

On behalf of Nova Scotia Environment (NSE) and the Department of Natural Resources (DNR), we are pleased to receive and share with you a copy of the Colin Stewart Forest Forum Final Report.

Presented to government in November of 2009, this report is based on nearly 5 years of scientific analysis and cooperative planning by members of the Colin Stewart Forest Forum. It is an exceptional example of different interest groups working together - in this case major forestry companies and environmental organizations.

The Forum's report provides the Province with an important foundation for meeting the goal of protecting 12% of Nova Scotia's landmass by 2015, as outlined in the *Environmental Goals and Sustainable Prosperity Act*.

The report is meant to advise and guide government. As recognized by the Forum, not all lands identified in the report need to be legally protected to reach the 12% goal. To provide flexibility, the report identifies nearly 269,000 hectares of high conservation value land, whereas about 190,000 hectares are needed to achieve the Province's goal. Likewise, the report provides a range of options to mitigate the impacts of land protection on the forestry industry.

It is now government's responsibility to review these recommendations and give due consideration to all land uses and public views.

NSE has lead responsibility for protected areas planning and implementing the 12% protected areas goal. DNR has responsibility for the planning and management of Crown land, and has internal expertise relating to land administration, resource use, wildlife management and parks and outdoor recreation planning. To meet this important 12% goal, these departments have formed a joint working group to advance land protection activities as efficiently as possible.

The province's approach to achieve the 12% land protection goal includes three parts:

1. protecting certain Crown lands;
2. supporting private land protection in partnership with land trusts and land owners; and
3. buying land to fill gaps in the provincial system of protected areas and mitigate the effects of land protection on the forestry industry.

Key to the success of this approach will be to appropriately mitigate the associated wood supply and cost impacts to the forestry industry.

All land uses and public interests will be considered as we identify potential protected areas, with opportunities for extensive public input. Many groups still need to be consulted, including; community and environmental groups, municipalities, forestry, mining, energy, recreation, tourism and other commercial sectors, and Nova Scotians as a whole.

