] Further, the minister can influence business decisions, as the "minister may determine from time to time the prices at which forest resources may be harvested or used for a designated purpose under a licence".[525] Similarly, the minister can recommend an additional regulative amendment to "incorporate one or more Ontario local forest management corporations as corporations without share capital on the recommendation of the Minister".[526] These licence variants are LFMCs which can be introduced by the Lieutenant Governor in Council upon the ministers recommendation. They entail additional objectives, with a local focus; however, there are currently only two in operation,[527] which will be explored further.

This regulatory regime situates the industry in an essential and lead role, whereby their FMPs are approved but not directly evaluated by the Ministry, rather, they are evaluated through independent assessments, detailed below. These approaches have failed to adequately address climate change and its connection to anthropogenic factors, including timber production.[528] These legislative requirements produce further oversight gaps by permitting a high degree of variability in forestry practices and standards, including what constitutes as 'sustainable' in management units,[529] and the degree of sufficient community and Indigenous engagement.[530]

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[521] *CFSA*, s. 26(5).
[522] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), p. 6
[523] *Ibid*.
[524] *CFSA*, ss. 13-15.
[525] *CFSA*, s. 31(1).
[526] *Ontario Forest Tenure Modernization Act*, 2011, S.O. 2011, c. 10, s. 3(1).
[527] *Ibid*, ss. 1-1(1).
[528] *Supra* note 336, [*Malcolm et al, 2025*]; see also, *supra* note 8, at pp. 87-88, [*Halofsky et al, 2018*]; see also, *supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 13, [*Parkins et al, 2016*].
[529] *Ibid*.
[530] Robinson, L., et al., "The effectiveness of public participation through forest advisory committees: Twenty years of shifting perspectives of Local Citizens Committee members in Ontario, (2024, *The Forestry Chronicle*), at pp. 259-274, [*Robinson et al, 2024*]; see also, Robson, M., & Kant, S., "The development of government agency and stakeholder cooperation: A comparative study of two Local Citizens Committees' (LCCs) participation in forest management in Ontario, Canada" (2007, *Forest Policy and Economics*), 1-2, pp. 70-81, [*Robson & Kant, 2007*].

4.1.2. Ontario Forestry Policy

Ontario's forestry policy directives exist in the form of handbooks and manuals which are intended to guide the forest industry on foundational ecosystem and market elements. The Forest Management Planning Manual,[531] is the most vital document as management plans are a *CFSA* requirement and the main source of industry regulation.[532] They must detail the planning, implementation, monitoring, and reporting processes, which become evaluation criteria for Ministerial review generally after third party assessments.[533]

The Forest Information Manual[534] details information management requirements, roles and responsibilities, as well as timelines and conditions for forestry reporting which imposes obligations for licensees.[535] This document details the regulatory relationship between the Ministry and the industry when outlining procedural and relational requirements, and "directs the sharing and exchange of forest-related information".[536] This document mandates that forestry workers must provide a Forest Management Planning Manual; the Forest Information Manual; the Forest Operations and Silviculture Manual; and the Scaling Manual.[537]

The Forest Operations and Silviculture Manual[538] and the Scaling Manual[539] impose consideration requirements for FMPs. The standards for Forest Operations and Silviculture Manual oblige foresters to consider landscape guides, which include the Forest Management Guide for Boreal Landscapes[540] and the Forest Management Guide for Great Lakes-St. Lawrence Landscapes.[541] The document also includes conservation and regeneration standards, silviculture directions, minimum training standards for employees, evaluation for forest operations and management, and forestry policy and management maintenance.[542] The Scaling Manual is a technical document for wood measurement standards.[543] The Forest Compliance Handbook is a comprehensive

[531] Government of Ontario, "Forest Management Planning Manual", (2024, *Ministry of Natural Resources and Forestry*), pp. 1-323.
[532] Government of Ontario, *Forest management policies*, (2025), online: <https://www.ontario.ca/page/forest-management-policies>
[533] *Ibid*.
[534] Government of Ontario, "Forestry Information Manual", (2024, *Ministry of Natural Resources and Forestry*), pp. 1-98.
[535] *Ibid*. **Note**: "the provision of forest resources inventories, maps, geospatial data layers, forest operations inspections, forest values, base data, reports and other information required", at p. i.
[536] *Ibid*, p. v.
[537] *Ibid*, p. iv.
[538] Government of Ontario, "Forest Operations and Silviculture Manual", (2020, *Ministry of Natural Resources and Forestry*), pp. 1-24.
[539] Government of Ontario, "Scaling Manual", (2024, *Ministry of Natural Resources and Forestry*), pp. 1-172.
[540] Government of Ontario, *Forest Management Guide for Boreal Landscapes*, online: <https://www.ontario.ca/page/forest-management-boreal-landscapes>
[541] Government of Ontario, *Forest Management Guide for Great Lakes-St. Lawrence Landscapes*, online: <https://www.ontario.ca/page/forest-management-great-lakes-and-st-lawrence-landscapes>
[542] Government of Ontario, "Forest Operations and Silviculture Manual", (2020, *Ministry of Natural Resources and Forestry*), pp. 1-24.
[543] Government of Ontario, "Scaling Manual", (2024, *Ministry of Natural Resources and Forestry*), pp. 1-172.

technical document which is intended to guide Ministerial assessments and operational requirements.[544]

Specific policy documents include the Policy Framework for Sustainable Forests,[545] Old Growth Policy for Crown Forests,[546] Forest Compliance Handbook,[547] OTSTP,[548] and the Forest Management Guides.[549] These policy documents are not mandated, rather they are informational on the Ministries priorities throughout FMP evaluations.[550] The policy framework is an overview document, while the other policies are more focused. The Old Growth Policy for Crown Forests details conservation strategies, mainly with the identification of old growth areas,[551] natural heritage protection,[552] and management plan recommendations. The Old Growth Policy also outlines landscape guides, stand guides, site guides, and silviculture guides alongside ecoregions.[553] This document outlines recommendations for forestry management plans to consider ecoregional units as defined, and include identification and conservation standards.[554]

Old growth forests sequester considerable amounts of carbon and are considered irrecoverable carbon reserves, including "the boreal peatlands and associated forests of eastern Canada".[555] Forest conservation research increasingly recognize the importance in protecting old-growth as a nature-based climate solution, recognizing the importance of old-growth ecosystems and their connectivity to other intact forest ecosystems.[556] These ecosystems function as globally significant climate regulators through carbon sequestration and provide essential ecosystem services related to biodiversity conservation, and watershed management, essential for human health. These ecosystems are also culturally significant for Anishinaabe communities and

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[544] Government of Ontario, "Forest Compliance Handbook", (2014, *Ministry of Natural Resources*), at p. 27.
[545] Government of Ontario, "Policy Framework for Sustainable Forests", (1994, *Forest Policy Series*), pp. 1-5.
[546] Government of Ontario, "Old Growth Policy for Crown Forests", (2003, *Forest Policy Series*), pp. 1-34.
[547] Government of Ontario, "Forest Compliance Handbook", (2014, *Ministry of Natural Resources*), pp. 1-222.
[548] Government of Ontario, "Ontario Tress Seed Transfer Policy", (2020, *Ministry of Natural Resources and Forestry*), pp. 1-51.
[549] Government of Ontario, "Forest Management Guides", (2025), online: <https://www.ontario.ca/page/forest-management-guides>
[550] *CFSA*, ss. 8(2); 9(2); & 68.
[551] Government of Ontario, "Old Growth Policy for Crown Forests", (2003), at p. 5, **Note**: defining old growth zones as areas where, "a complex forest stand structure (e.g. old trees for the ecosite, large tree size and wide spacing, multiple canopy layers and gaps, and rates of change in species composition); large dead standing trees (snags), accumulations of downed woody material, up-turned stumps, root and soil mounds, and accelerating tree mortality; and ecosystem functions (e.g. stand productivity, nutrient cycling, and wildlife habitat) that are different from earlier stages of forest development".
[552] *Ibid.* **Note**: details the main aim to protect red and white pine, "identifying old growth red and white pine forests as special natural heritage values in Nature's Best — Ontario's Parks & Protected Areas: the Framework & Action Plan (MNR 1997); and conserving red and white pine forests across their natural range by protecting and restoring a representative portion of existing old growth red and white pine forests in provincial parks and conservation reserves"
[553] *Ibid*, at pp. 23-24
[554] *Ibid*, p. 10. **Note**: "To identify, consider and provide for the forest age class structure needed to maintain functional old growth ecosystem conditions in forest units (ecosites) for all forest communities (provincial forest types) within their natural geographic ranges in each management unit as part of future forest conditions. To contribute to the maintenance of red and white pine within their natural geographic ranges by maintaining no less than the 19956 amount (the total number of hectares) of red and white pine, while permitting a sustainable harvest of red and white pine — now and in the future".
[555] *Supra* note 6, at p. 39 [*Noon et al, 2022*].
[556] *Supra* note 150, [*So et al, 2024*]; see also, *supra* note 8, [*Watson et al, 2018*]; see also, *supra* note 19, at p. 3, [*Quinby et al, 2022*].

governments, historically recognized for their importance having been stewarded since time immemorial through forest stewardship practices.[557] However, since colonial contact, these old-growth forests have been extracted and degraded and now have limited protections.[558]

The OTSTP is a notable document, as it pertains to forest rehabilitation and regeneration and tree species management. This document recognizes the uncertainty of climate change and recommends retaining native species while also incorporating 'non-local resilient species'.[559] The previous document established allowable seed transfer areas, which mandates "a suitable deployment area […] for each seed source location or a suitable seed source area is defined for each intended planting site".[560] The new policy aims to ensure that the "seed used to regenerate forests has a reasonable probability of producing trees that are adapted to their growing environment now and in the future", by providing foresters a more flexible selection of adapted seeds.[561]

The previous approach "traditionally used locally sourced seed for forest renewal activities", however climate change has degenerated the forests, such that, "locally sourced seed may not be the preferred choice for forest renewal for several reasons".[562] The OTSTP provides discretion to industry workers, where "seed transfer is permitted beyond local seed collection areas" adding more flexibility for replanting species while addressing the changes in forestry.[563] It only mandates certain sections indicated by an outline, which are minimal requirements. This essentially details unrestricted and allowable seed zones, which determine which species can be breed and planted based off ecoregions freely or with approval.[564] This document provides industry discretion to allow the foresters to prioritize profitable and regenerative crops;[565] however, it also aims to

[557] Larson, E., et al, "Indigenous fire stewardship shaped North American Great Lakes forests", (2025, *Proceedings of the National Academy of Sciences of the United States of America*), 122:34, pp. 1-9; see also, *supra* note 64 [*Potts, 1992*]; see also, note McGregor, D., "from exclusion to co-existence: aboriginal participation in ontario forest management planning", (2000, University of Toronto), pp.1-270; see also, *supra* note 408, [*Ma'iingan/Mills, 2010*].
[558] Mackey, B., et al, "Assessing the Cumulative Impacts of Forest Management on Forest Age Structure Development and Woodland Caribou Habitat in Boreal Landscapes: A Case Study from Two Canadian Provinces", (2024, *LAND*), 13:6, pp. 1-17, [*Mackey, et al, 2024*]; see also, *supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 442, [*Charlton, 2021*]. **Note**: see the following source for photographic and historical documentation: Huron County Museum & Historic Gaol, *Deforestation to Reforestation*, (*Exhibit & Programs Assistant Karsten*), online: <https://www.huroncountymuseum.ca/deforestation-to-reforestation/>
[559] Government of Ontario, "Ontario Tress Seed Transfer Policy", (2020, *Ministry of Natural Resources and Forestry*), at p. 4.
[560] *Ibid*.
[561] *Ibid*, at p. 2.
[562] *Ibid*.
[563] *Ibid*, at p. 3.
[564] *Ibid*, at p. 6.
[565] *Ibid*, at p. 2. **Note**: "Text in a black box indicates mandatory direction in the policy and appendices; the remaining direction is flexible, allowing for professional interpretation" see also, at p. 22 "Ontario is also enabling forest adaptation in a changing environment by providing managers more flexibility in seed transfer options to support a sustainable long-term supply of wood and other forest ecosystem services".

recognize climate uncertainty and enable replanting resilient trees, which may not always be native species.

The OTSTP aims to act as an updated scientific, planning, and monitoring process, incorporating forest managers onto an online information database to determine the most adapted seeds for managers, considering the uncertainties of a changing climate and regional differences.[566] Forestry managers advocated for an easier and more streamlined service for seed sources with no further regulatory measures, repealing the requirement for approvals of short-distanced seed transfers, and the overall number of approvals for managers required.[567] The fundamental reason for this change is to address the difficulties of a rapidly changing climate, aiming to have more adaptive processes in the face of failing and uncertain forestry practices.[568] The development of this policy was through federal and provincial initiatives with researchers, forestry managers, Indigenous organizations, shareholders, and policy analysts. Technical workshops provided opportunities for industry experts to advocate for specific recommendations and review policy drafts. However, Indigenous voices were not fully incorporated, and industry managers were the most advocated voices as technical experts through the "early expert and practitioner input", without any Indigenous representation.[569] The OTSTP encourages a "mix of local and non-local seed sources", enabling "professional judgement regarding the degree to which they use local versus one or more migrated seed sources" and is therefore an increased reliance and downloading of responsibility on forestry managers to self-regulate their reforestation and seed selection performances.[570] These are also untested and increasingly uncertain processes.[571]

Lastly, the Forest Management Guides are more focused documents for the forestry managers consideration, which detail the "silvicultural practices and methods on conserving biodiversity and protecting wildlife habitat, watersheds, cultural heritage and recreation" considerations.[572] These policy components guide the foresters as they develop their FMPs and monitor its application, submitting reports to the provincial government for review after third party audits. This begins with the FMP's, which comprises the majority of the foresters' requirements which include substantial

[566] *Supra* note 233, [*Kerkhof et al, 2022*].
[567] *Ibid*.
[568] *Ibid*.
[569] *Ibid*. **Note**: "Beginning in September 2017, Indigenous organizations were provided with information about the policy update and opportunities for input at various stages during its development." This process detailed is through the Environmental Registry of Ontario, whereby "[a]n Indigenous community raised concerns about the potential for introducing new pests into their traditional territory if seeds were transferred from elsewhere", at pp. 47-48,
[570] *Supra* note 233, [*Kerkhof et al, 2022*].
[571] Government of Ontario, "Ontario Trees Seed Transfer Policy", (2020, *Ministry of Natural Resources and Forestry*), at p. 3.
[572] Government of Ontario, *Forest management policies* (2024), online: https://www.ontario.ca/page/forest-management-policies

undertakings and long-term natural resource planning which is fulfilled in a discretionary process under market factors.

4.1.3. Local Citizen Committees

Local Citizen Committees (LCC) in Ontario are the "oldest local multi-stakeholder platforms in forest management in Canada",[573] and are intended to "represent the interests of the public and Indigenous peoples by providing advice to the Ministry of Natural Resources and Forestry district manager", mostly during the forestry management planning phase.[574] However, their capacity to meaningfully impact the timber development process is limited, and systemic challenges continue colonial trends that marginalize Indigenous voices.

LCCs are described by the MNR to be "a significant role for Indigenous communities and the public", primarily through the engagement of LCCs in the development of FMPs, every 10 years during which the plans are active. The planning phase generally takes 4 years.[575] The minister must establish these LCCs to advise the preparation and implementation of the FMPs,[576] and may establish additional advisory committees for the preparation of FMPs or other manuals as well as forest management boards.[577]

LCC members elect a representative for their committee during the plan preparation, to represent the LCC during planning team engagements. These LCCs have flexibility to "develop their own procedural rules such as election of a chair, frequency of meetings, and meeting agendas subject to the Terms of Reference for LCCs that is approved by the District Manager".[578] The LCCs roles throughout the forestry management process, includes their participation in the following ways:

> "review material and provide comment at 4 points during the planning process when the ministry formally requests input; make an appointment any time during the development or implementation of a plan; read an approved plan or an annual report about the plan's implementation; review annual work schedules to learn when and where operations will occur".[579]

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[573] Robson, M., & Hunt, L., "Evaluating local multi-stakeholder platforms in forest management in Ontario", (2010, *The Forestry Chronicle*), 86:6, at p. 742, [*Robson & Hunt, 2010*].
[574] Government of Ontario, How to get involved in forest management, (2023) online: <https://www.ontario.ca/page/participate-forest-management-ontario>; see also, Government of Ontario, "Help shape the future of our forests: Get involved in managing our public forests", (2025, *Ministry of Natural Resources*), pp. 1-10; see also, Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), pp. 1-35.
[575] *Ibid*.
[576] *CFSA*, s. 13.
[577] *CFSA*, ss. 14-15.
[578] *Supra* note 573, at p. 744, [*Robson & Hunt, 2010*].
[579] Government of Ontario, "Help shape the future of our forests: Get involved in managing our public forests", (2025, *Ministry of Natural Resources*), pp. 2-3.

The four phases commences with an invitation to participate, whereby the "planning process begins by updating data about the forest and gathering information from its users".[580] Here, participants can review information and identify their interests "on what you want the forest to look like in the future and what benefits you want the forest to provide in the future".[581] Identified values in this phase can include locations of tourism establishments; canoe routes; mining claims; archaeological sites; traplines, cabins and trails; and wildlife habitat areas.[582] Information in this phase is posted at ministry offices[583] and on the Natural Resources Information Portal.[584] The second phase entails a review of the proposed management direction, which entails a deeper review of long-term timber production:

> "areas proposed for harvest over 40 years (called the spatial harvest schedule); location of access, harvest, renewal and tending operations for 10 years; planned primary and branch roads (longer-term roads) and operational road boundaries (short-term roads); road use management strategies like who can use a road and when, who is responsible for maintaining a road, and if a road will close in the future; location of values or important ecological features; [and] operational prescriptions and conditions developed to prevent, minimize or mitigate any negative effects on values or important ecological features".[585]

Here, the review period is limited to 60 days, during which an information forum is offered, and the proposed management direction is made available. The third phase entails another 60-day review period, where an information forum 'may be held' and the draft plan is made available. The final phase is where the plan takes effect, and its finalized version is made available.

LCCs can allow Indigenous governments and local communities to expand forestry development and planning considerations directly and with the Ministry, potentially requiring additional assessments and processes which are not yet implemented in FMPs.[586] Additionally, Indigenous communities near the management units can:

> "have a representative on the planning team and local citizens' committee; work with the ministry to develop a customized approach to consultation; identify values for protection and help with developing and reviewing related reports; review and comment on the plan".[587]

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[580] *Ibid.*
[581] *Ibid.*
[582] *Ibid*.
[583] Government of Ontario, *Ministry of Natural Resources work centres*, (2024, *Ministry of Natural Resources*), online: <https://www.ontario.ca/page/ministry-natural-resources-work-centres>
[584] Government of Ontario, *Find a plan*, (*Ministry of Natural Resources*), online: <https://nrip.mnr.gov.on.ca/s/fmp-online?language=en_US>
[585] *Ibid*.
[586] *Supra* note 530, at p. 1116, [*Robson & Kant, 2007*]; see also, *CFSA*, ss. 9; 13; 68(4).
[587] Government of Ontario, How to get involved in forest management, (2023) online: https://www.ontario.ca/page/participate-forest-management-ontario

The LCCs are implemented into various stages in the FMP drafting and assessments phases, which entail opportunities for community advocacy. The LCCs have the greatest capacity to influence forestry practices during the development of FMPs, which entails a 10-year operational phase.[588] This 10-year phase was implemented in 2017, "when Ontario's Forest Management Planning Manual was revised so that ten-year management plans no longer had two five-year operational phases".[589] The LCC process, and other forest advisory committees is the most used approach for citizen participation in Canada.[590] It is an essential aspect, whereby "[e]ffective and meaningful public participation in in natural resource management can help to incorporate local values and knowledge into management processes and improve environmental outcomes".[591] While there is a requirement for LCC involvement, their success is dependent on a variety of factors, including cooperative government supports and a receptive committee and forestry industry, as detailed below.[592]

Despite these factors, LCCs have a relatively minor role in the FMP development and assessment process, accorded through the phases and their decade long cycles. They are also an understudied element in the forestry regulation process,[593] especially regarding critical longitudinal research which examines "the extent to which existing processes constitute meaningful participation".[594] Meaningful LCC engagement requires a comprehensive and accessible process, whereby the effectiveness of LCC engagement necessitates upholding dimensions of efficiency, representation in the decision-making process, trust in forest managers, effectiveness in management outcomes, and the availability of relevant and trustworthy information, through fairness and representation.[595]

While leading LCC studies identify that most members experience an overall positive outcome regarding their quality of engagement, some members identify that it is a process whereby historical inequities are reproduced, "often replicat[ing] patterns of marginalization and underrepresentation".[596] For example, there is often an overrepresentation of older men in LCCs, which are positions increasingly held by 'experienced forestry workers'.[597] Additionally, LCC

[588] *Supra* note 118, at pp. 265-266, [*Robinson et al, 2024*].
[589] *Ibid*, at p. 266.
[590] *Ibid*, at p. 259
[591] *Ibid*, at p. 259.
[592] *Supra* note 530, at p. 1113, [*Robson & Kant, 2007*].
[593] *Ibid*; see also Hunt, L., "Monitoring changes in forest resource advisory groups' composition and evaluations of perceptions of public participation effectiveness: a case of Ontario's Local Citizens Committees", (2015, *Canadian Journal of Forest Research*), 45, pp. 1866–1872, [*Hunt, 2015*].
[594] *Supra* note 118, at p. 259 [*Robinson et al, 2024*].
[595] *Ibid*, at p. 260.
[596] *Ibid.*
[597] *Supra* note 593, at p. 1871, [*Hunt, 2015*].

members are “typically drawn from land-using stakeholder groups that are themselves male-dominated”.[598] Thus, women, youth, and Indigenous peoples are not adequately represented in LCCs throughout Ontario, being “particularly underrepresented”, which has remained unchanged since 2001.[599] These findings are further elaborated by Ontario’s most recent review for the forestry sector, which found that only “44% of plans had Indigenous community participants on the local citizens’ committee”.[600] This is further problematized by the minimal measurement for participation in the Ontario forestry review process, failing to account for meaningful participation, whereby their definition for “participation [was] considered to be achieved when at least one community participated or provided input in the process”.[601] These findings demonstrate a steady decline in Indigenous participation since 2004.

These findings align with more broad assessments into Canadian forest sector advisory committees, which provided “models [which] favoured well-educated, Caucasian men and fell short on the representation of women and Indigenous peoples”.[602] Furthermore, LCC members have been found to have a tendency to “have [a] strong dependence on resource management for economic and leisure pursuits” with greater anthropocentric views towards forestry management.[603] Similarly, the engagement approach has been described as “one-way instead of two-way” approach, with the industry leading engagement processes, culminating in LCCs potentially “becoming less rather than more representative of relevant stakeholders”.[604] Thus, LCC frameworks and other resource engagement processes have the capacity and tendency to reproduce colonial processes, through homogenized representation of settler values, and a prioritization of industry and extraction.

Underrepresented members experienced less meaningful engagement. A foundational LCC study found that Indigenous LCC participants “were more likely to be dissatisfied with past outcomes”.[605] Similarly, female LCC members “were less likely to believe that LCCs (and their own efforts) were impactful”.[606] These considerations are particularly concerning, given that “public participation mechanisms such as advisory committees achieve more significant results if they meaningfully involve a wider range of participants and expose decision-makers to diverse views, including

[598] *Supra* note 118, at p. 260, [*Robinson et al, 2024*].
[599] *Ibid*, at pp. 260; 269.
[600] Government of Ontario, “State of Ontario’s Natural Resources: Forests 2021”, (*Minister of Northern Development, Mines, Natural Resources and Forestry*), at pp. 52-53.
[601] *Ibid*.
[602] Egunyu, F., et al., “Public engagement in forest governance in Canada: whose values are being represented anyway?”, (2020, *Canadian Journal of Forestry Research*), 50, at p. 1152, [*Egunyu et al, 2020*].
[603] *Supra* note 573, at p. 750, [*Robson & Hunt, 2010*].
[604] *Ibid*, p. 751.
[605] *Supra* note 118, at p. 267 [*Robinson et al, 2024*].
[606] *Supra* note 593, at p. 1870, [*Hunt, 2015*].

those not represented in dominant discourses".[607] The lack of diversity in Ontario's LCCs detracts from their capacity to inform forest management,[608] especially regarding critical social and environmental issues which disproportionately impact marginalized communities.

LCC members are also increasingly feeling that their 'real influence' on the timber extraction process is absent or declining, especially regarding key decisions and long-term strategies. LCC members are largely finding the process positive, with "64.6% of LCC respondents indicating that they "'agree' or 'strongly agree' with the statement, [that] 'the process is effective'"; however, this is a decline from previous findings which detailed 75.9% of LCC respondents felt this way in 2014.[609] Further, the LCC respondents identified that "between 2014 and 2021, the proportion of LCC members who are dissatisfied with the process increased for every" dimension described above, especially regarding efficiency and of the quality of LCC decision-making process. LCC concerns are increasingly identifying that the "forestry industry overshadows the influence of LCCs to the point of the latter being of questionable relevance", instead simply being a 'procedural exercise' or a 'rubber stamp'.[610] These factors compromise LCC performance, which can lead to increased rates of mistrust and rejection of the process.[611]

If LCC members are unsatisfied with the consultation process, they may request a formal issue resolution process. This requires submissions to the district manager through a local Ministry office, including a review of the issues, how it relates to the strategic direction or proposed operations, evidence to support the claims, and a proposed solution.[612] The MNR will review these submissions to "ensure it is within the scope of the plan's issue resolution process", and potentially schedule a meeting to discuss the issue with the district manager of regional director, or provide a notification that the complaint is "out of scope of the issue resolution process". [613] If there is no resolution, a written decision is provided from the district manager if the process is within the 60-day review period for the draft plan; or, the regional director provides justification within 15 days after the 60-day review period, or upon request for a review of the district manager's decision.[614]

The lacking meaningful involvement in the FMP design and implementation process corrodes the communities' perceptions and experiences of engagement and accountability in the LCC process.

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[607] *Supra* note 118, at p. 269, [*Robinson et al, 2024*].
[608] *Ibid*, p. 272.
[609] *Ibid.*
[610] *Ibid*, at p. 269.
[611] *Ibid*.
[612] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), at p 16.
[613] *Ibid,* at p. 17.
[614] *Ibid,* at pp. 17-18.

The underrepresentation of Indigenous peoples, youth, and women in LCCs and FMP developments is culminating in the fact that the process can no longer "refute the belief that these advisory groups are dominated by elites".[615] Further, specific forestry practices have been identified as areas of concern for LCCs, which include "herbicide use, lack of diversity in the trees planted, insufficient attention to sustainability issues, and lack of enforcement of restrictions on access to the forests".[616] The current LCC framework is not sufficiently representative of diversity in Ontario, nor is it able to adequately address Indigenous jurisdiction and deeper concerns of sustainable resource management.

Additionally, other advisory committees and forestry management boards advise the minister, assist in forestry management planning, and play delegate roles including regulative capacities.[617] However, these are not legislative requirements and are under the minister's discretion. Forestry management guides are created by the Provincial Forest Technical Committee, which is comprised of Indigenous groups, as well as the forest industry, environmental organizations, and research organizations.[618] Despite this, the Ministry holds the decision-making authority on community and Indigenous involvement through the planning team contacts and reimbursement processes, consultation requirements, and whether they instigate any management agreements. This often fails to recognize Indigenous knowledge, values, and jurisdiction in a meaningful way.[619]

It is increasingly evident that "co-management depend[s] on cooperation between a government agency and stakeholders" and is a relational process.[620] Meaningful LCC engagement necessitates sufficient engagement opportunities, representation and meaningful engagement from diverse membership, specifically including Indigenous governments and communities, as well as a broader advocacy for environmental and social considerations. These FMP processes have been evaluated by Indigenous leadership, that although it "includes policy to invite participation from First Nations at the planning and annual work schedule stages, it is overall ill-serving to the First Nations of Ontario".[621] Ultimately, LCCs have the capacity to provide further engagement opportunities, which can aim to provide further Indigenous jurisdictional,

[615] *Supra* note 593, at p. 1871, [*Hunt, 2015*].
[616] *Supra* note 118, at p. 265, [*Robinson et al, 2024*].
[617] *CFSA*, s. 15(2).
[618] Government of Ontario, *Forest management policies*, (2024), online: https://www.ontario.ca/page/forest-management-policies
[619] *Supra* note 593, [*Hunt, 2015*]; see also, *supra* note 602, [*Egunyu et al, 2020*]; see also, *supra* note 118, [*Robinson et al, 2024*].
[620] *Supra* note 530, p. 1113, [*Robson & Kant, 2007*].
[621] Chiefs of Ontario, "Pathways to Prosperity: First Nations Priorities for Sustainable Development A Chiefs of Ontario Call to Action on First Nations Provincial Priorities 2025", at p. 16.

environmental, and community advocacy; yet, they operate in a limited and exclusionary way. Further, the design limits the capacity for decolonization and community forestry in Ontario.[622]

4.2. Industry Self-Regulation

Since its introduction, the SFM approach has fundamentally developed into a certification process, applying techniques for timber producers to implement and self-evaluate their legislative and policy adherence. These policies are implemented through certified practices developed with the industry, through a reliance on various manuals, mainly the forest management planning manual, forest information manual, forest operations and silviculture manual, and the scaling manual. These processes are increasingly relying on additional market certifications, as a voluntary market-based approach for forestry producers to further self-regulate their practices. These processes, however, are creating regulatory gaps.[623]

The SFM process has developed into various approaches for forestry certification, designing structural decision-making processes formulated from stakeholders and technical expertise, directly impacting the standardization protocols and their evaluations.[624] Developments in third-party certifications expanded in the 1990s, as social and environmental concerns intensified and civil society noted the overwhelming failures of government.[625] This coincided with increasing skepticism of government, along with an embrace of market rationalism, unregulated markets, and competition as forms of the emergent neoliberal approaches to government.

Canadian policies have implemented these developments through decisions to centralize shareholders into determining the assessment requirements and formulating significant portions of the process, alleviating government requirements while producing oversight.[626] These regulative aspects, as they pertain to environmental policy implementation and evaluation, exist in the neoliberal market as a form of 'reflexive government'.[627] Governments initially led through direct command and control models, and then drastically shifted the responsibility for regulation onto the industry through self management strategies. This can be identified by the emergent regulative requirements offering drastically different standards, often through encouragements,

[622] Bullock, R., & Reed, M., "Towards an Integrated System of Communities and Forests in Canada" Chapter 14, in Teitelbaum, S., "Community Forestry in Canada: Lessons from Policy and Practice", (2016, *ACUP*), at p. 357.
[623] *Supra* note 13, [*Winfield & Benevides, 2003*]; see also, *supra* note 13, [*Parkins et al, 2016*]; see also, *supra* note 471 [*Auld & Bull, 2003*].
[624] *Ibid.*
[625] *Ibid*.
[626] *Supra* note 2, [*Winfield, 2015*]; see also, *supra* note 2, [*Winfield, 2021*].
[627] *Ibid*.

whereby industrialists can select their solutions as long as they adhere to minimal parameters.[628] This form of reflexive regulation is part of a broader governmentality, where 'smart regulation' models rely on private partnerships to perform evaluative functions and implement policy through their own strategies.[629] These processes of policy implementation and evaluation entail a myriad of approaches with inconsistencies in application. Similarly, 'regulatory capture' relates to the "operational relationships between regulatory agencies and regulated entities", which has developed into shared policy goals, prioritized industry interests, and "the regular exchange of personnel".[630] This process has a degradative impact on the natural resource management process.[631]

4.2.1. Independent Forest Audits

Ontario's regulatory approach for timber production has increasingly relied on industry-self regulation, through Independent Forest Audits (IFA), which require timber producers to acquire third-party auditors to assess their compliance with the *CFSA*.[632] While the assessment process entails a standardized third-party assessment framework, it is embedded in regulatory oversight gaps with the Ministry, discretionary market practices, and only requires review once in a decade.

The IFA must be conducted by an independent party who "possess the skills, knowledge, experience and professional credentials necessary for the proper conduct of a forest audit".[633] IFAs must be in accordance with the Independent Forest Audit Process and Protocol.[634] There must be a professional forester in the audit, and they must sign-off on a finalized executive summary.[635] Professional foresters play an integral role in the regulation of the forest industry, as well as producing the knowledge surrounding the condition of Ontario's forests, yet there are only roughly 600 in Ontario.[636] The regulatory body for professional foresters is the Ontario Professional Foresters Association, which requires professional foresters to receive accreditation from specific programs.[637]

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[628] Gunningham, N. "Regulatory Reform and Reflexive Regulation: Beyond Command and Control," in E. Brousseau, T. Dedeurwaedrere and B. Siebenhuner, Reflexive Governance for Global Public Goods (2012, *Cambridge MA: MIT Press*) pp. 85-104.
[629] *Supra* note 2, [*Winfield, 2015*].
[630] *Supra* note 2, at p. 1, [*Winfield, 2021*].
[631] *Ibid*, at pp. 4; 6.
[632] Government of Ontario, "Independent Forest Audit Process and Protocol", (2024, *Ministry of Natural Resources*), p. 5.
[633] O. Reg 319/20, *Independent Forest Audits*, s. 3
[634] Government of Ontario, *Independent forest audits*, online: <https://www.ontario.ca/page/independent-forest-audits>
[635] *Ibid,* p. 14.
[636] Ontario Professional Foresters Association, *What Professional Foresters Do*, online: <Ontario Professional Foresters Association | What Foresters Do>
[637] Forest Professional Regulators of Canada, *Canadian Forestry Program Accreditation*, online: <ACCREDITATION | FPRC>

IFAs are completed every 10 years, unless the minister determines that an additional 2 years may be granted, subject to detailed circumstances.[638] The minister may determine that an additional audit is required, pursuant to additional factors including "a previous forest audit report rais[ing] concerns about the management unit", if "the amount of Crown forest resources harvested since the last forest audit of the management unit is significantly less than the amount that is permitted for that period in the management unit", and whether it is in the public interest.[639] IFAs are reviewed by the Ministry, industry, and LCC, potentially providing action plans and reports on their progress.[640] These action plans are at the discretion of the minister.[641]

Pursuant to the IFA regulation, auditors must "give notice of the audit to the local citizens' committee […] to First Nations and Métis communities, as may be specified by the minister, and to members of the public" and to "provide a reasonable opportunity for the entities that receive notice […] to provide information and comments during the conduct of the audit".[642] IFAs evaluate LCC engagement in accordance with the *CFSA*. Research reviewing IFAs have identified that when reviewing issues regarding representation in the LCC engagement process, they found that "perspectives from aboriginal people, environment, and tourism stakeholders were most often absent".[643] These findings demonstrate a decreased engagement and representation, which is demonstratable in IFA assessments.

In addition to the IFAs, forest licence holders for management units must report annually on their "activities conducted in a management unit" to the MNR, which along with a summarized version, are made publicly available online along with overview, charts, and datasets.[644] Annual schedules are not subject to any consultation requirements.[645] These documents are vital for the Ministry to review and provide publicly available evaluations. The Ministry provides an overview on the State of Ontario's forests, which is released every 5 years.[646]

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[638] O. Reg 319/20, *Independent Forest Audits*, ss. 2(2)(3).
[639] *Ibid*, s. 2(2)(1).
[640] Government of Ontario, *Independent forest audits*, online: <https://www.ontario.ca/page/independent-forest-audits>; see also, O. Reg 319/20, *Independent Forest Audits*, s. 7(3).
[641] O. Reg 319/20, *Independent Forest Audits*, s. 9.
[642] *Ibid*, ss. 6(1)(a)(b)
[643] *Supra* note 573, at p. 750, [*Robson & Hunt, 2010*].
[644] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), p. 13; see also, Government of Ontario, *Find a plan,* online: <FMP Online>; see also, Government of Ontario, *Report on forest management*, (2025, *Ministry of Natural Resources*), online: <Report on forest management: annual summary of Ontario's forest management activities - Dataset - Ontario Data Catalogue>; see also, Government of Ontario, *Ontario Forestry Tableau,* (2025, *Ministry of Natural Resources*), online: OntariosForestFacts | Tableau Public>; see also, Government of Ontario, Forest management: facts and figures, (2025, *Ministry of Natural Resources*), online: <Forest management: facts and figures | ontario.ca>
[645] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), p. 21
[646] Government of Ontario, "Handbook for getting involved in forest management in Ontario", (2025, *Ministry of Natural Resources*), p. 13; see also, Government of Ontario, "State of Ontario's Natural Resources: Forests 2021", (*Minister of Northern Development, Mines, Natural Resources and Forestry*), pp. 1-76.

These FMPs and their respective auditing process are the primary evaluation and regulation tools for MNR, especially provided drastic shifts in environmental assessments and the forestry industry. In 2020, the Ontario government effectively exempted the entire forest industry from the *Environmental Assessment Act* (*EAA*),[647] and suspended environmental assessments in the AOU,[648] through the revocation of MNR-75, a regulation pursuant to the *EAA* regarding forestry environmental assessments. Prior to these developments and the *EAA* exemption, Ontario was the only jurisdiction in Canada which generally does not require environmental assessment for private sector natural resource projects.[649] These developments disempower legislative requirements and Ministry authorities through industry exemptions, which has reduced government accountability processes and entailed in the public being less informed.[650] This comprises the entire managed forest administrative zone, and exempts their timber production from environmental assessments.

The suspension of environment assessments for forestry production was upheld by the Ontario Court of Appeal, relying on the precedent set in the *Mikisew Cree #2* decision that broadly "precludes any finding that a duty to consult arises in the law-making process".[651] The court identified that the previous environmental assessment process: "had provided for certain oversight by the MECP over the MNRF in relation to forest management projects, which the revocation […] ended".[652] Further, the revoked process entailed specific Indigenous considerations, including "contemplated negotiations for Indigenous community participation in economic benefits from forestry projects";[653] as well as mandated summarized "consultations with Indigenous communities – every five years".[654] Despite these shifts, the court found that "any adverse effect that could result from that change is too speculative in nature to give rise to a duty to consult".[655] This change also removed publicly available processes to require reviewal of decisions, including a process which allowed for a "request that the MECP conduct its own

[647] Office of the Auditor General of Ontario, "Environmental Assessments" Chapter 3, Section 3.06, (2016). p. 338.
[648] Government of Ontario, *Proposed amendments to General Regulation 334 under the Environmental Assessment Act to remove Regulatory Duplication of Forest Management requirements in Ontario*, (2020), online: <https://ero.ontario.ca/notice/019-0961>; see also, Government of Ontario, "Environmental assessment requirements for forest management on Crown lands in Ontario" (2020 – revoked), online: <https://www.ontario.ca/page/environmental-assessment-requirements-forest-management-crown-lands-ontario#section-3>; see also, Government of Ontario, *Declaration Order MNR-75: Environmental Assessment Requirements for Forest Management on Crown Lands in Ontario*, (2021), online <https://www.ontario.ca/page/declaration-order-mnr-75-environmental-assessment-requirements-forest-management-crown-lands-ontario>
[649] Office of the Auditor General of Ontario, "Environmental Assessments" Chapter 3, Section 3.06, (2016), at p. 338.
[650] *Ibid*, pp. 338-340.
[651] *Association of Iroquois and Allied Indians v. Ontario (Environment, Conservation and Parks)*, 2024 ONCA 436 (CanLII), at para 7, online: <https://canlii.ca/t/k4z3m>; see also, *Mikisew Cree First Nation v. Canada (Governor General in Council)*, 2018 SCC 40, [2018] 2 S.C.R. 765 [*Mikisew Cree #2*].
[652] *Ibid* at para 10.
[653] *Ibid*, at para 21.
[654] *Ibid*, at para 22, citing: MNR-75, conditions 56-57
[655] *Ibid*, at para 10.

assessment of the relevant project (known as 'bump-up requests')"; and a process which allowed any party to request amendments to the assessment process with MECP and the Lieutenant Governor in Council's approval.[656] These changes were rationalized by the government to eliminate duplications and to find efficiencies "related [to] planning and approvals processes to shorten the timelines from start to finish and using a one-window approach".[657] Here the courts found that these processes were duplicative, as they are present in the FMP and throughout its processes.[658]

Requirements for SFM foresters in Ontario are limited regarding tangible sustainability assessments, with their initial certification translating into adaptable approaches with minimal requirements for annual briefings and decade long plans, primarily re-evaluated with the Ministry through self-assessments. This 'one window' approach increasingly relies on the industry to implement management objectives and actions, along with internal regulation systems to ensure their adherence with flexible and discretionary SFM sustainable standards.[659] Management objectives impact ecological integrity and industrial logging practices are unable to regenerate ecosystems sustainably as 'biomass typically do not return to pre-logging levels';[660] while, they are unable to fully produce the "extensive range of conditions created by natural disturbance processes" which produce compositional mosaic of tree species and ecological processes.[661] Forestry practices have shifted forest and ecosystem compositions and integrity, without sufficient testing into "strategies for conserving ecological integrity".[662]

Thus, the private sector applies the requisite regulatory requirements, applicable discretionary policy practices, and internalized private mechanisms to self-regulate; whereby, "forest managers need to decide 'how close is close enough' in their assessments" which is determined by "socially acceptable and practically feasible".[663] Yet, as identified, the FMP process entails a significant degree of self-assessment, decreased regulatory oversight, and limitations in the capacity for Indigenous and community engagement through LCC process.

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[656] *Ibid*, at paras 21-23, citing: MNR-75, conditions 26; 58.
[657] Government of Ontario, "Environmental Assessment Modernization Letter: 357-2020-1026", (2020, *Ministry of the Environment, Conservation and Parks*), at p. 1, online: <https://cela.ca/wp-content/uploads/2020/07/Forestry-EA-Exemption-Letter-MECP_2020_07-06.pdf>
[658] *Association of Iroquois and Allied Indians v. Ontario (Environment, Conservation and Parks)*, 2024 ONCA 436 (CanLII), at paras 23-25.
[659] *Supra* note 188 [*Rempel et al, 2016*].
[660] *Supra* note 8, p. 600, [*Watson et al, 2018*]; see also, *supra* note 558, [*Mackey, et al, 2024*].
[661] *Supra* note 188, at p. 868, [*Rempel et al, 2016*].
[662] *Ibid*, at p. 861.
[663] *Ibid*, at p. 868.

Critics call these shifts undemocratic processes without sufficient public input or knowledge.[664] Similarly, comments submitted regarding these changes identify concerns with a "reduction of environmental oversight; and, [a] loss of issues resolution opportunity through the request for Individual Environmental Assessment process".[665] Despite the justification put forward by the Government of Ontario, the Canadian Environmental Law Association (CELA) identified that these changes were based on "a theory of legislative duplication that does not exist in reality". With the removal of the "bump-up process", there are no authorized hearings or process before forest management plans are approved.[666] Further, the *EAA* process was generally more comprehensive, provided that "its broad definition of environment, which includes human life, can address this problem and has been invoked in litigation in the recent past to ensure such human health impacts of clear-cut logging are not overlooked".[667] These shifts to remove 'administrative burdens' exist in a more expansive way, mirroring the environmental legal paradigm across Ontario and Canada in recent years.

These shifts in Ontario law are demonstrated through the recent introduction of various amendments to environmental legislation through omnibus bills,[668] which have amended foundational environmental regulation processes under the *EAA*, *CFSA*, *Conservation Authorities Act* (*CAA*),[669] *ESA*,[670] *Environmental Bill of Rights* (*EBR*),[671] and others. These amendments, or in the case of the *ESA* being replaced, are aimed at producing the "acceleration of provincial permitting and approvals for projects so Ontario can build mines and infrastructure faster, while ensuring environmental protections for future generations".[672] However, the legislation is relatively silent on how environmental protection will effectively be produced without the regulatory levers of the previous laws.

Similarly, these shifts centralize decision-making authorities through the allowance of exempted assessments. These changes have been evaluated to have "drastically diminished or repealed

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[664] Ecojustice, *Ontario passes sweeping changes to environmental assessment,* (2020) https://ecojustice.ca/news/ontario-proposes-sweeping-changes-to-environmental-assessment/ see also; Canadian Environmental Law Association, *Blog: Exemption of forestry from the Environmental Assessment Act sets a bad precedent*, (2020), online: <https://cela.ca/exemption-of-forestry-from-the-environmental-assessment-act-sets-a-bad-precedent/>

[665] Government of Ontario, "Environmental Assessment Modernization Letter: 357-2020-1026", (2020, *Ministry of the Environment, Conservation and Parks*), at p. 2, online: <https://cela.ca/wp-content/uploads/2020/07/Forestry-EA-Exemption-Letter-MECP_2020_07-06.pdf>

[666] Canadian Environmental Law Association, *Blog: Exemption of forestry from the Environmental Assessment Act sets a bad precedent*, (2020), online: <https://cela.ca/exemption-of-forestry-from-the-environmental-assessment-act-sets-a-bad-precedent/>

[667] *Ibid*

[668] *Protect Ontario by Unleashing our Economy Act*, 2025, S.O. 2025, c. 4 - Bill 5; see also, *Protect Ontario by Cutting Red Tape Act, 2025*, S.O. 2025, c. 24 - Bill 46

[669] *Conservation Authorities Act*, R.S.O. 1990, c. C.27.

[670] *Endangered Species Act*, 2007, S.O. 2007, c. 6.

[671] *Environmental Bill of Rights*, 1993, S.O. 1993, c. 28.

[672] Government of Ontario, *Bill 5, Protect Ontario by Unleashing our Economy Act, 2025*, (2025, *Legislative Assembly of Ontario*), online: <https://www.ola.org/en/legislative-business/bills/parliament-44/session-1/bill-5>

important laws that protect the environment and safeguard public health and safety".[673] These changes are resulting in Indigenous grassroots and youth leaders challenging these developments, primarily the discretionary authority with the government to determine "'special economic zones' where the government can decide what laws will or won't apply".[674] Similarly, other provincial and federal legislative shifts have paralleled these developments, to provide further authorities for emergencies which have faced criticisms; whereby, these shifts result in "legislative grants of sweeping discretionary powers to the government to act in times of emergency".[675] Indigenous communities and governments have also expressed concerns that these aims to "fast-track infrastructure and resource development projects [are] weakening environmental protections, consultation processes, and recognition of First Nations rights".[676] Specific forestry changes emerge from the recently amended section 41.4(2) in the *CFSA* through Bill 46, which allows the minister to "consider whether the permit could adversely impact established or asserted aboriginal and treaty rights and whether any consultation with Indigenous communities is required".[677] While this provision entails Indigenous jurisdictional considerations, it is also a centralization of ministerial authority and discretionary. Decreased government assessment opportunities and the removal of mandatory regulatory levers or approval mechanisms pose substantial oversight challenges.

Environmental assessments have historically been beneficial for sustainable and social outcomes.[678] Indeed, the *CFSA* would not exists today without the Timber Management Class Environmental Assessment, which amended the previous timber management regime into its current standard, described as a process which "revolutionized the management of Crown forests and fundamentally changed the science of forestry".[679] Given the increased severity and uncertainty of climate change, robust assessments are core components of informed and equitable decision-making; yet, they are being increasingly streamlined and centralized, primarily for economic purposes.

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[673] Lindgren, R., *Blog: Ontario Bill 5 Attacks Environmental Law and the Rule of Law*, (2025, *Canadian Environmental Law Association*), online: <https://cela.ca/blog-ontario-bill-5-attacks-environmental-law-and-the-rule-of-law/> **Note**: see the following source for a more fulsome assessment: Canadian Environmental Law Association, "Submissions Of The Canadian Environmental Law Association On Bill 5 Protect Ontario by Unleashing our Economy Act, 2025", online: <https://archive.celafoundation.ca/wp-content/uploads/2025/05/1624-CELA_Submissions_Bill_5_FINAL.pdf>

[674] Legal Advocates for Nature's Defence, *Stop Bill 5*, (2025), online: <https://naturesdefence.ca/campaigns/stop-bill-5/>

[675] Stacey, J., *Opinion | Canadian politicians are using real crises to abuse their power,* (2025, *The Toronto Star*), online: <https://archive.is/xebJv#selection-4071.8-4071.15 >

[676] Chiefs of Ontario, *Protecting Our Lands: A First Nations Response to Bill 5 & Bill C-5*, (2025), online: <https://chiefs-of-ontario.org/resources/protecting-our-lands/>

[677] *Protect Ontario by Cutting Red Tape Act, 2025*, S.O. 2025, c. 24 - Bill 46, s. 41.4(2).

[678] *Supra* note 250, [*Gibson, 2006*]; *supra* note 8, [Gauthier et al, 2014]; see also, *supra* note 448, [*Ross, 1997*].

[679] Environmental Commissioner of Ontario, "Managing New Challenges: Annual Report 2013/2014", p. 4; see also, *Ibid.*

While regulatory capture, market led 'smart' regulation, and the removal of assessment processes and bodies have produced regulatory oversight gaps, another more pervasive issue exists with the discretionary authorities provided to administrative decision makers in environmental law.[680] This regulatory shortcoming, explored more closely later, primarily emerges from the discretionary authorities in statutory interpretation held by public servants and the 'balancing' of economic and ecological considerations which is exercised through regulations. However, "regulatory discretion in environmental law is habitually exercised in favour of commercial rather than environmental interests", which has produced 'deep-tensions' between the 'salutary text' and the outcomes.[681]

These forms of internal industry self-regulation have led to substantial failures in governmental legitimacy and public safety,[682] as they disempowered the regulative capacities of government policy and increasingly rely on the private market. The forest industries' involvement as stakeholders in the policy creation process,[683] as well as their implementation and self-assessments poses substantial concerns with their 'regulatory capture' becoming a fundamental aspect of Ontario forestry regulation.[684] Issues regarding conflicts of interest throughout the SFL process have also been raised, examining how "self-inspection reports, and the economic relationships that may exist between SFL holders and smaller overlapping licensee holders" institutionalizes issues with transparency.[685] This regulative model is incredibly efficient in economic development for shareholders, relying on 'partnerships' with the private sector to ensure they have the capacity to exceed in the market, especially given the social and environmental fiscal expenditure restraints of the Ontario government. This can be described as the government 'relying on market mechanisms to achieve their goals', which became a common approach in economic and environmental regulation.[686] The 'smart-regulation' model is the regulatory regime of the Ontario SFM approach, with emergent developments further emphasizing the government's reliance on public-private partnerships to perform its central role in welfare safety and resource management. However, these approaches are increasingly offsetting costs with compromised ecological and social outcomes.[687]

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[680] *Supra* note 244, [*Collins & Sossin, 2019*]; see also, *supra* note 246 [*Stacey, 2015*].
[681] *Supra* note 244, at p. 3, [*Collins & Sossin, 2019*].
[682] *Supra* note 2, [*Winfield, 2015*].
[683] Government of Ontario, "Sustainable Growth: Ontario's Forest Sector Strategy", (2020, *Ministry of Natural Resources and Forestry*), at p. 23.
[684] *Supra* note 2, [*Winfield, 2021*]; see also, *supra* note 13 [*Winfield & Benevides, 2003*].
[685] *Supra* note 13, at p. 63, [*Winfield & Benevides, 2003*].
[686] Bloomfield, J., "Is Forest Certification a Hegemonic Force? The FSC and its Challengers" (2012, *Journal of Environment & Development),* 21(4) pp. 391–413, [*Bloomfield, 2012*].
[687] *Ibid; see also, supra* note 13, at pp. 270-278, [*Parkins et al, 2016*].

4.2.2 Market Certification

Canada has embraced forest management certifications as a regulatory tool, with "36% of the world's total certified forest area".[688] These certifications processes are aimed at evaluating "commercial forestry operations against comprehensive environmental and social standards".[689] These are market focused certifications which are voluntary, and aim to allow for timber producers to "promote their products in the marketplace".[690] In Ontario, 29 of 39 management units or 77% of the managed forest is certified by one or more certification systems, which accounts for 26.1 million hectares.[691] Three organizations are responsible for SFM certification in Canada, the civically created Forest Stewardship Council, as well as the privately created Sustainable Forestry Initiative, and the Canadian Standards Association.[692] Market certification processes are increasingly relied on in the regulation process, as Ontario continues to deregulate its environmental practices.

These certification systems provide marketable qualifications for SFM foresters; however, they offer vastly different approaches and definitions of sustainability.[693] These private certifications have produced a 'competition of certifications' with competing definitions and compromises in their understanding of sustainability.[694] Further, certification processes have failed to consider climate change in their definitions of sustainability.[695] Yet, market policy developments are a contributing factor on the definition of what constitutes sustainability in forestry and includes social and ecological considerations; however, structural factors have effectively impacted the scientific approach used to evaluate policies, instead offering an alternative to government regulation.[696] These privatized assessment protocols are rationalized by industry proponents and neoliberal principles, offering alternative regulative tools centralized on the market which undermines the governments evaluative capability and understanding of the forests.[697] Private forest certifications "entrench market discipline and optimize mechanisms for economic development", resulting in a prioritization of private sector interests.[698] These privatized approaches are aimed at

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[688] Government of Canada, Forest management certification in Canada, (2025, Natural Resources Canada), online: <https://natural-resources.canada.ca/forest-forestry/sustainable-forest-management/forest-management-certification-canada>
[689] *Ibid*.
[690] Government of Ontario, *Sustainable forest management*, (2022, *Ministry of Natural Resources*), online: <https://www.ontario.ca/page/sustainable-forest-management>
[691] Government of Ontario, "State of Ontario's Natural Resources Forests 2021", pp. 64-66.
[692] Government of Ontario, *Sustainable forest management*, (2022, *Ministry of Natural Resources*), online: <https://www.ontario.ca/page/sustainable-forest-management>
[693] *Supra* note 685, [*Bloomfield, 2012*].
[694] *Ibid*, at p. 408.
[695] *Supra* note 8, at pp. 87-88, [*Halofsky et al, 2018*].
[696] *Supra* note 13, [*Parkins et al, 2016*].
[697] Abrams, J., et al., "How Do States Benefit from Nonstate Governance? Evidence from Forest Sustainability Certification", (2018, *Global Environmental Politics*), 18:3, pp. 66-85, [*Abrams et al, 2018*].
[698] *Supra* note 13, at pp. 270; 277, [*Parkins et al, 2016*].

'complementing' or 'supplanting' government regulation, yet they detract from Ministerial regulation and produce oversight gaps, by the "weakening of the state capacity that is often needed for successful implementation of certification initiatives".[699] These programs exist within a paradigm which rationalizes decreased government assessment and administrative retrenchment, further producing regulatory oversight.

There are significant gaps in knowledge surrounding Ontario's forests, especially outside of the managed zones where site management plans are functionally producing a large portion of Ministerial knowledge. Furthermore, the parameters of data collection surrounding the forests rehabilitation, resistance, and resilience is limited with the exemption of all forestry environmental assessments. Forestry management plans incorporate some of these elements and considerations, however it is an area that needs further research and Ministerial re-evaluation. As detailed:

> "there are no provincial targets related to forest growth and composition, each Forest Management Plan is required to contain management objectives, indicators, desirable levels and targets relating to Crown forest diversity objectives. There are over 30 Forest Management Plans in Ontario. We have not reviewed these plans to determine the extent that they contain this information."[700]

While the Ontario government claims the environmental assessments for the managed forest area are unnecessary as they are "duplicative" of regulatory requirements, it fails to detail what aspects are duplications, nor does it address the aspects which are still absent in the analysis. This process has led to gaps in the Crown's capacity to regulate forestry production.[701] These gaps have led to an increased facilitation of extraction and a lack of transparency;[702] whereby, forestry regulation is increasingly focused and limited by capitalist values, aimed at reducing costs and burdens for forest extraction through streamlined and privatized assessments.[703]

Conversely, this dynamic has created opportunities for a more polycentric form of regulation, where there can be further advocacy for sustainable and equitable outcomes. Certification processes aim at considering communities and Indigenous governments, requiring some form of

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[699] *Supra* note 697, p. 66, [*Abrams et al, 2018*].
[700] Office of the Auditor General of Ontario, "The State of the Environment in Ontario" (2023), p. 88.
[701] Wyatt, S., & Teitelbaum, S., "Certifying a State Forestry Agency in Quebec: Complementarity and Conflict around Government Responsibilities, Indigenous Rights, and Certification of the State as Forest Manager" (2020, Regulation and Governance) 14:3. [*Wyatt & Teitelbaum, 2020*]; see also, Canadian Government, "Forest management certification in Canada" (2024); see also, Ecojustice, "Competition Bureau launches investigation into greenwashing complaint against North America's largest forest certification scheme" (2023), online: <https://ecojustice.ca/news/competition-bureau-launches-investigation-into_greenwashing-complaint-against-north-americas-largest-forest-certification-scheme/>
[702] *Ibid*; see also, *supra* note 13, [*Winfield & Benevides, 2003*]; see also, Canadian Environmental Law Association, *Blog: Exemption of forestry from the Environmental Assessment Act sets a bad precedent*, (2020), online: <https://cela.ca/exemption-of-forestry-from-the-environmental-assessment-act-sets-a-bad-precedent/>
[703] Government of Ontario, "Sustainable Growth: Ontario's Forest Sector Strategy", (2020, *Ministry of Natural Resources and Forestry*), pp. 28-30.

community engagement and potential capacity building opportunities.[704] However, these market driven approaches erode the governments regulatory capacities, and do not necessarily create those same opportunities for communities or Indigenous governments.[705] Further, the constitutional obligations for the Crown necessitate sufficient assessment and engagement mechanisms, potentially absent in these models. Ecological sustainability is a unwritten constitutional principle, which is tied to reconciliation and Aboriginal title, as detailed by the SCC: "incursions on Aboriginal title cannot be justified if they would substantially deprive future generations of the benefit of the land".[706] Despite this, incursions can be considered justified through compelling purposes "in conformity with its fiduciary duty to affected Aboriginal groups".[707]

The process of sustainable timber extraction is intrinsically complicated and contradictory. Ontario's SFM approach is increasingly reliant on the private sector and limited in its internal governmental capacities at implementing and evaluating sustainable forestry policy adherence. While the *CFSA* has been an improvement from its predecessors, it is producing a new decentralized form of industry 'smart-regulation', which has disempowered Ministerial regulatory capacities.[708] SFM is a complex and contradictory process, where there are no uniform definition or approach and its capacity to adapt to climate change is particularly limited.[709] The definition of what constitutes sustainability in forestry entails discretionary and privatized processes, while structural factors have effectively impacted the regulation of forestry practices with the use of flexible policies. As such, the increasingly privatized assessment protocol is rationalized by proponents, undermining the government's evaluative capability and understanding of the forests, which are changing more than ever.[710] The Ministries capacity is limited to conduct reviews of the outcomes of these plans, which has developmental consequences on the provinces policy considerations.

Section 5. Case Studies

These case studies were selected to provide a comparison between the Ontario forestry licensing framework and its variants. I compare the traditional SFL framework and the unique LFMC licensing framework, which places an increased emphasis on local outcomes. Additionally,

[704] Karmann, M., et al., "An Assessment of FSC Certification Solutions for Smallholders and Community Managed Forests", Chapter 15 in Routledge Handbook of Community Forestry", Bulkan, J., et al., (2022); see also, *supra* note 118, p. 259, [*Robinson et al, 2024*].
[705] *Supra* note 13, p. 271, [*Parkins et al, 2016*].
[706] *Tsilhqot'in Nation v. British Columbia*, 2014 SCC 44 (CanLII), [2014] 2 SCR 257, at para 86; see also, *supra* note 244, at pp. 3-4, [*Collins & Sossin, 2019*].
[707] *Ibid*, at para 152.
[708] *Supra* note 2, [*Winfield, 2015*].
[709] *Supra* note 8, at pp. 261-263, [*Gauthier et al, 2014*].
[710] *Supra* note 188, [*Rempel et al, 2016*].

available research and grassroots materials throughout Ontario forestry analysis is limited, which further refined the available potential case studies.

Temagami, Pic, and Bancroft-Minden Forests have been selected for their capacity to offer an assessment of different forestry license types. These examples have different holders and managers, from Crown corporation to mixed and private management. Temagami and Pic Forest are LFMC licences,[711] which are currently the only two licenses of their kind in Ontario, specifically focused on local outcomes. These LFMC licenses entail community based legislative requirements for the provision of "economic development opportunities for aboriginal peoples", while "recognizing the importance of local economic development".[712] These requirements are in addition to the *CFSA* sustainability standards and associated policies.

Pic Forest is predominantly held by the Crown, with 86.1% of the forest being Crown land and 90.3% of the forest being considered 'productive forest' for timber.[713] The Pic Forest license is held by Nawiinginokiima Forest Management Corporation,[714] which is a Crown corporation making the forest particularly unique. Temagami is a relatively privatized project in general, especially as a LFMC project, comprised of 54% Crown Forest.[715] Of this forest, 75.8% of the forest is considered 'productive forest' for timber,[716] which is managed by the Temagami Forest Management Corporation, a provincial agency.[717] These LFMC case studies provide a particularly useful assessment into community practices provided the nature of their license types and their increased emphasis on local outcomes.[718] Additionally, the LFMCs provide more transparency in their practices with additional reporting materials, including policies, business plans, annual reports, mandate letters, and other initiatives and disclosures.[719] LFMCs contain additional reporting requirements as provincial government agencies; however, private industry license holders are not regulated to adhere to these increased transparency requirements.

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[711] Government of Ontario, *Management Units and Forest Management Plan Renewal Schedules*, (2025), online: <https://www.ontario.ca/page/management-units-and-forest-management-plan-renewal-schedules>; see also, O. Reg. 111/12, s. 1.
[712] *Ontario Forest Tenure Modernization Act*, 2011, S.O. 2011, c. 10, ss. 5(2)(3).
[713] Government of Ontario, *OntariosForestFacts*, (2025), online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[714] O. Reg. 111/12, s. 1; see also, OIC; see also, Nawiinginokiima Forest Management Corporation, online: <https://nfmcforestry.ca/>; see also,
[715] Government of Ontario, *OntariosForestFacts*, (2025), online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[716] Government of Ontario, *OntariosForestFacts*, (2025), online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[717] O. Reg. 111/12, s. 1.1; see also, OIC 1204/2022, https://www.pas.gov.on.ca/Home/Agency/643 ; see also,
[718] *Ibid.*
[719] Nawiinginokiima Forest Management Corporation*, NFMC-Governance*, online: <https://nfmcforestry.ca/governance/>; see also, Temagami Forest Management Corporation*, TFMC*, online: <https://www.temagamiforest.com/?page_id=811>

Conversely, Bancroft-Minden Forest is a more traditional SFL, and located on highly privatized land with limited Crown forest, being one of four management units which is comprised of ≥70% privatized land, at 73.6%.[720] Bancroft-Minden Forest is managed by the Bancroft Minden Forest Company, which is a private corporation, however the company does provide resources to the public through their website materials, which is not the industry standard.[721] These three forests are also comprised of a large portion of 'mature' and 'late successional' forests in the AOU, which further emphasises the need to implement conservation methods for old growth.[722]

These forests all have FMPs as required under the *CFSA*,[723] which is the primary document analyzed for the purpose of this research. Another foundational document is the Forestry Audit report, which is submitted every 10-12 years to the Ministry. Through this process, independent auditors produce reports on behalf of license holders for the Ministry's review. The Ministry reviews these reports and issues an Action Plan which details their expectations.[724] Bancroft-Minden Forest has a status report, as required pursuant to O. Reg. 319/20,[725] which can be indicative of a need for a Ministry evaluative follow-up in addition to status reports.

Lastly, I utilized available resources, including ecological studies as well as Indigenous and community forest materials to further refine the case study materials. Temagami Forest[726] and Bancroft-Minden Forest[727] are well documented and recognized old-growth locations with relevant ecological research, community relevance, and Indigenous advocacy.[728] These forests are sites of contention, whereby community and Indigenous efforts continue to advocate for increased

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[720] *Ibid; see also,* Government of Ontario, *OntariosForestFacts*, (2025), online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>

[721] Bancroft Minden Forest Company, *Welcome to BMFC*, online: <https://bmfci.ca/>

[722] Government of Ontario, *OntariosForestFacts*, (2025), online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance> Note: DETAIL%

[723] *CFSA*, s. 8(1).

[724] Government of Ontario, *Independent forest audits*, online: <https://www.ontario.ca/page/independent-forest-audits>; see also, 69(1)(31); see also, O. Reg. 319/20: Independent Forest Audits.

[725] *Ibid*, ss. 8-9.

[726] Quinby, P., "Self-replacement in old-growth white pine forests of Temagami, Ontario", (1991, Forest Ecology and Management), 41, pp. 95-109; see also, Quinby, P., "Scale of Ecological Representation: A Case Study of Old-Growth Forest Conservation in Temagami, Ontario, Canada", (2001, Natural Areas Journal), 21:3, pp. 216-228.; see also, Quinby, P., et al., "A Superior· Temagami Corridor: Linking Natural Heritage, Cultural Heritage, and Recreational Opportunities", (1997, Nastawgan), pp. 13-21; see also, Quinby, P., "Status Update For Endangered Old-Growth Eastern White Pine And Red Pine Forests", (2018, Ancient Forest Exploration & Research), Research Report 37, pp. 1-10; see also, Pinto, F., & Romaniuk, S., "Changes in Tree Species Composition from Pre-European Settlement to Present A Case Study of the Temagami Forest, Ontario", Chapter 14 in Perera, A., et al., "Emulating Natural Forest Landscape Disturbances", (2004, *Columbia University Press*), pp. 176-188.

[727] Quinby, P., "Hemlock Decline, Reserve Selection, and Conserving Canada's Largest Remaining Old-growth Eastern Hemlock Stand at Trent Lakes, Ontario", (2025, Conservation Issues), 45:3, pp. 226-237; see also, Quinby, P., Mapping Old-Growth Forests In Northern Peterborough County, Ontario, (2020, Ancient Forest Exploration & Research), Research Report 40, pp. 1-29; see also, Marcus, A., & Quinby, P., "Stewardship of Primary Forests: Opportunities to Protect Canada's Largest Eastern Hemlock Old-growth Forest at Catchacoma Lake, Ontario", (2024, Ancient Forest Exploration & Research), Research Report 47, pp. 1-10.

[728] McNab, D., "The Temagami Blockade of 1988", Chapter 7 in "No Place for Fairness: Indigenous Land Rights and Policy in the Bear Island Case and Beyond" (2009, ACUP), pp. 111-133; see also, Wolf Lake Coalition, online: <https://www.savewolflake.org/>; see also, Ancient Forest Exploration & Research, *Temagami*, online: <https://www.ancientforest.org/temagami>; see also, McIntosh, E., *What does an old growth forest look like in Ontario?* (2022, The Narwhal), online: <https://thenarwhal.ca/ontario-forests-old-growth/>; see also, The Catchacoma Forest Stewardship Community, online: <https://catchacomaforest.org/>; see also, Wolf Lake Coalition, online: <https://www.savewolflake.org/>

conservation methods, community monitoring, and Indigenous jurisdiction. Pic forest is also detailed in ecological studies and government reports,[729] however there are fewer materials available regarding community relevance and Indigenous advocacy.

Ultimately, these are focused and contextualized case studies, which demonstrate varied approaches to forestry management through licensing formats and management processes. This research aims to identify how forestry management can be improved through enhanced sustainability, community engagement, and Indigenous jurisdiction to promote forest resilience in Ontario. As such, LFMC are examined in two case studies, and contrasted with a traditional SFL to provide insight into the more standard approach.

5.1. Temagami Forest

The Temagami Forest management unit is 631,313 ha in size with 478,438 ha of 'productive' forest.[730] The available harvest area is 3,066 ha with an available harvest volume of 367,477 m³, of which 845.1 ha was harvested in 2022 comprising 110,460 m³ in harvesting volume.[731] The management unit had a 5-year average harvesting area of 1,165 ha, and a 5-year average harvest volume of 163,083 m³.[732] Harvesting techniques over the 5-year average relied on clearcuts for roughly 96% and shelterwood cuts for 4% of the available harvesting area.[733] Temagami Forest is an older forest, with 215,832 ha of mature trees and 122,264 ha of late successional trees.[734] The Temagami Forest had a 5-year average assessment area of 1,257 ha to evaluate the regenerated forested areas, which identified that 84.4% of the areas surveyed were successful while 15.3% were not successful in establishing regenerated forests.[735] There were roughly 108 compliance inspections over the last 5 years, which is a "compliance monitoring program [that] is conducted in partnership between the Ministry of Northern Development, Mines, Natural Resources and Forestry and the forest industry managing the forest", which identified two instances of non-compliance.[736] The natural disturbances effecting the forest had a 5-year

[729] Yemshanov, D., et al., "Exploring the tradeoffs among forest planning, roads and wildlife corridors: a new approach", (2022, Optimization Letters), 16, pp. 747-788; see also, Rob Arnup Consulting, "Pre-industrial Forest Condition Report for the Pic River and Big Pic Forests", (2016), pp. 1-157.
[730] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Unit Details,* online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>; see also, Government of Ontario, *OntariosForestFacts: Unit 898 Forests*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[731] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Unit Details,* online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>
[732] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (harvest area, & harvest volume*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>
[733] *Ibid*.
[734] Government of Ontario, *OntariosForestFacts: Unit 898 forests*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[735] Government of Ontario, *OntariosForestFacts: Monitoring Unit 898*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[736] *Ibid*.

average of 18,213 ha, with insects resulting in 99% of the impact, while fire and weather damage entailed a lesser effect area with more severe impacts on forest mortality events.[737] Natural disturbances averaged over the last five years cumulatively resulted in 940.7 ha of Crown forest mortality, primarily from the spruce budworm and fires.[738] The Temagami Forest evaluative matrix and management assessment are found in Appendix 3 and Appendix 4, respectively.

5.1.1. Temagami Forest Management Corporation

The Temagami Forest Management Corporation (TFMC) is mandated to serve the community through commitments, including the provision of "economic development opportunities for aboriginal peoples", which must "manage its affairs to become a self-sustaining business entity and to optimize the value from Crown forest resources while recognizing the importance of local economic development".[739] The TFMC enhancement building programs include event sponsorship programs up to $2,000, scholarship and workforce developments up to $2,500, and partnerships up to $10,000, which have contributed to the First Nations, local community, and organizations that are aimed at "enhance[ing] the quality of life within the Temagami Forest".[740]

5.2. Pic Forest

The Pic Forest management unit is 1,146,938 in size with 1,036,003 ha of 'productive' forest.[741] The available harvest area is 10,464 ha with an available harvest volume of 1,082,549 m³, of which 3,205 ha was harvested in 2022 comprising 303,548 m³ in harvesting volume.[742] The management unit had a 5-year average harvesting area of 3,684 ha, and a 5-year average harvest volume of 371,921 m³.[743] Harvesting techniques over the last 5-years relied exclusively on clearcut practices.[744] Pic Forest is an older forest, with 332,113 ha of mature trees and 290,2567 ha of late successional trees.[745] The Pic Forest had a 5-year average assessment area of 4,429

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[737] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (natural disturbance*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>

[738] Government of Ontario, *OntariosForestFacts: Natural Disturbances Unit 898*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>

[739] Memorandum of Understanding Between Minister of Natural Resources and Chair of Temagami Forest Management Corporation, (2025), b2 & b3.

[740] Temagami Forest Management Corporation, *Enhancement Programs*, online: <https://www.temagamiforest.com/?page_id=1011>

[741] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Unit Details,* online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>; see also, Government of Ontario, *OntariosForestFacts: Unit 966 forests*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>

[742] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Unit Details,* online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>

[743] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (harvest area, & harvest volume*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>

[744] *Ibid*.

[745] Government of Ontario, *OntariosForestFacts: Unit 966 forests*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>

ha to evaluate the regenerated forested areas, which identified that 100% of the areas surveyed were successful in establishing regenerated forests.[746] There were roughly 235 compliance inspections over the last 5 years, which identified 5 instances of non-compliance, and has 8 inspections pending.[747] The natural disturbances effecting the forest had a 5-year average of 16,315 ha, with insects resulting in 99% of the impact, while fire and weather damage entailed a lesser effect area with more severe impacts on forest mortality events.[748] Natural disturbances averaged over the last five years cumulatively resulted in 145.5 ha of Crown forest mortality, primarily from blowdown and fires.[749] The Pic Forest evaluative matrix and management assessment are found in Appendix 5 and Appendix 6, respectively.

5.2.1. Nawiinginokiima Forest Management Corporation

The Nawiinginokiima Forest Management Corporation (NFMC) is also mandated to serve the community through commitments, including the provision of "economic development opportunities for aboriginal peoples", which must "manage its affairs to become a self-sustaining business entity and to optimize the value from Crown forest resources while recognizing the importance of local economic development".[750] The NFMC capacity building programs include donations and sponsorships, student scholarships, and strategic initiatives, which have contributed roughly $3,769,491 to the local community and are aimed at "actively supporting the municipalities and First Nation".[751]

5.3. Bancroft-Minden Forest

The Bancroft-Minden Forest management unit is 989,966 ha in size with 738,174 ha of 'productive' forest.[752] The available harvest area is 3,308 ha with an available harvest volume of 265,000 m³, of which 1,958 ha was harvested in 2022 comprising 118,890 m³ in harvesting volume.[753] The management unit had a 5-year average harvesting area of 2,084 ha, and a 5-year

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[746] Government of Ontario, *OntariosForestFacts: Monitoring Unit 966*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[747] *Ibid*.
[748] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (natural disturbance*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>
[749] Government of Ontario, *OntariosForestFacts: Natural Disturbances Unit 966*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[750] Memorandum of Understanding Between Minister of Natural Resources and Chair of Nawiinginokiima Forest Management Corporation, (2025), online: <https://nfmcforestry.ca/wp-content/uploads/2025/10/NFMCMOU_2025_07_29_Signed-1.pdf> b2 & b3.
[751] Nawiinginokiima Forest Management Corporation, Our Programs, online: <https://nfmcforestry.ca/programs/>
[752] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Unit Details,* online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>; see also, Government of Ontario, *OntariosForestFacts: Unit 220 forests*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[753] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Unit Details,* online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>

average harvest volume of 142,061 m³.[754] Harvesting techniques over the last 5-years varied, with 37% shelterwood, 37% selection, and 26% clearcuts.[755] The Bancroft-Minden Forest is an older forest, with 587,323 ha of mature trees and 57,427 ha of late successional trees.[756] The Bancroft-Minden Forest had a 5-year average assessment area of 1,020 ha to evaluate the regenerated forested areas, which identified that 100% of the areas surveyed were successful in establishing regenerated forests.[757] There were roughly 396 compliance inspections over the last 5 years, which identified 5 instances of non-compliance.[758] The natural disturbances effecting the forest had a 5-year average of 35,850 ha with the impact resulting from other disturbances, while fire and weather damage resulted in more mortality events.[759] Natural disturbances averaged over the last five years cumulatively resulted in 259 ha of Crown forest mortality, primarily from blowdown and drought.[760] The Bancroft-Minden Forest evaluative matrix and management assessment are found in Appendix 7 and Appendix 8, respectively.

Section 6. Analysis

The FMPs analyzed were comprehensive documents, considering ecological and social factors throughout forestry management practices, implementing nature-based solutions and vulnerability protocols which mitigate environmental impacts, primarily from resource extraction. All FMPs include elements of polycentric governance, primarily through LCC engagements. Objectives and forestry approaches throughout the FMPs were analyzed with the evaluative matrix and management assessment. The following section will elaborate on these regulatory considerations in the FMP process, detailing the increasingly discretionary and economically derived management objectives with self-regulatory assessments.

The FMPs commence with the Boreal Forest Region and the Great Lakes-St. Lawrence (GLSL) Forest Region and their respective landscape indicators through the Ontario Landscape Tool which are modeled with Simulated Range of Natural Variation (SRNV), to identify each forests' natural condition and structure, which are compared to harvesting approaches over time. The FMPs detail objectives, which are monitored through specific indicators and used to measure

[754] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (harvest area, & harvest volume*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>
[755] *Ibid*.
[756] Government of Ontario, *OntariosForestFacts: Unit 220 forests*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>
[757] *Ibid*.
[758] *Ibid*.
[759] Government of Ontario, *Forest Explorer Technical Series Management Unit Overview: Detailed Dashboard (natural disturbance*), online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap>
[760] Government of Ontario, *OntariosForestFacts: Natural Disturbances Unit 220*, online: <https://public.tableau.com/app/profile/larlo/viz/OntariosForestFacts/AtaGlance>

performance for Ministerial reviews. Areas of Concern (AOCs) are established, in an aim to protect sites of significance for their ecological and social value, which are set by the foresters and determined through government resources and community consultations.

These AOCs can entail strategic management zones or enhanced management areas with protocols to address harvesting impacts, forestry regeneration, climate adaptation requirements, and other risk assessment considerations. AOCs can include, ecologically significant areas including old-growth forest and research sites; watersheds and water features including wetlands, streams, and spawning areas; species specific areas including nesting sites, feeding areas, and migration paths; traplines and other hunting considerations; cultural heritage value areas; and community business and recreational activities. Aboriginal value mapping is an additional process, implemented through Aboriginal Background Information Reports which influences the AOC mapping and management process.[761] AOCs are created during the FMP planning process, mainly through the engagements and consultations in the Desired Forest and Benefits Meeting process (DFBM), which implements LCCs, Indigenous nations and in the case of LFMCs forested communities, to varying degrees.

AOCs functionally require mitigation approaches and some adaptation considerations, mainly implemented through risk assessments. Risk assessments can include identified concerns from communities and the Ministry through reviews and consultations, and from business related risks for the foresters. These risks can express competing aims and interests, often between economic aspects and ecological impacts and limitations, which is a complexity that was only explicitly examined and evaluated to offer a balancing scale in one FMP.[762] The FMPs analyzed did not include explicit species at risk indicators or monitoring processes; rather, they were reliant on AOCs for broader ecosystem considerations, carried out through forest operator harvesting inspections and reporting processes.[763] The AOCs are relied on to implement species at risk concerns by determining critical geographical areas, which provide environmental and social values. These areas entail additional operational modifications, potentially ceasing production in identified AOCs.

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[761] Government of Ontario, *Forest management: cultural heritage*, (2025, *Ministry of Natural Resources*), online: <https://www.ontario.ca/page/forest-management-cultural-heritage>

[762] Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031.

[763] *Ibid*; Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP; see also, Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.

Harvesting practices were primarily focused on economic profitability models and considerations, with mitigation approaches. Clearcutting was indicated as a preferred method for all FMPs analyzed, and while BMFC entailed the least amount of clearcutting practices, their FMP indicated it was a more expedient and preferred approach, but the "planning team [was] further constrained by social pressure not to create the large cut areas required to meet these targets".[764] Silviculture and forestry regeneration was focused on reforesting processes which compared their assessments to the historical 'base' of the forests, which is a nature-based solution. The FMPs all included adaptation considerations in their replanting processes, including site tending, monitoring, thinning, and selective species retention to indirectly address climate change.

The FMPs are relatively silent on climate change and the aim to produce resilient forests; however, this was indirectly addressed, and the BMFC included an increased recognition of species adaptation, with drought and heat tolerant species.[765] Forest conservation was minimal, whereby protected areas formulated the predominant forest integrity considerations. However, the Pic FMP had specific considerations into migration routes and forested connectivity, through the continuous and refuge zones indicators and analysis.[766] Forest fragmentation was considered by Pic's FMP directly, however all FMPs considered mitigation approaches for roads and BMFC set an objective related to roadways, including the roadway decommissioning protocols.

Objectives throughout the FMPs were similarly complex and often competing, which was a factor that was only directly acknowledged by the Pic FMP.[767] Monitoring protocols were largely implemented throughout harvesting routine practices, and from Ministerial inspections to ensure compliance.[768] Most FMP internal and external objective evaluations occur at the 5 year and 10 year reviewal periods. While annual metrics also provided further assessments, they were relied upon less and predominantly for harvesting related submissions to the Ministry. All FMPs

[764] Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.
[765] *Ibid*; Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP; see also, Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031.
[766] Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031.
[767] *Ibid*.
[768] Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP; see also, Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031; see also, Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.

managed forests which have recently been amalgamated from previously divided forestry units, often doubling in management area size, which has expanded management unit planning with potential oversight challenges and increased competing objectives with further forest and community considerations.

Indigenous and forested community consultations were implemented through the DFBMs and the LCC frameworks.[769] The process is one where planning objectives and implementation processes are determined in the FMPs, including AOCs. In the traditional SFL, the DFBM process was exclusive to LCC members, while the LFMCs provided these meetings to the public in community settings and open forums.[770] Further LFMC engagement frameworks included trapper and angler engagements, industry and community co-led fieldtrips, and communication feedback loops. However, the SFL included unique resource stewardship agreements with local businesses, which potentially implemented some of these frameworks; however, it was not specific to Indigenous nations and communities.[771] Similarly, the TFMC FMP included a local land use plan.[772] All the FMPs had Indigenous governance agreements or negotiations in consideration, which determined management objectives and allowed for unique consultation protocols.[773] The LFMCs included additional First Nation protocols which recognized Indigenous jurisdiction, primarily with TFMCs inclusion of the First Nation forest strategies and management objectives, and lands set aside considerations. In addition, the LFMCs include legislatively mandated capacity building processes, which make direct contributions to the communities. Generally, SFL community engagement frameworks were more reliant on the LCC procedures, while the LFMCs provided further engagement frameworks, predominantly though a more open forum DFBM process, which was not exclusive to the LCC members.

Overall, these FMPs are highly aspirational documents, which discretionarily balance complex and competing interests in a somewhat uniformed approach, with distinct contextualized strengths and weaknesses. They are predominantly mitigative at addressing ecological and social vulnerabilities; however, they are implementing some adaptive approaches, although the impetus

[769] *Ibid*.
[770] *Ibid*.
[771] Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.
[772] Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP.
[773] *Ibid*; see also, Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031; see also, Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.

for these decisions is primarily economic. The LFMCs entail more polycentric approaches to governance which entailed further engagement opportunities for FMP considerations; however Indigenous and community engagement is lacking, and recognized authorities are relatively minimal through the LCC framework and the slightly more expanded DFBM processes. Legislative requirements for LFMCs have a clear impact on recognized and implemented community priorities through increased engagement opportunities and commitments. However, the overall legislative dynamic in Ontario forestry is decreasing regulatory authorities and assessment opportunities from a variety of perspectives. These factors limit its capacity to build sustainable and resilient forests and communities, especially in relation to species at risk assessments, climate change resilience, conservation processes, local community engagement, and recognized Indigenous jurisdiction.

Section 7. Discussion

All FMPs consider complex climate resilience and polycentric governance aspects, implementing them throughout forestry management practices to varying and unique degrees. The centralization and ‘smart-regulation’ approach increasingly relies on economic actors to self-regulate in accordance with the legislation and set objectives which are assessed. This regulatory scheme entails economic priorities which often compete with environmental and social considerations which necessitate increased regulatory oversight, community engagement, monitoring, and research assessments; yet, they are expected to decrease assessments and centralize their analysis, through a ‘one-window’ approach. The LFMCs entailed increased polycentric governance processes in their structuring, which enabled increased Indigenous jurisdictional awareness. Ultimately, the SFM approaches lack in transformational change to address climate resilience and polycentric governance, failing to meaningfully consider the changing climate and its associated environmental justice impacts, through the prioritization of increased timber production.

Ontario SFM has various integral vulnerability protocols which mitigate forestry harvesting impacts and aim to adapt to increasing forest vulnerabilities. Similarly, Ontario SFM aims to integrate nature-based solutions through the recreation of natural disturbances in harvesting processes, and through various regenerative approaches. While these approaches have produced a degree of sustainable resource extraction, they are largely focused on mitigating extraction degradation for sustained fragmented yields and are failing to produce resilient forests

prepared for climate change.[774] Regarding social implications, Ontario forestry models aim to integrate Indigenous nations and forested communities; however, this approach is minimal outside of the LCC framework, even for the LFMCs.

Ontario's forest industry has systemic issues which continue to exclude Indigenous communities from management, meaningful consultation, and decision-making positions, especially with the authority to refuse projects.[775] These factors can have a greater impact on Indigenous women and 2SLGBTQI+ community members;[776] yet, specific assessment and critical considerations into their authorities and involvement is absent. Forested communities have also had minimal engagement and decision-making authorities throughout the FMP planning and implementation, almost exclusively through the LCC format.[777] Ontario's forestry management practices have produced a system which is failing to protect the forests CTP regulatory processes as an earth system, exacerbating climate change and further degrading the forests resiliency.[778] This is being accelerated through extractive logics and the associated marginalization of ecological sustainability, community wellbeing, and Indigenous sovereignty and jurisdiction.

Climate resilience and vulnerability protocols in the FMPs were reliant on mitigating extractive impacts, with harvesting practices, limited biodiversity and species assessments, and decreased regulatory oversight. Elements of adaptation in the FMPs allowed for further sustainable approaches, primarily through forest regeneration and resilience considerations, however they prioritize economic considerations. Forestry harvesting and management practices in Ontario are reliant on processes which require increased mitigation considerations due to their harmful impacts, while implementing minimal adaptation processes. This has resulted in lacking proactive stewardship and a "[f]ailure to maintain disturbances within bounds of natural variability [which] may also signal declines in other ecosystem services".[779] There is a greater emphasis on economic processes which aim to maximize resource extraction, from harvesting to regeneration. The regulatory system has primarily facilitated these processes, with limiting regulatory oversight due to regulatory capture and broader principled shifts towards 'smart regulation'.[780] Currently, 88% of all timber harvested in the Ontario AOU rely on clearcuts, while shelterwood cuts

[774] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 336, [*Malcolm et al, 2025*]; see also, *supra* note 5, [*Forzieri, et al 2022*].
[775] *Supra* note 593, [*Hunt, 2015*]; see also, *supra* note 602, [*Egunyu et al, 2020*]; see also, *supra* note 118, [*Robinson et al, 2024*].
[776] *Supra* note 425, [*Deonandan & Bell, 2019*]; see also, *supra* note 21, [*LaDuke & Cowen, 2020*]; see also, *supra* note 427, [*Hania & Graben, 2020*].
[777] *Supra* note 593, [*Hunt, 2015*]; see also, *supra* note 602, [*Egunyu et al, 2020*]; see also, *supra* note 118, [*Robinson et al, 2024*].
[778] *Supra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 19, [*Quinby et al, 2022*]; see also, *supra* note 336, [*Malcolm et al, 2025*]; see also, *supra* note 5, [*Forzieri, et al 2022*].
[779] *Supra* note 336, at p. 1918, [*Malcolm et al, 2025*].
[780] *Supra* note 2, [*Winfield, 2021*]; *supra* note 2, [*Winfield, 2015*]; see also, *supra* note 13 [*Winfield & Benevides, 2003*]; see also, *supra* note 13, [*Parkins et al, 2016*].

represents 8% and selection cuts represent 5%.[781] The majority of the AOU for timber management rely exclusively on clearcutting methods, despite Indigenous nations, forested communities, and researcher opposition.[782] These approaches are intended to maximize timber profits, not retain vital regenerative forestry functions,[783] and they are creating normalized forests which are experiencing "declines in specific wildlife habitats and old forests [which] signal a reduction in the overall diversity of habitats and biota availab[ility]";[784] and thereby, degraded forest resilience.

The application of species protections and its measurement through specific indicator species is particularly limited in FMPs, generally operationalized through area-based approaches, which has been proven to have limits assessing forest resiliency.[785] Conservation considerations and areas based protections in the FMPs are minimal, with considerations into the protection of forest integrity and biodiversity often exclusively reliant on existent government conservation areas. There is a particularly limited capacity in the objectives which directly prioritize forest retention and its application for forest regeneration in the FMPs.[786]

Timber producers are provided extensive authorities to consider the application of essential environmental policies with decreasing oversight, impacting the forests regenerative processes resulting in the understudied curation of tree species with an economic prioritization, while being unable to recreate natural forest mosaics and resilience.[787] Variations in the silvicultural practices and the proclivities to retain native tree species or to introduce new more tolerant species, is primarily driven by economic considerations through this approach. Foresters have an aim to ensure that the forest is sustainably regenerative to supply timber resources which indirectly requires silviculture processes to adapt; however, their main aim is not principally to produce

[781] Government of Ontario, *Interactive Tableau: Forest Explorer Technical Series Management Unit Overview*, online: <https://public.tableau.com/app/profile/larlo/viz/FE_QuickFacts/DB_MUMap> **Note**: Only Algoma, Algonquin, French-Severn, Mazinaw-Lanark, Nipissing, Northshore, Ottawa Valley, Sudbury and Temagami management units contain harvesting practices that are not exclusively reliant on clearcuts, with varying degrees of alternative harvesting practices.
[782] *Supra* note 336, [*Malcolm et al, 2025*]; see also, *supra* note 5, [*Forzieri, et al 2022*]; see also, *supra* note 380, [*Willow, 2008*]; see also, David Suzuki Foundation, Nature Canada, Nature Quebec, Natural Resources Defense Council, Ontario Nature, Sierra Club BC, Sierra Club Canada, Wilderness Committee, "Accountability… or Advertising? A Critical Review of Canada's State of the Forests Report", (2025).
[783] *Supra* note 150, at pp. 2, [*So et al, 2024*].
[784] *Supra* note 336, at p. 1918, [*Malcolm et al, 2025*].
[785] Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP; see also, Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031; see also, Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.
[786] *Ibid*.
[787] David Suzuki Foundation, Nature Canada, Nature Quebec, Natural Resources Defense Council, Ontario Nature, Sierra Club BC, Sierra Club Canada, Wilderness Committee, "Accountability… or Advertising? A Critical Review of Canada's State of the Forests Report", (2025); see also, *supra* note 336, at p. 1918, [*Malcolm et al, 2025*]; see also, *supra* note 221, [*Thiffault, 2025*].

climate resilience. This is indicative through the prioritization of financial objectives and their indicators, and its impact on the boreal forests degraded CTP state, with localized and growing risks and impacts.[788]

The removal of environmental assessments from the forestry industry exists in a broader shift of environmental regulation, whereby neoliberal principles have functionally produced oversight gaps, through streamlined processes, industry self-inspection, and reduced assessments.[789] These approaches are increasingly reliant on self-inspection reports and international forestry market certification programs, which operate as an alternative regulatory program with an emphasis on market access. The current model is effectively led by industry, through Ministerially approved site management plans. Industry input is a main assessment process and component for policy design and FMP developments, which is leading to a unique form of regulatory capture. These factors have a pronounced impact on the forest, during accelerated climate change and growing environmental uncertainty, eroding the scientific and grassroot capacities to assess impacts and implement changes in forestry management practices to sustainably and equitably adapt.[790]

Forestry management practices have a degenerative impact on biodiversity, yet they are not being adequately measured, as all FMPs rely exclusively on AOCs for species at risk considerations.[791] While the 'coarse' approach to ecosystem and biodiversity management is effective, it should not be exclusively relied on and fails to measure or evaluate the 'fine' impacts, which are often less pronounced and require proactive management for appropriate forestry changes.[792] The overreliance on AOC approaches fails to proactively manage biodiversity and conservation, which is essential for forestry resilience. This lacking analysis into specific species within unique forested locations to provide monitoring data can result in substantial indicator species being exempted from the consideration or management plan, which could result in significant forestry resilience assessments being omitted with potential cascading impacts. The implementation of species at risk regulations will likely result in substantial reductions in the allowable harvesting areas,

[788] *Ibid*; see also, *supra* note 4, [*GTPR, 2025*].
[789] *Supra* note 2, [*Winfield, 2015*]; *supra* note 2, [*Winfield, 2021*]; see also, *supra* note 13, [*Parkins et al, 2016*].
[790] *Supra* note 17, [*Agrawal & Gibson 1999*]; see also, s*upra* note 8, [*Gauthier, et al, 2014*]; see also, *supra* note 4, [*GTPR, 2025*].
[791] Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP; see also, Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031; see also, Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.
[792] *Supra* note 11, [*Johnson & Ray, 2025*]; see also, *supra* note 442, [*Charlton, 2021*]; see also, *supra* note 188, [*Rempel et al, 2016*]; see also, *supra* note 110, [*Stanturf, 2025*].

volumes, and processes, which is indirectly acknowledged by the FMPs.[793] Researchers have consistently identified that biodiversity conservation is effectively produced through species at risk protections and detailed indicators species and is a necessity for forest integrity and resilience.[794] Similarly, the retention of intact forests is frequently completed by or supplemented through government conservation approaches; rather, than having a greater emphasis in the FMPs, potentially indicating the overreliance on the government for conservation processes and the decreased retention of forest integrity and connectivity.

Regarding the integration of forested communities, the traditional approach to community integration is particularly limited. This is identifiable through the systemic challenges in the LCC process, its inability to adequately address community needs through limited comment periods, community barriers and access issues, and the overreliance on LCC representation; rather, than direct and meaningful community engagement and consent. Polycentric approaches to forestry management have been identified to be successful abroad and in Ontario, particularly in their capacity to produce sustainable outcomes for social and environmental realities.[795] The LFMC process allows for further community capacities and authorities when compared to the more traditional SFL processes; however, it is limited in its capacity to produce transformational change and is underutilized in Ontario forestry. The use of LFMCs should be developed more, potentially alongside ESFLs, and their engagements with communities and Indigenous governments should expand beyond the DFBM creation process, including further community capacity building and recognized Indigenous jurisdictions which can inform the FMP process.

Traditional settler-colonial methods in natural forest resource management have been oriented to maximize timber extraction,[796] which has led to unsustainable processes and corresponding environmental and social detrimental effects. While environmental and social mitigation approaches have developed, they are largely mitigative while adaptation is marginal. The AOC design process constrains Indigenous and community involvement. For Indigenous nations, it is particularly limiting, and the approach exists as a subset of the cultural heritage mapping process

[793] Temagami Forest Management Corporation, "Forest Management Plan For the Temagami Management Unit April 1st, 2019 to March 31st, 2029", (2019, Management Unit 898), pp. 1-295; see also, Supplementary Documentation for the 2019-2029 Temagami Management Unit FMP; see also, Nawiinginokiima Forest Management Corporation, "2021-2031 Forest Management Plan Pic Forest", (2021, Management Unit 966), see also, Supplementary Documentation for the Pic Forest Management Plan April 1, 2021 To March 31, 2031; see also, Bancroft Minden Forest Company, "Forest Management Plan for the Bancroft Minden Forest Management Unit #220 2021 to 2031", (2020, Management Unit 220), pp. 1-322; see also, Supplementary Documentation for the 2021 to 2031 Bancroft Minden Forest Management Unit.
[794] *Supra* note 11, [*Johnson & Ray, 2025*]; see also, *supra* note 442, [*Charlton, 2021*]; see also, *supra* note 188, [*Rempel et al, 2016*]; see also, *supra* note 110, [*Stanturf, 2025*].
[795] *Supra* note 593, [*Hunt, 2015*]; see also, *supra* note 118, [*Robinson et al, 2024*]; see also, Teitelbaum, S., & Bullock, R., "Are community forestry principles at work in Ontario's County, Municipal, and Conservation Authority forests?", (2012, *The Forestry Chronicle*), pp. 697-707; see also, *supra* note 345, [*Harvey, 2017*].
[796] *Supra* note 13, [*Winfield & Benevides, 2003*].

and is largely tangential.[797] The reliance on the values mapping process through this format only recognizes Indigenous values in a tangential process, while direct LCC engagement also forms a community involvement barrier. The LFMCs incorporated these processes, and included some further opportunities, however they are limited. This has culminated in decreased climate resilience to natural disasters and climate change.[798]

Much of the problem stems from the settler legal system and its emphasis on mitigating impacts on Indigenous rights, rather than respecting Indigenous sovereignty and governing authority. As such, "Canadian natural resource governance, centered on consultation and accommodation of judicially recognized rights, fails to create adequate space for pluralistic human-forest relations and Indigenous environmental jurisdiction".[799] This relates to the extractivist relationship that settler law has upheld, while more relational and reciprocal Indigenous understandings of the world have been marginalized. These concerns have been identified consistently as Indigenous communities detail how:

> "First Nations have little say in harvesting planning, few opportunities to receive small overlapping licences to begin a cutting business, and use of aerial herbicide spray continues despite widespread First Nations' concerns and calls to ban use. The ongoing softwood lumber dispute has also been detrimental to First Nations business entrants in the forestry, adding to their diminished chances of economic success in this sector".[800]

Persistent forestry practices including clearcutting, the use of glyphosate, limited capacity support, and failed resource authorizations have compromised forestry sustainability and reconciliation. Indigenous communities continue to advocate for changes in forest resilience and climate preparedness, where the "increase in floods and forest fires in Ontario have highlighted the longstanding inequalities in First Nations emergency response",[801] through the lacking support of "First Nations-specific emergency preparedness and response plans based on the needs of each individual community".[802] This approach should address inequities before commencing resource extraction, and alter practices in line with First Nation needs.

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[797] Sapic, T., et al., "Views of Aboriginal People in Northern Ontario on Ontario's approach to Aboriginal values in forest management planning", (2009, *The Forestry Management Chronicle*), 85:5, at p. 790; see also, Government of Ontario Forest Management Planning Manual, (2024, *Ministry of Natural Resources*), at p. 138; see also, Government of Ontario, "Forest Management Guide for Cultural Heritage Values", (2007, *Ministry of Natural Resources*), pp. 1-87.
[798] *Supra* note 6, at pp. 37-46, [*Noon et al, 2022*]; see also, *supra* note 62, [*Ter-Mikaelian et al, 2021*]; see also, Thorn, S., et al, (2020). "Estimating retention benchmarks for salvage logging to protect biodiversity" Nature Communications. 11:4762. pp. 1-8.
[799] Van Wagner, E., "The Legal Relations of 'Private' Forests: Making and unmaking private forest lands on Vancouver Island", (2022), at p. 2.
[800] Chiefs of Ontario, "Pathways to Prosperity: First Nations Priorities for Sustainable Development A Chiefs of Ontario Call to Action on First Nations Provincial Priorities 2025", at p. 16.
[801] Chiefs of Ontario, "Creating a New Legacy: Building a Strong Foundation for Future Generations: A Chiefs of Ontario Call to Action on First Nations Provincial Priorities 2022", at p. 26.
[802] *Ibid.*

Integrating Indigenous nations and forested communities into a co-managed approach for natural resource management and forestry regulation is a significant development towards reconciliation and sustainable management. This must recognize Indigenous jurisdiction. However, provided it does not entail land ownership and government-to-government relations for First Nations, it exists in a hierarchal format which is effectively a form of constitutional capture.[803] Further, the application of this approach without the recognition of Indigenous sovereignty and jurisdiction is a form of extraction, and the "predominant research paradigm of 'incorporating' Indigenous knowledge into environmental governance is one of extraction by the external interests who seek to include specific aspects of such knowledge in their undertakings".[804]

The incorporation of Indigenous leadership and knowledge, while only a beginning step towards decolonization and recognized Indigenous sovereignty, is an "urgent necessity to ensure a comprehensive understanding of climate risks" for a more resilient and equitable adaptation to climate change, and shifting away from the systemic drivers.[805] Yet, there is a systemic process where "the approach to jurisdiction taken in the climate documents discredits, extinguishes, and circumscribes Indigenous forms of governance", locking its processes into a cycle of colonial violence and unsustainable practices.[806] Government resource revenue sharing in Ontario sets limitations on Indigenous governance, whereby partnered First Nations receiving stumpage fees "cannot spend these funds for per capita distribution to community members, redistribute to other First Nation communities, use to cover any costs of litigation, or invest the money to accrue returns without first advancing five key areas".[807] Thus, a more transformational process is required, which is cognisant of the spectrum of Indigenous involvement, recognizing that the traditional approach is not producing reconciliation nor environmental justice. Researchers have increasingly identified an "emerging strategy that can be effective in slowing the degradation of intact forests [through] enabling [I]ndigenous communities to establish title and management over their traditional lands".[808] The logic of mutual aid has the capacity to begin these reconciliatory actions, which will manifest itself in more sustainable outcomes, thereby leading to subsequent regenerative impacts, including climate resilience. But this requires transformational healing to commence.

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[803] *Supra* note 62, at p. 1 [*Drake, 2020*].
[804] *Supra* note 16, at p. 1 [*McGregor, 2021*].
[805] Wale, J., & Huson, B., "From Risk to Resilience: Indigenous Alternatives to Climate Risk Assessment in Canada", (2024, *A Yellowhead Special Report*), at p. 2.
[806] *Supra* note 19, at p. 526, [*Reed et al, 2022*].
[807] *Supra* note 386, at p. 40, [*Pasternak & King, 2019*].
[808] *Supra* note 8, at p. 605 [*Watson et al, 2018*].

Section 8. Conclusion

Climate resilience cannot be said to have been achieved through the SFM process, as the boreal forest is a carbon source with degraded ecosystem functions. The boreal forest exists as an earth system, and its degradation will entail exacerbated climatic impacts and a feedback loop. These realities necessitate change for forestry resilience. Societies disconnection with the environment and its simultaneous reliance on its extraction poses existential threats, which have eroded government, scientific, and community awareness and response capacities. Extraction and its associated logics continue to maintain the predominate approach to natural resource management and have developed regulatory oversight gaps with prioritized economic considerations. Polycentric governance provides a more equitable and sustainable future, but transformational degrowth and reconciliation is needed for government-to-government stewardship. Community-based natural resource management continues to be identified as a meaningful social and environmental approach to forestry management, achieving sustainable and equitable outcomes; yet, it exists on the margins of forestry practices.

Nature-based solutions and community-based natural resource management approaches have increasingly outlined the interconnectivity of environmental and social realities, underlining the need for more sustainable and equitable approaches. Environmentally, these primarily include, biological stewardship, comprehensive ‘coarse’ and ‘fine’ environmental analysis, climate adaptation, forest resilience through forest integrity and connectivity, economic degrowth, and environmental regeneration. Socially, recognized Indigenous sovereignty and jurisdiction, community consent and engagement, community monitoring, and Indigenous government-to-government stewardship are increasingly urgent responses to the regulatory gaps. Government priorities should aim to implement these processes, further integrating a deeper respect for the environment, communities, and Indigenous jurisdictions. This requires regulatory reform, with an increase in the quality and quantity of ministerial site assessments and AOU wide reviews, species at risk assessment requirements, and enhanced FMP requirements with respect to limitations on harvesting volumes and approaches. This must empower polycentric knowledge holders, especially Indigenous communities. There is also a unique opportunity for government capacity building, potentially through increased forestry licensing, legislatively mandated crown corporations, community investments and support, and a deeper commitment to government-to-government relationships and reconciliation. Community advocates and Indigenous nations can aim to involve themselves with the LCC formats further, while simultaneously developing external

advocacy approaches, including First Nation consultation protocols, land use plans, and other Indigenous governance documents for increased jurisdictional representation.

While some may claim these reforms are idealistic, they are also realistic and pragmatic considering the changing climate and sustained social inequities. Forests are the culmination of nature's brilliance, with a rooted interconnectivity that has enabled life to thrive; yet, they are facing an existential threat that only we can solve, *ourselves*. We must decide between a future of healing through adaptation, resilience building, and reconciliation; or, a future of extraction, through mitigation, exploitation, and a compromised planet. The climate has changed, and our time to address the need for transformational change is closing, but hope is never lost in the woods.

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Appendix

Appendix One: Ontario Forestry Administrative Zones

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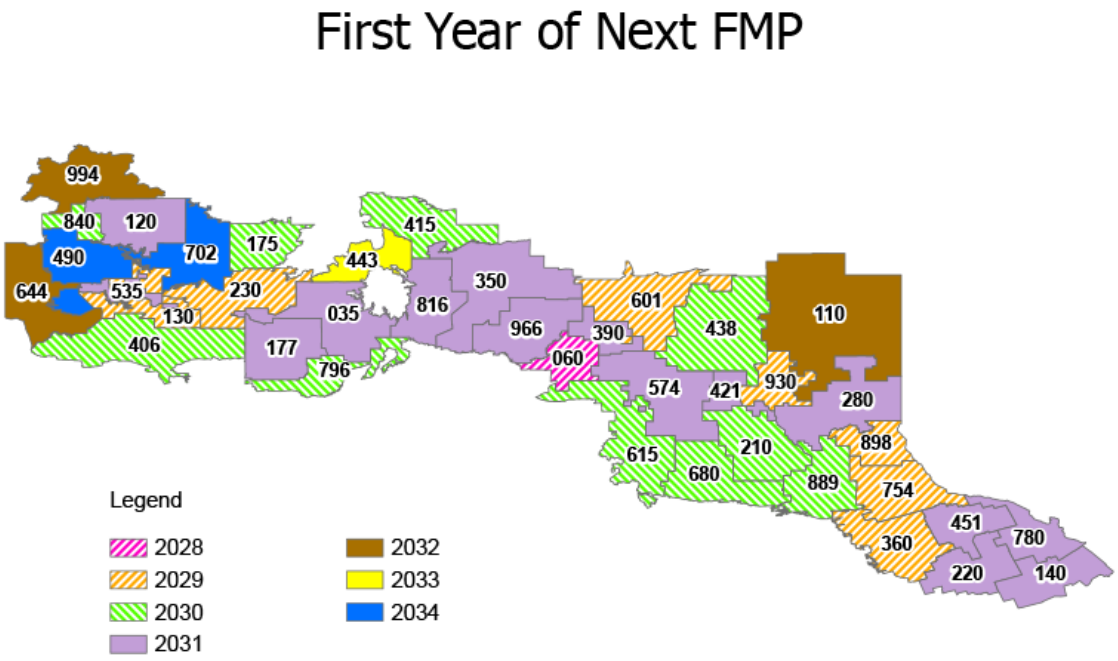
Appendix Two: Ontario Management Unit Map



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Appendix Three: Temagami Forest Evaluative Matrix

	Climate Resilience		Polycentric Governance		
	Nature Based Solutions	**Vulnerability Protocols**	**Indigenous Nations**	**Forested Communities**	
MITIGATION	• Shoreline ecosystem prohibitions & nesting retention • Retain regenerative species & Localized seed collection and use • Low complexity prescribed burning • Retained wetland functions and protections	• Felling & thinning for regeneration • Timing restrictions • Erosion prevention through shoreline and barrier forestry retention • Budworm and fire analysis updates • Harvesting and road distance restrictions from value sites and moose areas • Simulated Range of Natural Variation analysis • Tree-marking audits • Slope harvesting prohibitions & water specifications • Watershed analysis and culvert design	• LCC membership & engagement – 1/14 seat representation • Trapline and furbearer management and monitoring • Field trip learning and planning • Local knowledge and expert opinion in tending and renewal • Open House forums for Desired Forest and Benefits meeting	• LCC membership & engagement • Background Information Report • Local mill capacity investments • Field trip learning and planning • Trappers & angler's surveys • Forestry harvesting proximity engagements	**ENGAGEMENT**
ADAP	• Created shoreline ecosystems through beaver ponds	• Harvesting criteria and additional site requirements	• Planning team membership - 6/14 (two vacant)	• Planning team member - 1/14 seat for the Municipalities	**AUTH**

TATION	• Indicator species objectives • Site preparation and planting techniques with manual non-herbicide based tending techniques. • Transitional forest geography • Manual non-herbicide based tending techniques and herbicide reductions	dependent on existing road access • Roadless Area Planning & restricted access • Operational issues investigation	• TFN/TAA forestry strategy considerations • TFN/TAA Management Objectives • Lands Set Aside consultation and protocols	• Temagami Land Use Plan	**ORITY**

Appendix Four: Temagami Management Assessment Tabulation

Objective	Indicator	Monitoring & Assessments	Target & Evaluative Framework
Forest Diversity Objective Category			
1. To direct forest management activities to maintain or enhance natural landscape structure, composition, texture and patch size that provide for the long-term health of forest ecosystems and associated wildlife species by applying the Landscape Guide	1.1. Hectares of Tolerant Hardwood Landscape Class (TOL) 1.2. Hectares of Intolerant hardwood Landscape Class (INTOL) 1.3. Hectares of White pine mixedwood Landscape Class (PWMIX) 1.4. Hectares of Mixedwood Landscape Class (MIXED) 1.5. Hectares of Mixed Pine Landscape Class (MXPRJ) 1.6. Hectares of Spruce Fir Cedar Landscape Class (SFC) 1.7. Hectares of Old Growth Forest by Planning Forest Units 1.8. Hectares of Red and White Pine Forest (PWPR) 1.9. Hectares of young forest in presapling development stage (PRESAP) 1.10. Hectares of Presapling Sapling and T-Stage development stage (PSST) 1.11. Texture of Mature and Old Forest - (Proportion of 500 ha Hexagon) 1.12. Texture of Mature and Old Forest -	Measure: Spatial assessment in OLT 1.1. Timing of Assessment: Stage 2 – Long Term Management Direction (LTMD) Development 1.2. Timing of Assessment: Stage 2 - LTMD Development 1.3. Timing of Assessment: Stage 2 - LTMD Development 1.4. Timing of Assessment: Stage 2 - LTMD Development 1.5. Timing of Assessment: Stage 2 - LTMD Development 1.6. Timing of Assessment: Stage 2 - LTMD Development 1.7. Timing of Assessment: Stage 2 - LTMD Development 1.8. Timing of Assessment: Stage 2 - LTMD Development 1.9. Timing of Assessment: Stage 2 - LTMD Development 1.10. Timing of Assessment: Stage 2 - LTMD Development 1.11. Timing of Assessment: Stage 2 -	1.1. Desired Levels:18,338 - 25,385 ha; Target Levels: Cause movement to increase within 18,338 - 25,385 ha. 1.2. Desired Levels: 18,633 - 33,142; Target Levels: Cause movement to maintain within 18,633 - 33,142 ha. 1.3. Desired Levels: 55,980 - 70,440; Target Levels: Cause movement to increase within 55,980 - 70,440 ha. 1.4. Desired Levels: 49,790 - 65,679; Target Levels: Cause movement to decrease within 49,790 - 65,679 ha. 1.5. Desired Levels: 29,692 - 51,686; Target Levels: Cause movement to maintain within 29,692 - 51,686 ha. 1.6. Desired Levels: 64,341- 86,237; Target Levels: Decrease to within 86,237 - 64,341 ha. 1.7. Desired Levels: MCL: 4,009 - 7,772; MWCC: 5,369 - 12,343; MWUS: 2,528 - 5,503; PO: 1,160 - 3,607; BW: 2,968 - 7,211; PR: 64 – 394; PWUS: 15,650 -24,418; PWST: 1,591 - 3,204; PJ1: 573 - 3,281; PJ2: 2,248 - 6,375; SP1: 1,515 - 4,272; SF: 2,007 - 6,295; PWUSC 1,495 -3,503; SB: 1,190 - 4,406; HDUS1: 12,297 - 21,162; Target Levels: MCL: Cause movement to maintain within 4,009 - 7,772; MWCC: Cause movement to maintain within 12,343 - 5,369; MWUS: Movement to decrease within 2,528 - 5,503; PO: Cause movement to within 1,160 - 3,607; BW: Cause movement to increase within 2,968 - 7,211; PR: Cause movement to maintain within 64 – 394; PWUS: Cause movement to increase within 15,650 - 24,418; PWST: Cause movement to maintain within 1,591 - 3,204; PJ1: Cause movement to maintain within 573 - 3,281; PJ2: Cause movement to maintain within 2,248 - 6,375; SP1: Cause movement decrease within 4,272 - 1,515; SF: Cause movement to within 6,295 - 2,007; PWUSC: Cause movement to decrease within 3,503 - 1,495; SB: Cause movement to

	(Proportion of 5000 ha Hexagon) 1.13. Patch size of Young Forest (<36 years) - Proportion of Patches	LTMD Development, Stage 3 - Planned Operations 1.12. Timing of Assessment: Stage 2 - LTMD Development, Stage 3 - Planned Operations 1.13. Stage 2 - LTMD Development, Stage 3 - Planned Operations	maintain within 1,190 - 4,406; HDUS1: Cause movement to increase within 12,297 - 21,162 ha. 1.8. Desired Levels: PWPR: 76,350 - 89,570; PWR: Above 1995 amount (64,774 ha); Target Levels: PWPR: Cause movement to maintain 76,350 - 89,570; PWR: Maintain above 1995 amount (64,774 ha). 1.9. Desired Levels: PRESAP: 30,750 - 100,462; Target Levels: PRESAP: Cause movement to within 30,750 - 100,462 ha. 1.10. Desired Levels: PSST: 76,024 - 144,781; Target Levels: PSST: Cause movement to within 76,024 - 144,781 ha. 1.11. Desired Levels: 0.11 in the (0.1 - 0.2 ha) hexagon; 0.16 in the (0.21- 0.4) hexagon; 0.19 in the (0.41 - 0.6) hexagon; 0.25 in the (0.61 - 0.8) hexagon; 0.3 in the (>0.80) hexagon; Target Levels: Increase in the (0.1 - 0.2 ha) hexagon; Increase in the (0.21- 0.4) hexagon; Maintain in the (0.41 - 0.6) hexagon; Decrease in the (0.61 - 0.8 ha) hexagon; Decrease in the (>0.80) hexagon. 1.12. Desired Levels: 0.01 in the (0.1 - 0.2 ha) hexagon; 0.16 in the (0.21- 0.4) hexagon; 0.32 in the (0.41 - 0.6) hexagon; 0.37 in the (0.61 - 0.8) hexagon; 0.14 in the (>0.80) hexagon; Target Levels: Maintain in the (0.1 - 0.2 ha) hexagon; Increase in the (0.21- 0.4) hexagon; Increase in the (0.41 - 0.6) hexagon; Decrease in the (0.61 - 0.8) hexagon; Decrease in the (>0.80) hexagon 1.13. Desired Levels: 0.61 in the (1-100 ha) patch size; 0.18 in the (101-250) patch size; 0.09 in the (251-500) patch size; 0.06 in the (501-1,000) patch size; 0.03 in the (1,001-2,500) patch size; 0.01 in the (2,501-5,000) patch size; 0.01 in the (5,000-10,000) patch size; 0.01 in the (10,000-20,000) patch size; 0.00 in the (>20,000) patch size; Target Levels: Maintain in the (1-100 ha) patch size; Decrease in the (101-250) patch size; Maintain in the (251-500) patch size; Increase in the (501-1,000) patch size; Maintain in the (1,001-2,500) patch size; Maintain in the (2,501-5,000) patch size; Maintain in the (5,000-10,000) patch size; Maintain in the (10,000-20,000) patch size; Maintain in the (>20,000) patch size
2. To develop and implement forest management activities in a manner that protects or enhances environmental, wildlife, recreational and cultural heritage values by applying the Stand and Site Guide.	2.1. Compliance with AOC prescriptions and Conditions on regular operations.	2.1. Timing of Assessment: Year 5 and Year 10 Annual Reports Measure: NA	2.1. Desired Levels: 100 % compliance; Target Levels: 100 % compliance
3. To evaluate moose carrying capacity across the forest (as it relates to forest structure and composition) to	3.1. Review of total moose carrying capacity 3.2. Structure and Composition of Moose	Measured: upper and lower limits of the simulated range of natural variation (SRNV), respectively. Estimated number of	3.1. Desired Levels:0.35 - 0.40; Target Levels: None 3.2. Desired Levels:5-30%; Target Levels:9%

determine if Moose Emphasis Areas (MEAs) are needed and to improve the quality of habitat within MEAs where needed.	Emphasis Area ONE: browse-producing habitat 3.3. Structure and Composition of Moose Emphasis Area ONE: mature conifer dominated habitat 3.4. Structure and Composition of Moose Emphasis Area ONE: Hardwood/Mixedwood dominated habitat 3.5. Structure and Composition of Moose Emphasis Area TWO: browse-producing habitat 3.6. Structure and Composition of Moose Emphasis Area TWO: mature conifer dominated habitat 3.7. Structure and Composition of Moose Emphasis Area TWO: Hardwood/Mixedwood dominated habitat 3.8. Structure and Composition of Moose Emphasis Area THREE: browse-producing habitat 3.9. Structure and Composition of Moose Emphasis Area THREE: mature conifer dominated habitat 3.10. Structure and Composition of Moose Emphasis Area THREE: Hardwood/Mixedwood dominated habitat	moose a given area of habitat could support assuming no other factors are limiting. 3.1. Timing of Assessment: Stage 2 - LTMD Development 3.2. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.3. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.4. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.5. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.6. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.7. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.8. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.9. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 3.10. Timing of Assessment: N/A	3.3. Desired Levels:15-35%; Target Levels: 56% 3.4. Desired Levels:20-55%; Target Levels: 24% 3.5. Desired Levels: 5-30%; Target Levels: 12% 3.6. Desired Levels:15-35%; Target Levels: 52% 3.7. Desired Levels:20-55%; Target Levels: 22% 3.8. Desired Levels:5-30%; Target Levels:20% 3.9. Desired Levels:15-35%; Target Levels: 35% 3.10. Desired Levels:20-55%; Target Levels: 34%
4. To minimize productive forest area loss by forest management activities and to increase the amount of Crown productive forest by regenerating, where appropriate, non-forest area.	4.1. Hectares of Managed Crown Forest available for timber production 4.2. km/km2 of roads in EMA	Measure: Spatial assessment in OLT 4.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 4.2. Timing of Assessment: Year 5 and Year 10 Annual Reports	4.1. Desired Levels: 320,317; Target Levels: 320,317 4.2. Desired Levels: NA; Target Levels: NA
5. To ensure silviculture regenerates harvested forest area to the targeted forest units and silvicultural intensity	5.1. Percent of harvested forest area assessed as free-growing by forest unit 5.2. Planned and actual percent of harvest area	Silvicultural effectiveness monitoring will follow the harvesting operation. Plantation survival (or natural regeneration	5.1. Desired Levels: 100%; Target Levels: 91-100% 5.2. Desired Levels: 100%; Target Levels: 91-100%

	treated by silvicultural intensity 5.3. Planned and actual percent of area successfully regenerated to the projected forest unit by forest unit 5.4. Planned and actual percent of area successfully regenerated to the projected 1 forest unit by forest unit	establishment) / stand establishment. Monitored during years 1–6 by 'walkthrough' assessments or with semi permanent or permanent sample plots. Free-to-grow assessments, typically occurs 7 – 10 years post-harvest in clearcuts and after the final removal cut in shelterwood when the regeneration is over 1 metre in height. Areal surveys in addition. Post site prep and tending efficiency walkthrough assessments are done 1-2 years post-treatment. The Site Occupancy Index and Silviculture Treatment Assessment and Reporting System (SO_iSTARS) will be used for silvicultural surveys when appropriate. SO_iSTARS is a combination of the regeneration assessment systems developed by the Ontario Ministry of Natural Resources (STARS). 5.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 5.2. Timing of Assessment: Year 5 and Year 10 Annual Reports 5.3. Timing of Assessment: Year 5 and Year 10 Annual Reports 5.4. Timing of Assessment: Year 5 and Year 10 Annual Reports	5.3. Desired Levels: 100%; Target Levels: 91-100% 5.4. Desired Levels: 100%; Target Levels: 91-100%
6. Improve marketability of low grade, degraded, or overstocked stands by conducting a stand improvement silviculture project annually.	6.1. Number of completed stand improvement projects in tolerant hardwood forest	6.1. Timing of Assessment: Annual reports	6.1. Desired Levels As needed to address all potential stand improvement projects; Target Levels: Annual project implementation
7. Maximize where feasible, underutilized available silviculture	7.1. Completed silviculture treatment	7.1. Timing of Assessment: Year 5	7.1. Desired Levels: Annual project implementation; Target Levels: Annual project implementation

tools such as prescribed burn, manual tending or any other where they can be shown to improve silviculture success and forest health.		and Year 10 Annual Reports	
8. Maintain a forest resilient and adaptive to climate change through the movement towards a natural pattern, structure and composition and through the reporting and treating of invasive insects, pathogens and plants.	8.1. Indicators from Management objective 1 8.2. Reporting signing of invasive species	8.1. Timing of Assessment: See timing for management objective 1 8.2. Timing of Assessment: Annual Reports	8.1. Desired Levels: See Desired Levels for management objective 1; Target Levels: See Targets for management objective 1 8.2. Desired Levels: unlimited; Target Levels: unlimited
9. Investigate opportunities and economically viable alternatives and effects to structure and composition objectives from the application of herbicides	9.1. Complete LTMD scoping and sensitivity analysis of herbicides use in SFMM silviculture options 9.2. Proportion of herbicide use per hectare of renewal activities	9.1. Timing of Assessment: Stage 2 - LTMD Development 9.2. Timing of Assessment: Stage 4 - Draft Plan, Stage 5 - Final Plan, Year 5 and Year 10 Annual Reports	9.1. Desired Levels: N/A; Target Levels: Completed relevant scoping and sensitivity analysis 9.2. Desired Levels: as needed to achieve plan objectives; Target Levels: Establish benchmark historical use by plan start and evaluate during plan implementation at Year 5 annual report
Socio and Economic Objective Category			
10. Provide for a maximum, continuous, predictable, even and cost-effective long-term wood supply.	10.1. Long Term Projected Annual Available Harvest Area (ha) by Plan Forest Unit for the South, North, Center, West A and West B Strategic Management Zones 10.2. Long Term Annual Projected Annual Available Harvest Volume (m3/yr.) by Species Group for the South, North, Center, West A and West B Strategic Management Zones	10.1. Timing of Assessment: Stage 2 - LTMD Development 10.2. Timing of Assessment: Stage 2 - LTMD Development	10.1. Desired Levels: MCL: Meet Structure and Composition objectives and supply CID; MWCC: Meet Structure and Composition objectives and supply CID; MWUS: Meet Structure and Composition objectives and supply CID; PO: Meet Structure and Composition objectives and supply CID; BW: Meet Structure and Composition objectives and supply CID; PR: Meet Structure and Composition objectives and supply CID; PWUS: Meet Structure and Composition objectives and supply CID; PWST: Meet Structure and Composition objectives and supply CID; PJ1: Meet Structure and Composition objectives and supply CID; PJ2: Meet Structure and Composition objectives and supply CID; SP1: Meet Structure and Composition objectives and supply CID; SF: Meet Structure and Composition objectives and supply CID; PWUSC: Meet Structure and Composition objectives and supply CID; SB: Meet Structure and Composition objectives and supply CID; HDUS1: Meet Structure and Composition objectives and supply CID; Total AHA: Meet Structure and Composition objectives and supply CID; Target Levels: MCL: 33.6; MWCC: 866.8; MWUS: 21.4; PO: 279.5; BW: 232.9; PR: 10.1; PWUS: 61.9; PWST: 369.6; PJ1: 115.4; PJ2: 133.4; SP1: 316.1; SF: 223.5; PWUSC: 63.6; SB: 53.2; HDUS1: 43.7; Total AHA: 2824.8 10.2. Desired Levels: Birch: 46,279.8; Poplar: 65,000.0; SPF: 129,899.0; PWPR: 80,000.0; Cedar: 12,991.5; Tolerant Hardwood: 6,351.1; Total Species group annual harvest volume: 340,521.4 Target Levels: Birch: 46,279.8; Poplar: 65,000.0; SPF: 129,899.0; PWPR: 80,000.0; Cedar: 12,991.5; Tolerant Hardwood: 6,351.1; Total Species group annual harvest volume: 340,521.4

11. Enable to the degree possible, that actual harvest area and volume to equal available harvest area and volume through the development of cost effective road planning, allocations and timing that will support the achievement of Management Objective 1 and overall forest health.	11.1. Actual Annual Harvest Area of Plan Forest Unit (%) for the South, North, Center, West A and West B Strategic Management Zones 11.2. Actual total harvest area utilization (%) over the current and preceding planning period 11.3. Actual Annual Harvest Volume (%) by Species Group for the South, North, Center, West A and West B Strategic Management Zones 11.4. Actual Total Annual Harvest Volume utilization (%) over the current and preceding planning period 11.5. Distribution of, and arrangement of allocations by Analysis unit and resulting from the Use of Third Party Tools to develop marketable allocations	11.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 11.2. Timing of Assessment: Year 5 and Year 10 Annual Reports 11.3. Timing of Assessment: Year 5 and Year 10 Annual Reports 11.4. Timing of Assessment: Year 5 and Year 10 Annual Reports 11.5. Timing of Assessment: Stage 3 Planned Operations	11.1. Desired Levels:100%; Target Levels:50 - 100% 11.2. Desired Levels:100%; Target Levels:50 - 100% 11.3. Desired Levels: =<100; Target Levels:50-100% 11.4. Desired Levels: 100%; Target Levels:50-100% 11.5. Desired Levels: Documented use; Target Levels: Documented use
12. Develop and Maintain a comprehensive road status and quality inventory describing road quality, drivability and life span.	12.1. Km of road type 12.2. Road lifespan indicator	12.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 12.2. Timing of Assessment: Year 5 and Year 10 Annual Reports	12.1. Desired Levels: Established by Plan Start; Target Levels: TBD 12.2. Desired Levels: Established by Plan Start; Target Levels: TBD
13. To encourage the maximum harvest of available merchantable forest fiber while implementing forest operations.	13.1. % utilization of planned vs actual stand volume harvested by block 13.2. % compliance in Utilization activity over the current and preceding planning period	13.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 13.2. Timing of Assessment: Annual Reports	13.1. Desired Levels: 100%; Target Levels: 80-100% 13.2. Desired Levels: 100%; Target Levels: 100%
14. To identify and mitigate management impacts to recreational commercial and other values from the forest resource and to identify and manage impact to forest management activities from recreational or other commercial values.	14.1. % Compliance with AOC prescriptions over plan implementation	14.1. Timing of Assessment: Annual Reports	14.1. Desired Levels: 100%; Target Levels: 100%
15. To emphasize and provided access to non-timber values on the Temagami forest.	15.1. Compliance with AOC prescriptions 15.2. High mining potential access 15.3. Mapping where appropriate areas of	15.1. Timing of Assessment: Annual Reports 15.2. Timing of Assessment: Operation Planning	15.1. Desired Levels: 100%; Target Levels: 100% 15.2. Desired Levels: as feasible; Target Levels: as feasible 15.3. Desired Levels: all areas mapped; Target Levels: as appropriate

	potential non-timber values	15.3. Timing of Assessment: Year 5 and Year 10 Annual Report	
16. To undertake all forest management operations such that any negative environmental 7 impacts are avoided or minimized.	16.1. % forest operation inspections in non-compliance, by activity and remedy type	16.1. Timing of Assessment: Year 5 and Year 10 Annual Reports	16.1. Desired Levels: NA; Target Levels: 0 %
17. To engage Local Citizens Committee in effectively participating in the development and implementation of the forest management plan.	17.1. LCC self-evaluation 17.2. Support Management objectives 17.3. Support Stage 4 - Draft Plan 17.4. Support Stage 5– Final Plan 17.5. Number of field trips per year	17.1. Timing of Assessment: Stage 3 - Proposed Operations, Stage 4 - Draft Plan, Stage 5 - Final Plan, Year 5 and Year 10 Annual Reports 17.2. Timing of Assessment: Stage 3 - Proposed Operations, Stage 4 - Draft Plan, Stage 5 - Final Plan, Year 5 and Year 10 Annual Reports 17.3. Timing of Assessment: Stage 3 - Proposed Operations, Stage 4 - Draft Plan, Stage 5 - Final Plan, Year 5 and Year 10 Annual Reports 17.4. Timing of Assessment: Stage 3 - Proposed Operations, Stage 4 - Draft Plan, Stage 5 - Final Plan, Year 5 and Year 10 Annual Reports 17.5. Timing of Assessment: Annually, starting in 2019	17.1. Desired Levels: Full Support; Target Levels: Majority Support 17.2. Desired Levels: Full Support; Target Levels: Majority Support 17.3. Desired Levels: Full Support; Target Levels: Majority Support 17.4. Desired Levels: Full Support; Target Levels: Majority Support 17.5. Desired Levels: as per LCC terms of Reference; Target Levels: as per LCC terms of Reference
18. To collaborate with First Nations, and Metis in identifying feasible economic opportunities that contribute to capacity building and education on a broad range of forest management related activities.	18.1. Number of First Nation community's activity involved in the Forest Management Planning and implementation process 18.2. Number of concerns successfully resolved by all parties involved 18.3. Number of field trips to forest management operations	18.1. Timing of Assessment: Stage 2 - LTMD Development, Stage 4 - Draft Plan, Year 5 and Year 10 Annual Reports 18.2. Timing of Assessment: Stage 2 - LTMD Development, Stage 4 - Draft Plan, Year 5 and Year 10 Annual Reports 18.3. Timing of Assessment: Annual Reports	18.1. Desired Levels: All; Target Levels: All 18.2. Desired Levels: All; Target Levels: All 18.3. Desired Levels: 1 per year; Target Levels: 1 per year
19. To collaborate with local municipalities in identifying feasible economic opportunities that 3 contribute to capacity building and education	19.1. Number of Municipalities involved in the Forest Management Planning and implementation Process	19.1. Timing of Assessment: Stage 2 - LTMD Development, Stage 4 - Draft Plan, Year 5 and Year 10 Annual Reports	19.1. Desired Levels: one representative on the planning team; Target Levels: one representative on the planning team 19.2. Desired Levels: All; Target Levels: All 19.3. Desired Levels: NA; Target Levels: TBD

on a broad range of forest management 4 related activities.	19.2. Number of concerns successfully resolved by all parties involved 19.3. SEIM model results 19.4. Number of field trips to forest management operations	19.2. Timing of Assessment: Stage 4 - Draft Plan, Year 5 and Year 10 Annual Reports 19.3. Timing of Assessment: Stage 2 LTMD 19.4. Timing of Assessment: Annual Reports	19.4. Desired Levels:1 per year; Target Levels: 1 per year
20. Issue personal use fuel wood permits	20.1. Mapping and issuance of personal fuelwood	20.1. Timing of Assessment: Stage 3 - Planned Operations annual	20.1. Desired Levels: NA; Target Levels: All Areas as Appropriate
21. Research opportunities to provide for future and emerging markets by establishing scientific trials for under-utilized species, and new technologies requiring long term local involvement.	21.1. Engagement, evaluation and exploration of opportunities	21.1. Timing of Assessment: Year 5 and Year 10 Annual Reports	21.1. Desired Levels: 2 projects; Target Levels: 2 projects
22. To use effective communication tools for the dissemination and gathering of information 14 related to forest management activities that can brand forestry in a positive and forward-thinking manor that promotes the forest health, cultural identity and economic well-being of local communities.	22.1. Records of communication 22.2. Use of website, signs, posting and media notices that are accessible locally and remotely	22.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 22.2. Timing of Assessment: NA	22.1. Desired Levels: NA; Target Levels: NA 22.2. Desired Levels: accessible, visible and interactive presence within communities and online; Target Levels: accessible, visible and interactive presence within communities and online.
Lands Set Aside Objective Category			
23. To build youth capacity by training and enabling youth to participate in forest management through a diversity of opportunities in silviculture, harvest, access and monitoring activities on or nearby to the Lands Set Aside that allows an individual to see the full suite of management activities within the 10-year plan.	23.1. Number of field trips or training opportunities carried out 23.2. Distribution of harvest and renewal activities 23.3. Forestry programs established within the community	23.1. Timing of Assessment: Year 5 and Year 10 Annual Reports 23.2. Timing of Assessment: Stage 3 - Planned Operations, Year 5 and Final Year AR 23.3. Timing of Assessment: Year 5 and Year 10 Annual Reports	23.1. Desired Levels: one per year; Target Levels: one per year 23.2. Desired Levels: location of activities such that the community may take advantage of local training opportunities; Target Levels: NA 23.3. Desired Levels: Have a program in place that has the capacity to 24 accommodate the level of interest within the community; Target Levels: Have a program in place that has the capacity to 26 accommodate the level of interest within the community
24. To ensure moose habitat is evaluated and considered and improve the quality of habitat 31 within moose emphasis areas where needed through forest management activities.	24.1. Structure and Composition of Moose Emphasis Area FOUR: browse-producing habitat 24.2. Structure and Composition of Moose Emphasis Area FOUR: mature conifer dominated habitat	24.1. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR 24.2. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR	24.1. Desired Levels:5-30%; Target Levels: 7% 24.2. Desired Levels:15-35%; Target Levels:48% 24.3. Desired Levels:20-55%; Target Levels:40%

	24.3. Structure and Composition of Moose Emphasis Area FOUR: Hardwood/Mixedwood dominated habitat	24.3. Timing of Assessment: Stage 3 - Planned Operations, Final Year AR	
25. To make contributions to forest management activities that maintain or enhance natural 18 landscape structure, composition, texture and patch size that provide for the long-term 19 health of forest ecosystems and associated wildlife species by applying the Landscape 20 Guide within the LSA.	25.1. See Management Objective 1	25.1. Timing of Assessment: See Management Objective 1	25.1. Desired Levels: See Management Objective 1; Target Levels: See Management Objective 1
26. To provide an accessible and available wood supply so that Temagami First Nation can benefit from all forest management activities (harvest and renewal) on the Lands set aside.	26.1. Long Term Projected Available Harvest Area (ha) for LSA Strategic Management Zones 26.2. Long Term Projected annual Available Harvest Volume (m3/yr.) by Species Group for the LSA Strategic Management Zones 26.3. Actual Harvest Area (%) for the LSA Strategic Management Zones 26.4. Actual total harvest area utilization (%) over the current planning period 26.5. Actual Harvest Volume by Species Group for the LSA Strategic Management Zones 26.6. Distribution and arrangement of allocations by Analysis Unit resulting from the Use of third party tools to develop marketable allocations 26.7. Percent of harvested forest area assessed as free-growing by forest unit 26.8. Planned and actual percent of harvest area treated by silvicultural intensity 26.9. Planned and actual percent of area successfully regenerated to the projected forest unit by forest unit	26.1. Timing of Assessment: Stage 2 - LTMD Development 26.2. Timing of Assessment: Stage 2 - LTMD Development 26.3. Timing of Assessment: Year 5 and Year 10 Annual Reports 26.4. Timing of Assessment: Year 5 and Year 10 Annual Reports 26.5. Timing of Assessment: Year 5 and Year 10 Annual Reports 26.6. Timing of Assessment: plan development 26.7. Timing of Assessment: Year 5 and Year 10 Annual Reports 26.8. Timing of Assessment: Year 5 and Year 10 Annual Reports 26.9. Timing of Assessment: Year 5 and Year 10 Annual Reports	26.1. Desired Levels: MCL: 7.4; MWCC: 84.8; MWUS: 12.7; PO: 0.9; BW: 28.3; PR: 0.2; PWUS:4.7; PWST: 12.0; PJ1: 2.3; PJ2: 5.0; SP1: 23.1; SF: 49.3; PWUSC: 3.8; SB: 1.4; HDUS1:5.3; Total AHA: 241.2; Target Levels: MCL: 7.4; MWCC: 84.8; MWUS: 12.7; PO: 0.9; BW: 28.3; PR: 0.2; PWUS:4.7; PWST: 12.0; PJ1: 2.3; PJ2: 5.0; SP1: 23.1; SF: 49.3; PWUSC: 3.8; SB: 1.4; HDUS1:5.3; Total AHA: 241.2 26.2. Desired Levels: Birch: 4,031.1; Poplar: 2,834.9; SPF: 9,698.6; PWPR: 5,000.0; Cedar: 1,659.4; Tolerant Hardwood:769.3; Total Species group annual harvest volume: 23,993.0; Target Levels: Birch: 4,031.1; Poplar: 2,834.9; SPF: 9,698.6; PWPR: 5,000.0; Cedar: 1,659.4; Tolerant Hardwood:769.3; Total Species group annual harvest volume: 23,993.0 26.3. Desired Levels: 100%; Target Levels: 50-100% 26.4. Desired Levels: 100%; Target Levels: 50-100% 26.5. Desired Levels: 100%; Target Levels: 50-100% 26.6. Desired Levels: use a tool; Target Levels: NA 26.7. Desired Levels: Documented use; Target Levels: Documented use 26.8. Desired Levels: 100%; Target Levels:90-100% 26.9. Desired Levels: 100%; Target Levels:90-100%
27. To utilize non-herbicide tools for silviculture including fire and manual	27.1. Number of completed silviculture projects involving the community	27.1. Timing of Assessment: Year 5 and Year 10 Annual Reports	27.1. Desired Levels: 1 per year; Target Levels: 1 per year

tending where appropriate as alternatives to herbicides and to build capacity within the community.			
28. To implement demonstration projects such as thinning, cleaning of forest within the LSA that provide for future long-term economic benefit and forest health.	28.1. Number of completed Silviculture projects involving the community	28.1. Timing of Assessment: Year 5 and Year 10 Annual Reports	28.1. Desired Levels: 1 per year; Target Levels: 1 per year
To recognize, provide opportunity and coordinate the harvest of non-timber forest products such as maple syrup and medicinal plants for the benefit of TFN/TAA (Qualitative)	N/A	N/A	N/A
To communicate and brand forest management related activates in a positive and forward-thinking manner that promotes the cultural identify, economic wellbeing and long-term forest health of Temagami First Nation people and traditional lands. (Qualitative)	N/A	N/A	N/A

Appendix Five: Pic Forest Evaluative Matrix

Climate Resilience			Polycentric Governance		
	Nature Based Solutions	**Vulnerability Protocols**	**Indigenous Nations**	**Forested Communities**	
MITIGATION	• Shallow soil and blow sand site regeneration requirements and nutrient controls • Maintain slash and biomass for nutrient loss sites • Mitigate natural water movement and wetland impacts with self-screening approval framework • Herbicide reductions and assessments	• Identified issue in the conflict of competing objectives • Mitigates disrupting forest hydrology with prohibition areas and shoreline proximities • Design flow/watershed analysis and map • Fire salvage areas and retained species • Frost-free prohibitions for woodland pools, wetlands, and white spruce regeneration sites • Mitigate crossing organic and saturated mineral soils • Road density analysis and decommissioning	• Open House forums for Desired Forest and Benefits meeting • Community feedback loop process • Community presentations through the individual consultation process • Forest stand yield curves by forest unit and silviculture intensity informed by local knowledge • Establishing economic opportunities with two communities for harvest opportunities • Mitigation of new “unidentified” First Nation Community Values	• LCC membership & engagement • Socioeconomic survey for trappers • Community feedback loop and task team	**ENGAGEMENT**

ADAPTATION	• Low complexity prescribed burn program • Caribou Costal Continuous and Refuge Zones • Dynamic Caribou Habitat Schedule • Moose habitat carrying capacities	• Erosion control techniques • NFMC corrective action practices and incident investigations • Ground survey assessment and monitoring preferences	• Planning Team Member - 7/18 seat representation	• Planning Team Representative - 1/18 seat representation for the LCC	**AUTHORITY**

Appendix Six: Pic Management Assessment Tabulation

<table>
<tr><th>Objective</th><th>Indicator</th><th>Monitoring & Assessments</th><th>Target & Evaluative Framework</th></tr>
<tr><td colspan="4">Forest Diversity and Provision of Forest Cover</td></tr>
<tr>
<td>1. Habitat for Forest Dwelling Woodland Caribou Within Local Population Range(s) - Northern Continuous Range</td>
<td>1.1. Refuge Habitat

1.2. Winter Used and Preferred Habitat

1.3. Texture/ Arrangement of Winter Habitat

1.4. Ensure there is sufficient amount of mature conifer caribou habitat at all times and that they are arranged in a way to facilitate movement

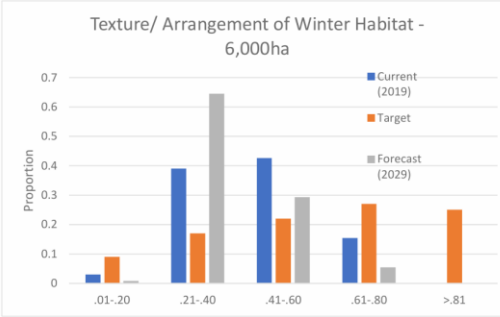
1.5. Ensure that areas identified for renewal to a conifer dominated forest unit are successfully regenerated to those caribou habitat related conifer forest units

1.6. Maintain or increase the proportion of conifer species that are linked to winter preferred</td>
<td>1.1. Achievement of northern continuous range refuge: the percent achievement of the northern continuous range refuge indicator
<table>
<tr><th>Percent</th><th></th><th colspan="11">Term</th></tr>
<tr><th>LC</th><th>Case</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th></tr>
<tr><td>CRF</td><td>102</td><td>83%</td><td>71%</td><td>64%</td><td>69%</td><td>76%</td><td>79%</td><td>80%</td><td>78%</td><td>81%</td><td>79%</td><td>81%</td></tr>
<tr><td></td><td>214</td><td>83%</td><td>75%</td><td>77%</td><td>84%</td><td>94%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td></td><td>215</td><td>83%</td><td>76%</td><td>77%</td><td>83%</td><td>94%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
<tr><td></td><td>229</td><td>83%</td><td>75%</td><td>77%</td><td>83%</td><td>93%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr>
</table>
1.2. Achievement of northern continuous range winter preferred
<table>
<tr><th>Percent</th><th></th><th colspan="11">Term</th></tr>
<tr><th>LC</th><th>Case</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th></tr>
<tr><td>CWP</td><td>102</td><td>87%</td><td>78%</td><td>36%</td><td>26%</td><td>29%</td><td>33%</td><td>32%</td><td>32%</td><td>29%</td><td>27%</td><td>24%</td></tr>
<tr><td></td><td>214</td><td>87%</td><td>81%</td><td>75%</td><td>66%</td><td>62%</td><td>63%</td><td>66%</td><td>70%</td><td>70%</td><td>73%</td><td>69%</td></tr>
<tr><td></td><td>215</td><td>87%</td><td>81%</td><td>75%</td><td>62%</td><td>62%</td><td>64%</td><td>66%</td><td>71%</td><td>72%</td><td>78%</td><td>68%</td></tr>
<tr><td></td><td>229</td><td>87%</td><td>80%</td><td>75%</td><td>61%</td><td>61%</td><td>63%</td><td>66%</td><td>69%</td><td>68%</td><td>76%</td><td>68%</td></tr>
</table>
Achievement of northern continuous range winter useable
<table>
<tr><th>Percent</th><th></th><th colspan="11">Term</th></tr>
<tr><th>LC</th><th>Case</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th></tr>
<tr><td>CWU</td><td>102</td><td>87%</td><td>67%</td><td>51%</td><td>55%</td><td>61%</td><td>83%</td><td>100%</td><td>99%</td><td>88%</td><td>99%</td><td>100%</td></tr>
<tr><td></td><td>214</td><td>87%</td><td>68%</td><td>64%</td><td>71%</td><td>82%</td><td>100%</td><td>98%</td><td>93%</td><td>91%</td><td>100%</td><td>100%</td></tr>
<tr><td></td><td>215</td><td>87%</td><td>69%</td><td>65%</td><td>71%</td><td>84%</td><td>100%</td><td>95%</td><td>90%</td><td>92%</td><td>100%</td><td>100%</td></tr>
<tr><td></td><td>229</td><td>87%</td><td>67%</td><td>63%</td><td>70%</td><td>80%</td><td>100%</td><td>99%</td><td>92%</td><td>88%</td><td>100%</td><td>100%</td></tr>
</table>
1.3. measured at two (2) scales; 6,000ha and 30,000ha; future monitoring will track achievement of the target.

1.4. maintain and/or increase landscape characteristics that support caribou habitat within an identified zone of connectivity with the use of the following landscape classes: o Mature and late lowland conifer o Mature and late upland conifer and mixed o Mature and late balsam fir

1.5. A detailed assessment was undertaken to assess the achievement of the policy direction with the caribou habitat planning activities on the Pic Forest, measured during plan implementation (year 7 and year 10 annual reports).

1.6. Dynamic Caribou Habitat Schedule (DCHS) review shall be compared to the levels reported in the FTG results of the Year 5 and Year 10 Annual Reports to determine if the objective has been met.

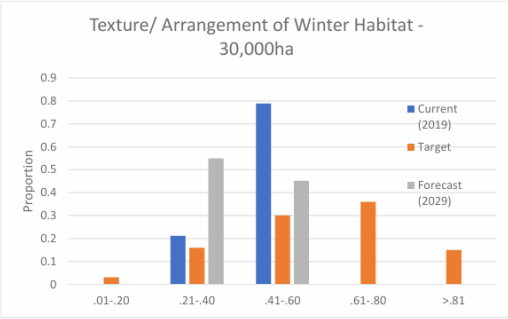
1.7. Density analysis and internal reporting - select preferred routes that minimized impacts to habitat and followed the roads-related standards, and guidelines. To monitor the success of the roads strategies, a roads objective was</td>
<td>1.1. Numerical value of the amount of area contributing to the northern continuous range refuge indicator
<table>
<tr><th>LCArea</th><th></th><th></th><th>At Year</th><th></th><th></th></tr>
<tr><th>Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>2029</th><th>2039</th><th>2119</th></tr>
<tr><td>229</td><td>133,657</td><td>150,427</td><td>99,921</td><td>102,468</td><td>133,657</td></tr>
</table>
1.2. Numerical value of the amount of area contributing to the northern continuous range winter preferred indicator
<table>
<tr><th>LCArea</th><th></th><th></th><th>At Year</th><th></th><th></th></tr>
<tr><th>Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>2029</th><th>2039</th><th>2119</th></tr>
<tr><td>229</td><td>47,889</td><td>62,125</td><td>38,441</td><td>35,699</td><td>32,542</td></tr>
</table>
<table>
<tr><th>LCArea</th><th></th><th></th><th>At Year</th><th></th><th></th></tr>
<tr><th>Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>2029</th><th>2039</th><th>2119</th></tr>
<tr><td>229</td><td>47,125</td><td>68,826</td><td>31,493</td><td>29,633</td><td>60,153</td></tr>
</table>
1.3. Achievement of texture/ arrangement of winter habitat - 6,000ha


<table>
<tr><th colspan="4">Texture/ Arrangement of Winter Habitat</th></tr>
<tr><th>6,000ha frequency (Proportion of Hexagon)</th><th>Current (2019)</th><th>Target</th><th>Forecast (2029)</th></tr>
<tr><td>.01-.20</td><td>0.03</td><td>0.09</td><td>0.008</td></tr>
<tr><td>.21-.40</td><td>0.39</td><td>0.17</td><td>0.645</td></tr>
<tr><td>.41-.60</td><td>0.426</td><td>0.22</td><td>0.293</td></tr>
<tr><td>.61-.80</td><td>0.154</td><td>0.27</td><td>0.054</td></tr>
<tr><td>>.81</td><td>0</td><td>0.25</td><td>0</td></tr>
</table>
Achievement of texture/ arrangement of winter habitat - 30,000ha</td>
</tr>
</table>

<table>
<tr>
<td></td>
<td>habitat in each of the pure conifer forest units, to ensure that the habitat quality within forest units does not decline

1.7. Maintain or reduce road density within the northern continuous range, and thereby minimize increases to cumulative disturbances

1.8. Future Habitat created through Harvest</td>
<td>placed on the management activities of the coastal range.

1.8. an overarching objective to measure achievement of planned harvest within identified “A” blocks. Within SFMM, we have applied strict harvest targets to force harvest within the "A" blocks. Within the model the total land area of the "A" blocks is 55,558ha; 44,533ha available, 6,814ha reserve, & 4,211ha non-forested. Not all available forest is operable (outside ages of operability).</td>
<td> 

<table>
<tr><th>30,000ha frequency (Proportion of Hexagon)</th><th>Current (2019)</th><th>Target</th><th>Forecast (2029)</th></tr>
<tr><td>.01-.20</td><td>0</td><td>0.03</td><td>0</td></tr>
<tr><td>.21-.40</td><td>0.212</td><td>0.16</td><td>0.549</td></tr>
<tr><td>.41-.60</td><td>0.788</td><td>0.3</td><td>0.451</td></tr>
<tr><td>.61-.80</td><td>0</td><td>0.36</td><td>0</td></tr>
<tr><td>>.81</td><td>0</td><td>0.15</td><td>0</td></tr>
</table>

1.4. To maintain and increase current identified landscape class total levels to be proportionally 50% or greater over the 10, 20 and 100 year terms within the zone of connectivity & to maintain the density of mature and old forest for the higher density ranges (>60%) as measured at two spatial scales (500ha and 5,000ha) to support connectivity of caribou habitat within an identified zone of connectivity.

1.5. The target is to maintain or increase the area above current levels with the lower and upper IQR of the SRNV, which were developed in BFOLDS by the MNRF and ensuring the minimum target & with a target to maintain at least 40% of habitat as on-line (sufficiently mature) habitat

1.6. Within managed blocks in the DCHS (i.e. excluding Parks) current levels of jack pine, white spruce and black spruce, combined are 33% in OCLOW, 95% in PJDOM, 89% in PJMIX, 94% in SBDOM, 80% in SBLOW and 80% in SBMIX

1.7. target to maintain or reduce the density of roads within the northern continuous distribution zone

1.8. Operable area within "A" blocks is 39,168ha in T1. Planned harvest of 20,920ha is planned for T1 (53% of the operable area). In T2 operable area is 17,771ha; 16,210 planned for harvest. This "cleans-up" the "A" blocks. In T3 operable area is 2,385ha (6% of the original operable area today).</td>
</tr>
<tr>
<td>2. Habitat for Forest Dwelling Boreal Caribou within Local Population Range(s) - Coastal Range</td>
<td>2.1. Refuge Habitat

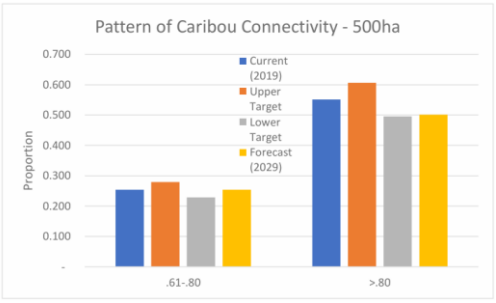
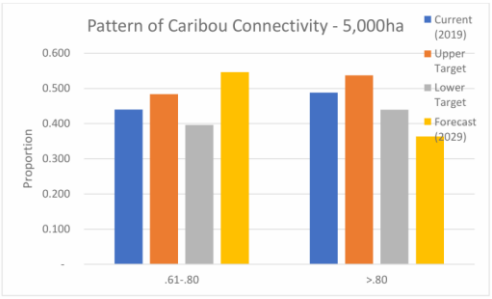
2.2 Maintain or reduce road density within the Lake Superior Coastal Range</td>
<td>2.1. Achievement of coastal continuous zone refuge - deferred for 20 years
<table>
<tr><th>Percent LC</th><th>Case</th><th>Term 1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th></tr>
<tr><td>CCO</td><td>102</td><td>54%</td><td>52%</td><td>49%</td><td>50%</td><td>51%</td><td>54%</td><td>44%</td><td>47%</td><td>48%</td><td>56%</td><td>57%</td></tr>
<tr><td></td><td>210</td><td>54%</td><td>54%</td><td>67%</td><td>79%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td></tr>
<tr><td></td><td>214</td><td>54%</td><td>56%</td><td>69%</td><td>77%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td></tr>
<tr><td></td><td>215</td><td>54%</td><td>56%</td><td>70%</td><td>77%</td><td>96%</td><td>96%</td><td>96%</td><td>99%</td><td>98%</td><td>96%</td><td>96%</td></tr>
<tr><td></td><td>229</td><td>54%</td><td>54%</td><td>68%</td><td>77%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>96%</td><td>97%</td></tr>
</table>

2.2. In the LTMD model, the target was achieved in the long term. Milestone direction was achieved in the short term,</td>
<td>2.1. In the coastal continuous zone is to maintain between 42,107ha and 63,024ha of refuge habitat throughout time numerical achievement of the coastal continuous zone refuge indicator at objective assessment term
<table>
<tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr>
<tr><td>229</td><td>42,107</td><td>63,024</td><td>23,668</td><td>29,665</td><td>42,483</td></tr>
</table>
</td>
</tr>
</table>

<table>
<tr><td></td><td></td><td>as the area contributing to costal refuge if increasing with levels being 23,668ha in the short term. Milestone direction was not achieved in the medium term as costal refuge is still increasing toward the IQR at 29,665ha in the medium term. The IQR is achieved by term 5 (40 years in the future) and is maintained in the long term, measured at year 100 (term 11) 13 42,483ha contribute to coastal refuge.</td><td>2.2. Increase sufficient amounts of Refuge caribou habitat (non-spatial) to within the IQR of the SRNV. Specifically to increase within the short (10 years) term and maintain within the medium (20 years), and long (100 years) terms above the lower IQR of 42,107ha and below the upper IQR of 63,024 ha terms in the forest estate model.</td></tr>
<tr><td>3. Discontinuous Zone - Caribou Habitat Connectivity</td><td>3.1. Landscape Class Indicators (Support Caribou Habitat)

3.2. Pattern Indicator (Support Caribou Habitat Connectivity)

3.3 Maintain or reduce road density within the zone of connectivity</td><td>3.1. Achievement of discontinuous zone & numerical achievement of the discontinuous zone indicator at objective assessment term
<table><tr><th>Percent LC</th><th>Case</th><th>Term 1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th></tr><tr><td>CZZ</td><td>102</td><td>100%</td><td>84%</td><td>68%</td><td>40%</td><td>26%</td><td>30%</td><td>28%</td><td>30%</td><td>40%</td><td>50%</td><td>70%</td></tr><tr><td></td><td>211</td><td>100%</td><td>96%</td><td>95%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td></td><td>214</td><td>100%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td></td><td>215</td><td>100%</td><td>98%</td><td>98%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr><tr><td></td><td>229</td><td>100%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>98%</td><td>100%</td><td>100%</td><td>100%</td><td>100%</td></tr></table>
3.2. Measures the relative proportions of mature and old forest within the zone of connectivity (on the east side of the forest, adjacent to the White River Forest); measured through OLT

3.3. It is expected that the gross number of operational roads will be reduced throughout the 2019-2029 plan. It is expected that over the next 10 years, proper reporting of, and pre-planned decommissioning efforts will result in more roads being reported as rehabilitated than as constructed.</td><td>3.1. In the corridor delineated in the discontinuous zone is to maintain at least 50% of the area as mature and late conifer dominated forest.
<table><tr><th>LCArea
LandscapeClass</th><th>Case</th><th>Lower Quartile</th><th>At Year 2019</th><th>2029</th><th>2039</th><th>2119</th></tr><tr><td>Discontinuous Zone - Caribou Habitat Connectivity</td><td>229</td><td>20,985</td><td>20,279</td><td>19,802</td><td>19,802</td><td>20,985</td></tr></table>
3.2. Targets for this indicator are no more than a 10% change in the first term - numeric achievement of caribou habitat connectivity at the 500ha and 5,000ha scale
 
 
3.3. To move toward a level of disturbance that supports a self-sustaining caribou population. Within this portion of the forest there are objectives set forth in the Caribou Conservation Plan, and the Range Management Policy in Support of Woodland Caribou Conservation Plan. These objectives are mainly implemented through the application of the Boreal Landscape Guide. Target to maintain or reduce the density of roads within the northern continuous distribution zone.</td></tr>
<tr><td colspan="4">Forest structure and composition</td></tr>
</table>

<table>
<tr>
<td>4. To Provide for a Forest Age Class Structure, Composition and Abundance that Emulate a Natural Disturbance</td>
<td>4.1. Mature and Late Balsam Fir and Balsam Fir Mixed

4.2. Mature and Late Lowland Spruce and low Other Conifer

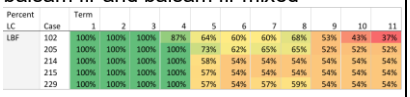
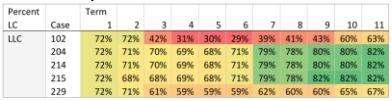
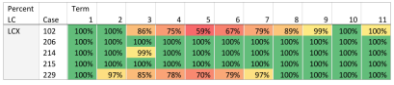
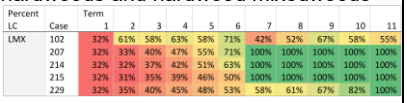
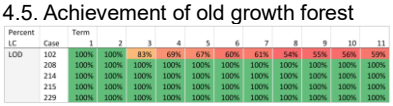
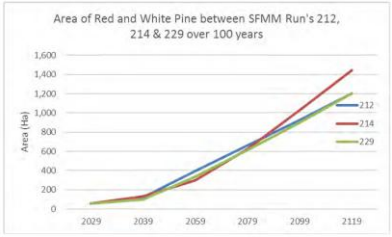
4.3. Mature and Late Conifer Mixedwood

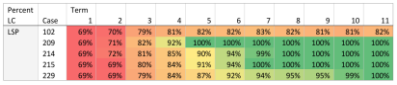
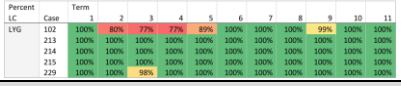
4.4. Mature and Late Hardwoods and Hardwood Mixedwoods

4.5. Old Growth Forest (all forest)

4.6. All Ages Red and White Pine Forest

4.7. All Ages Conifer

4.8. Young Forest</td>
<td>4.1. Achievement of mature and late balsam fir and balsam fir mixed
 
4.2. Achievement of mature and late lowland spruce and low other conifer
 
4.3. Achievement of mature and late conifer mixedwood
 
4.4. Achievement of mature and late hardwoods and hardwood mixedwoods
 
4.5. Achievement of old growth forest
 
4.6. Area of Red and White Pine between SFMM Run's 212, 214 & 229 over 100 years
 

4.7. Achievement of all ages conifer
 
4.8. Achievement of young forest
  </td>
<td>4.1. Numerical achievement of mature and late balsam fir and balsam fir mixed at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th></tr><tr><td>229</td><td>9,018</td><td>19,246</td><td>13,613</td></tr></table>
4.2. Numerical achievement of mature and late lowland spruce and low other conifer at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th></tr><tr><td>229</td><td>152,853</td><td>184,867</td><td>107,945</td></tr></table>
4.3. Numerical achievement of mature and late conifer mixedwood at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr><tr><td>229</td><td>201,845</td><td>357,211</td><td>194,935</td><td>172,228</td><td>202,792</td></tr></table>
4.4. Numerical achievement of mature and late hardwoods and hardwood mixedwoods at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr><tr><td>229</td><td>49,430</td><td>79,251</td><td>227,655</td><td>198,102</td><td>79,251</td></tr></table>
4.5. Numerical achievement of old growth forest at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr><tr><td>229</td><td>161,105</td><td>245,100</td><td>220,495</td><td>210,809</td><td>161,105</td></tr></table>
4.6. Numerical achievement of red and white pine at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr><tr><td>229</td><td>57</td><td>57</td><td>57</td><td>99</td><td>1,200</td></tr></table>
4.7. Numerical achievement of all ages conifer at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr><tr><td>229</td><td>520,756</td><td>578,089</td><td>361,348</td><td>413,759</td><td>528,756</td></tr></table>
4.8. Numerical achievement of young forest at objective assessment terms
<table><tr><th>LCArea Case</th><th>Lower Quartile</th><th>Upper Quartile</th><th>At Year 2029</th><th>2039</th><th>2119</th></tr><tr><td>229</td><td>161,341</td><td>322,538</td><td>316,662</td><td>330,182</td><td>322,538</td></tr></table></td>
</tr>
<tr><td colspan="4">Landscape Pattern</td></tr>
<tr>
<td>5. To Provide for a Distribution of Disturbance Patches that More Closely resembles the expected size, composition, and age</td>
<td>5.1. Available Harvest Area by Pic Forest Analysis Unit

5.2. Available Harvest Volume by Species Group</td>
<td>The outputs of forest modelling provide 100-year projections for quantifiable objectives and are documented in the plan.

5.1. N/A

5.2. N/A</td>
<td>5.1. N/A

5.2. N/A</td>
</tr>
</table>

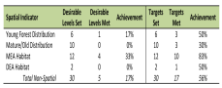
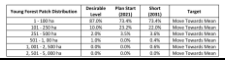
produced by wildfire.			
Social and Economic			
6. Long Term Wood Supply	6.1. Available Harvest Area by Pic Forest Analysis Unit 6.2. Available Harvest Volume by Species Group	6.1.N/A 6.2. N/A	6.1. N/A 6.2. N/A
7. Utilized Wood Supply	7.1. Utilized Harvest Area by Pic Forest Unit 7.2. Utilized Harvest Area by Volume Species Group	7.1. N/A 7.2. N/A	7.1. N/A 7.2. N/A
8. Roads Management	8.1. Roads Density Outside of Caribou Zones	8.1. There are defined zones on the forest where increased emphasis for roads and landings decommissioning will occur.	8.1. Establish a roads density target for areas of the forest where other roads density targets do not apply. The intent and target within this zone is to maintain a status-quo. Whereas for every road constructed, another will be re-habilitated.

Appendix Seven: Bancroft-Minden Forest Evaluative Matrix

	Climate Resilience		Polycentric Governance		
	Nature Based Solutions	**Vulnerability Protocols**	**Indigenous Nations**	**Forested Communities**	
MITIGATION	• Roadless and remote enhanced management • Tree marking and veteran tree identification • Conserved wetlands and catchment	• Timing restrictions • Constrained boarder activity • Watershed analysis and protocols • Spatial assessment includes overestimated harvest levels for impact analysis • Mitigates disrupting forest hydrology with prohibition areas and shoreline proximities • Slope mitigation and monitoring • Ground survey for harvesting eligibility	• LCC membership & engagement – 1/8 seat representation • Algonquin Land Claim Forestry Transition Plan • Annual presentation requests • Opportunity to develop a customized consultation approach • One requested enhanced regular consultation FMP updates to Working Group Meetings.	• LCC membership & engagement • Diversification of mill location and production source • Annual presentation requests • Old growth protection and delayed harvest eligibility through community review requests • Local employment through tree-marking	**ENGAGEMENT**
ADAPTATION	• Drought and heat tolerant species management through unit harvests and regeneration • Regenerative tending exceeding targets • Primarily natural replanting process • Critical thermal cover winter cover	• Bi-annual adaptive management training • Decommissioning roadway targets and strategies • Selective hybrid harvesting • Primarily mechanical site preparation • Erosion management and prohibitions	• Planning Team member - 9/17 after removing alternate membership (15/23 seat representation with included alternate members) • Updates regarding negotiations for the Algonquin Land Claim	• Planning Team member - 1/17 seat representation for the LCC • Resource Stewardship Agreements	**AUTHORITY**

	retention and established areas • Set aside area for habitat targets • Reducing competition for key species • Focused salvage operations to manage beech bark disease				

Appendix Eight: Bancroft-Minden Management Assessment Tabulation

Objective	Indicator	Monitoring & Assessments	Target & Evaluative Framework
Forest Diversity – natural landscape pattern and distribution			
1. To move towards a more natural forest landscape pattern and distribution.	1.1 Texture of Mature Forest (50 ha and 500 ha) 1.2. Texture of Old Forest (50 ha and 500 ha) 1.3. Young Forest Patch Distribution	1.1. & 1.2. Timing of Assessment: Preliminary assessment at LTMD, assessment at completion of operational planning and the Year 5 and Final Year Annual Reports. Measure: Spatial assessment in OLT  1.3. The LTMD moves towards the target in the 101 – 250 ha and 501- 1, 000 ha patch size categories but moves away from the targets or holds even in the other categories. In terms of area, the forest does not trend towards a texture that better represents a natural young forest patch distribution. Assessment of achievement for young forest patch distribution indicators. 	1.1. & 1.2. Desirable Level: To have the landscape pattern move toward the mean (SRNV) of each mature and old forest texture pattern through each concentration class projections as recorded in OLT. Assessment of achievement for Texture of Mature and Old Forest (50 ha) indicators. **Texture of Mature & Old Forest (50 ha) / Desirable Level / Plan Start (2021) / Short (2031) / Target** .01 - 2.0 / 1.0% / 1.5% / 2.0% / Move Towards Mean .21 - 4.0 / 6.0% / 3.5% / 4.0% / Move Towards Mean .41 - 6.0 / 17.0% / 6.4% / 6.0% / Move Towards Mean .61 - 8.0 / 29.0% / 12.3% / 11.0% / Move Towards Mean > .80 / 46.0% / 76.3% / 77.0% / Move Towards Mean Assessment of achievement for Texture of Mature and Old Forest (500 ha) indicators. **Texture of Mature & Old Forest (500 ha) / Desirable Level / Plan Start (2021) / Short (2031) / Target** .01 - 20 / 0.0% / 0.0% / 0% / Move Towards Mean .21 - 40 / 2.0% / 0.5% / 1.0% / Move Towards Mean .41 - 60 / 16.0% / 5.3% / 5.0% / Move Towards Mean .61 - 80 / 43.0% / 18.5% / 18.0% / Move Towards Mean > .80 / 39.0% / 75.8% / 76.0% / Move Towards Mean 1.3. Desirable Level and Target for Young Forest Patch Distribution **Analysis Scale / Plan Start Level (% of Young Forest Patches) / Desirable Level** 1 – 100 ha / 73.4% / 87.0% 101 – 250 ha / 23.2% / 10.0% 241 – 500 ha / 3.5% / 2.0% 501 – 1,000 ha / 0.0% / 1.0% 1,001 – 2,500 ha / 0.0% / 0.0% 2,501 – 5,000 ha / 0.0% / 0.0%
2. To move towards a more natural forest landscape structure, composition and abundance.	2.1. Landscape Class 2.2. Old Growth 2.3. White and Red Pine (PWR) 2.4. Young Forest	Timing of Assessment: Preliminary assessment at LTMD, assessment at completion of operational planning and the Year 5 and Final Year Annual Reports. Measure: The assessment	2.1. Desirable Level and Target for Landscape Class indicators **Landscape Class / Plan Start Level Area (ha) / SRNV / Target** Tolerant Hardwood (TOL) / 127,695 / 54,576 – 61,804 / Decrease towards SRNV Intolerant Hardwood (INTOL) / 30,760 / 6,068 – 12,176 / Decrease & Maintain in SRNV White Pine Mixedwood (PWMIX) / 33,176 / 81,788 – 95,000 / Increase towards SRNV Mixedwood (MIXED) / 64,105 / 30,660 – 39,072 / Decrease towards SRNV  2.2. Desirable Level and Target for Old Growth Indicators

<table>
<tr><td></td><td></td><td>methodology differs. Landscape Class, Old Growth and White and Red Pine objectives are aspatial and measured in SFMM based on the OPI.</td><td>
<table>
<tr><th>Old Growth Indicator</th><th>Plan Start Level Area (ha)</th><th>SRNV</th><th>Target</th></tr>
<tr><td>PWUS</td><td>5,772</td><td>17,032 – 27,340</td><td>Increase towards SRNV</td></tr>
<tr><td>PRCC</td><td>397</td><td>892 – 1,660</td><td>Increase towards SRNV</td></tr>
<tr><td>MXCCC</td><td>2,893</td><td>2,716 – 7,524</td><td>Maintain within SRNV</td></tr>
<tr><td>CESH</td><td>1,849</td><td>3,380 – 5,436</td><td>Increase towards SRNV</td></tr>
<tr><td>MXHCC</td><td>5,906</td><td>1,632 – 4,080</td><td>Decrease towards SRNV</td></tr>
<tr><td>HESH</td><td>752</td><td>3,620 – 5,420</td><td>Increase towards SRNV</td></tr>
<tr><td>HDSH</td><td>3,737</td><td>14,896 – 21,048</td><td>Increase towards SRNV</td></tr>
<tr><td>ORUS</td><td>1,100</td><td>2,184 – 3,148</td><td>Increase towards SRNV</td></tr>
<tr><td>INTCC</td><td>7,066</td><td>2180 – 4,388</td><td>Decrease towards SRNV</td></tr>
</table>
2.3. Desirable Level and Target for Red and White Pine Indicators
<table>
<tr><th>PWR Indicator</th><th>Plan Start Level</th><th>Desirable Level</th><th>Target</th></tr>
<tr><td>White & Red Pine SRNV</td><td rowspan="2">50,511</td><td>128,388 – 144,848</td><td>Increase towards SRNV</td></tr>
<tr><td>1995 Levels</td><td>>= 39,786</td><td>Remain above 1995 level</td></tr>
</table>
2.4. Desirable Level and Target for Young Forest Indicators
<table>
<tr><th>Assessment Scale</th><th>Plan start Level</th><th>Desirable Level</th><th>Target</th></tr>
<tr><td>Pre-sapling development stage</td><td>7,050</td><td>2,972 – 17, 116</td><td>Maintain within SRNV</td></tr>
<tr><td>Pre-sapling, Sapling & T-stage development stages combined</td><td>18, 954</td><td>25,712 – 56,392</td><td>Increase & Maintain within SRNV</td></tr>
</table>
</td></tr>
<tr><td colspan="4">Forest Diversity – habitat for animal life/ values dependent on forest cover</td></tr>
<tr><td>3. Within the identified Moose Emphasis Areas, manage the productive forest, according to provincial direction (Stand and Site Guide).</td><td>3.1. Percent of MEA in browse-producing habitat

3.2. Percent of MEA in mature conifer-dominated forest

3.3. Percent of MEA in hardwood-dominated or mixedwood forest</td><td>Timing of Assessment: Preliminary assessment at LTMD, assessment at completion of operational 20 planning and the Year and Final Year Annual Reports.

Measure: Using OLT and OPI</td><td>3.1. Desirable Level and Target for browse-producing habitat in MEAs
<table>
<tr><th>MEA</th><th>Plan Start Level</th><th>Desirable Level</th><th>Target</th></tr>
<tr><td>South Algonquin</td><td>10.8%</td><td rowspan="4">5 – 30%</td><td>Maintain within the desirable level</td></tr>
<tr><td>Hindon</td><td>1.8%</td><td>Increase towards the desirable level</td></tr>
<tr><td>Kawartha</td><td>3.1%</td><td>Increase towards the desirable level</td></tr>
<tr><td>Cashel</td><td>0.5%</td><td>Increase towards the desirable level</td></tr>
</table>
3.2. Desirable Level and Target for mature conifer-dominated forest in MEAs
<table>
<tr><th>MEA</th><th>Plan Start Level</th><th>Desirable Level</th><th>Target</th></tr>
<tr><td>South Algonquin</td><td>7.8%</td><td rowspan="4">15 – 35%</td><td>Increase towards the desirable level</td></tr>
<tr><td>Hindon</td><td>27.6%</td><td>Maintain within the desirable level</td></tr>
<tr><td>Kawartha</td><td>21.6%</td><td>Maintain within the desirable level</td></tr>
<tr><td>Cashel</td><td>23.5%</td><td>Maintain within the desirable level</td></tr>
</table>
3.3. Percent of MEA in hardwood-dominated or mixedwood forest
<table>
<tr><th>MEA</th><th>Plan Start Level</th><th>Desirable Level</th><th>Target</th></tr>
<tr><td>South Algonquin</td><td>62.4%</td><td rowspan="4">20 – 55%</td><td>Decrease towards the desirable level</td></tr>
<tr><td>Hindon</td><td>67.3%</td><td>Decrease towards the desirable level</td></tr>
<tr><td>Kawartha</td><td>67.3%</td><td>Decrease towards the desirable level</td></tr>
<tr><td>Cashel</td><td>72.0%</td><td>Decrease towards the desirable level</td></tr>
</table>
</td></tr>
<tr><td>4. Within the identified Deer Wintering Areas (deer yards stratum 1), maintain or create critical thermal cover (CTC), where possible, according to provincial direction (Stand and Site Guide).</td><td>4.1. Percent of Critical Thermal Cover</td><td>Timing of Assessment: Preliminary assessment at LTMD, assessment at completion of operational planning and the Year 5 and Final Year Annual Reports.

Measure: Using OPI</td><td>4.1. Percent of Critical Thermal Cover
<table>
<tr><th>Deer Yard</th><th>Plan Start Level</th><th>% CTC Threshold</th><th>Target</th></tr>
<tr><td>Mephisto</td><td>12.7%</td><td rowspan="2">15%</td><td rowspan="2">Increase towards CTC Threshold</td></tr>
<tr><td>Baptiste</td><td>2.2%</td></tr>
</table>
</td></tr>
<tr><td>5. Protect the habitat of forest dependent species at risk with known occurrences on the Bancroft Minden Forest.</td><td>5.1. Compliance reports through Forest Operations Inspection Program (FOIP)</td><td>Timing of Assessment: Year 5 and Year 10 annual reports

Measure: compliance with SAR Area of Concern prescriptions would serve as a measure of protection.</td><td>5.1. The desired level is to have zero non-compliance incidents in SAR areas of concern. Target is to have less than 5% non-compliance</td></tr>
<tr><td colspan="4">Silviculture</td></tr>
<tr><td>6. To ensure the successful renewal of harvested stands (naturally or artificially) to the most silviculturally appropriate species and tended until establishment or management standards are met, using the most appropriate and cost-effective methods to achieve.</td><td>6.1. Percent of harvest area assessed as successfully established by forest unit

6.2. Planned and actual percent of harvest area treated by silvicultural strata (clearcut)

6.3. Planned and actual area successfully regenerated to the target forest unit by forest unit</td><td>6.1., 6.2., 6.3., Timing of Assessment: Year 5 and Year 10 annual reports

Measure: assessed based on establishment surveys that occur post-harvest.

6.1. assessed based on establishment surveys that occur post-harvest.</td><td>6.1. The desirable level and target is to achieve 100% of the area harvested successfully established by forest unit.

6.2. Desired level of 100% of planned; the target level is 80% of the actual area treated.

6.3. The desirable level is to have 100% of the actual harvested area successfully established to the target forest unit; the target level has been set to ≥80%</td></tr>
</table>

<table>
<tr><td></td><td></td><td>6.2. N/A

6.3. a measure of silvicultural success and planning assumptions.</td><td></td></tr>
<tr><td colspan="4">Social and economic – harvest levels and community well-being</td></tr>
<tr><td>7. Provide a sustainable, continuous and predictable wood supply from the forest that will meet, as closely as possible and for as long as possible, the current recognized industrial demand of the forest.</td><td>7.1. Long-Term Projected Available Harvest Volume (m3/year), by species group

7.2. Long-Term Projected Available Harvest Volume (m3/year), by product group

7.3. Long-Term Projected Available Harvest Area (ha), by forest unit</td><td>Timing of Assessment: All three associated indicators were informed through scoping analysis and assessed as part of the LTMD.

Measure: reporting procedures.</td><td>7.1. The desired level is to provide a harvest level greater than or equal to the Industrial Wood Requirements for all species groups for each term during the 100-year planning horizon; the target of this indicator is to meet 100% or greater of the IWR for all species groups for each term (100 years) while balancing social, environmental and economic objectives.
<table><tr><th>Species Group</th><th>Plan Start Level (m³)</th><th>Desirable Level/IWR</th><th>Target</th></tr><tr><td>PWR</td><td>61,158</td><td>>= 25,600</td><td>Meet 100% of IWR</td></tr><tr><td>SPF</td><td>28,675</td><td>>= 5,250</td><td>Meet 100% of IWR</td></tr><tr><td>OC</td><td>6,219</td><td>>= 1,000</td><td>Meet 100% of IWR</td></tr><tr><td>Po</td><td>85,937</td><td>>= 60,000</td><td>Meet 100% of IWR</td></tr><tr><td>Bw</td><td>15,273</td><td>>= 1,500</td><td>Meet 100% of IWR</td></tr><tr><td>Tolerant Hwd</td><td>67,739</td><td>>= 64,000</td><td>Meet 100% of IWR</td></tr><tr><td>Total</td><td>265,000</td><td>>= 157,000</td><td>Meet 100% of IWR</td></tr></table>
7.2. The desired level and target is to meet 100% of the Industrial Wood Requirement by product for each term.
<table><tr><th>Product Group</th><th>Plan Start Level (m³)</th><th>Desirable Level/IWR</th><th>Target</th></tr><tr><td>PWR Sawlogs</td><td>52,475</td><td>>= 20,000</td><td>Meet 100% of IWR</td></tr><tr><td>Hwd, Bw & Po Sawlogs</td><td>82,513</td><td>>= 50,000</td><td>Meet 100% of IWR</td></tr><tr><td>Total Sawlogs & Better</td><td>155,783</td><td>>= 70,000</td><td>Meet 100% of IWR</td></tr><tr><td>Total Pulp & Composite</td><td>109,217</td><td>>= 50,000</td><td>Meet 100% of IWR</td></tr></table>
7.3. The desired level is to provide a harvest area mix greater than or equal to the expected industrial demand for all species groups in the short, medium and long term that does not vary significantly between terms. The target is to provide a harvest area mix that meets the expected industrial demand for all species groups in the short, medium and long term and does not vary by more than +/- 25% between terms.
<table><tr><th>Forest Unit</th><th>Hectares (ha)</th></tr><tr><td>HDSH</td><td>1,151</td></tr><tr><td>HDSEL</td><td>648</td></tr><tr><td>INTCC</td><td>400</td></tr><tr><td>PWUS</td><td>232</td></tr><tr><td>ORUS</td><td>221</td></tr><tr><td>MXHCC</td><td>200</td></tr><tr><td>MXCCC</td><td>150</td></tr><tr><td>HESH</td><td>90</td></tr><tr><td>PRCC</td><td>56</td></tr><tr><td>CESH</td><td>6</td></tr><tr><td>Total All</td><td>3,153</td></tr></table></td></tr>
<tr><td>8. Harvest a sustainable and continuous wood supply from the forest that will meet the current recognized industrial demand of the forest.</td><td>8.1. Actual harvest area, by forest unit (% of planned harvest area)

8.2. Actual harvest volume, by species group (% of planned harvest volume)</td><td>8.1. Timing of Assessment: assessed at Years 5 and 10 Annual Reports; Measure: compare the area that is actually harvested through plan implementation with the planned harvest area.

8.2. Timing of Assessment: assessed at Years 5 and 10 Annual Reports; Measure: compare the volume that is actually harvested through plan implementation</td><td>8.1. The desired level and target is for the actual harvest area to be more than 85% of the planned harvest area (as defined in FMP-12) by forest unit for the 2021-2031 term.

8.2. The desired level and target is for the actual harvest volume to be more than 85% of the planned harvest volume (As defined in FMP-13) by forest unit for the 2021-2031 term.</td></tr>
</table>

		with the planned harvest volume	
9. To minimize loss of Crown productive forest to infrastructure development thereby maintaining harvest levels and related community well-being.	9.1. Managed Crown forest area available for timber production	Timing of Assessment: This will be assessed at Years 5 and 10 and Annual Reports. Measure: The plan start level for this indicator is 219,538 hectares.	9.1. The desired level and target is to have less than 2% of production forest area harvested used for roads, landings and aggregate pits by the end of Term 1 as set by the planning team.
Healthy Forest Ecosystems			
10. Continually improve forest management operations in the Bancroft Minden Forest and increase knowledge of ecosystem processes and human interactions with forest ecosystems.	10.1. Percent of forest operation inspections in non-compliance by activity and remedy type	Timing of Assessment: assessed at Years 5 and Annual Reports Measure: based on a summary of FOIP reports in the plan period.	10.1. The desired level is to have zero non-compliance reports in total. The target is to have less than 5% non-compliance reports.
11. In a changing climate, maintain or improve the ability of forests to resist pests and pathogens.	11.1. Communication with forest operators to ensure new information on science and process is disseminated to be applied in the field.	Timing of Assessment: assessed at Years 5 and 10 and Annual Reports. Measure: Conduct training sessions to relay new information and adaptive management strategies to operators and contractors who work on the management unit	11.1. Formal bi-annual training sessions to relay new information and adaptive management strategies to operators and contractors who work on the management unit
12. To protect the productive capacity of the soil and water in the management unit	12.1. Rate of non-compliance for site disturbance/rutting	Timing of Assessment: assessed during the Year 5 and Year 10 annual reports Measure: This is measured by rate of non-compliance for site disturbance/rutting through FOIP.	12.1. Desired level is to have no incidences of non-compliance as a result of forest management activities causing site damage and loss of forest productivity; the target is to have less than 5% incidences of non-compliance
13. Conserve the quality and quantity of interior waterways, wetlands and catchment areas within the Bancroft Minden forest management areas.	13.1. Compliance with prescriptions developed for the protection of water quality and fish habitat	Timing of Assessment: assessed during the Year 5 and Year 10 and annual reports. Measure: FOIP reports filed during the plan period will be completed. A comparison of compliant and non-compliant reports by indicator-specific category can then be made, to determine the percent compliance by indicator-specific category.	13.1. The desired level is to have no incidences of non-compliance as a result of forest management activities causing site damage and degraded water quality; target is to have less than 5% incidences of non-compliance with AOC prescriptions for the protection of water quality and fish habitat
14. Maintain or restore hydrology through the	14.1. Compliance with water crossing protocol	Timing of Assessment: assessed during the	14.1. The target is to have less than 5% incidences of non-compliance related to installation and removal of water crossings.

proper installation of water crossings	and installation and removal of water crossings	Year 5 and Year 10 annual reports. Calculate watersheds and select appropriate water crossings or siz e culverts. Measure: The % of inspections in non-compliance related to water crossings is used as the indicator.	
15. To ensure that enough roads are in place to allow for effective and efficient forest operations while also limiting company and ministry liability for roads that are no longer required.	15.1. Kilometres of Primary/Branch road (all ownership/responsibility) per square kilometre 10 of Forested Managed Crown Land 15.2. Percent of upgraded or new operational roads decommissioned after operations are complete	Timing of Assessment: assessed during the Year 5 and Year 10 annual reports. Measure: evaluates kilometres of passable road (with a 4x4 vehicle) per km2 of forest. It is desirable to have less than 2% of the forest landbase converted to roads or landings per plan term. The same evaluation will also be used to assess the achievement of the managed forest area available for timber production indicator, under the objective to minimize loss of Crown productive forest to infrastructure development thereby maintaining harvest levels and related community well-being. The second roads indicator deals with the abandonment of operational roads.	15.1. Desirable to have road density consistent with plan start levels, but the target is to have less than a 5% increase in plan term 1. Km of Road Description: All Primary and Branch Roads on the Bancroft Minden Forest Unit. Source: List of Roads Eligible for Provincial Roads Funding (found in Beneficiary agreement with Forest Industry Division, updated 2020) TOTAL LENGTH (km): 672.7 km 2. Km2 of Crown Land Description: Subtotal of Forested Managed Crown Land. Source: FMP-1 Management Unit Land Summary (Subtotal of Forested) TOTAL AREA (ha converted to km2): 289007 ha = 2890.07 km2 3. Final Calculation: Total Length of Road (km) / Total Area of Crown Land (km2) 672.7 km/ 2890km2 = 0.23 15.2. Target and standard practice are to decommission all roads with the exception of those left intentionally to accommodate other forest users.
16. To encourage and support the participation of the Local Citizens Committee in the 3 development of the Forest Management Plan for the Bancroft Minden Forest	16.1. Local Citizens Committee's self-evaluation of its effectiveness in plan development	Timing of Assessment: Objectives are scheduled to be assessed at Years 5 and 10 and Annual Reports. Additional requirements exist in these Annual Reports for analysis to examine if the scheduled forest management activities are contributing to the overall objective achievement. Measure: The LCCs self-evaluation of its effectiveness in plan development for the 2011-2021 FMP was rated 8.6 out of 10	16.1. Desirable level of maintaining a score at or above the level achieved for the 2011-10 2021 FMP
Social and economic – harvest and community well-being			
17. To provide opportunities for	17.1. Opportunities for involvement of First Nation	17.1. Timing of Assessment: FMPM is	17.1. participation on the planning team, Aboriginal working group, community

Indigenous involvement in forest management planning activities.	and Métis communities in plan development	the source of direction on timelines. In addition to letters and correspondence, all communities with representatives at the planning team table regularly received communications regarding upcoming team or Indigenous task team meetings, team items for review and input and meeting minutes. Measure: invited to participate in plan development and to provide an Aboriginal Background Information Report	meetings, development of the Aboriginal Values Information Report, and development of AOCs for the protection of Indigenous values.
18. Identify, protect and share information about values of interest with local First Nation communities.	18.1. Offer and deliver upon request a presentation on annual operations to interested First Nation communities to keep them informed on annual activities and seek input on values 18.2. Train Operators and Contractors on identification of First Nation values of interest so they can recognize them during operations and relay information back to communities and ensure 8 protective measures are taken	Timing of Assessment: N/A Measure: assessed by discussing the work that is done during plan implementation in developing and using a process for sharing information with First Nation communities, associated with values identified in the Aboriginal Background Information Reports.	18.1. Desired level and target for this indicator is to deliver presentations annually to all interested communities who have made the request. 18.2. Desired level and target for this indicator is to deliver training or updates at bi-annual operator training depending on desired participation from First nation communities and availability of instructors.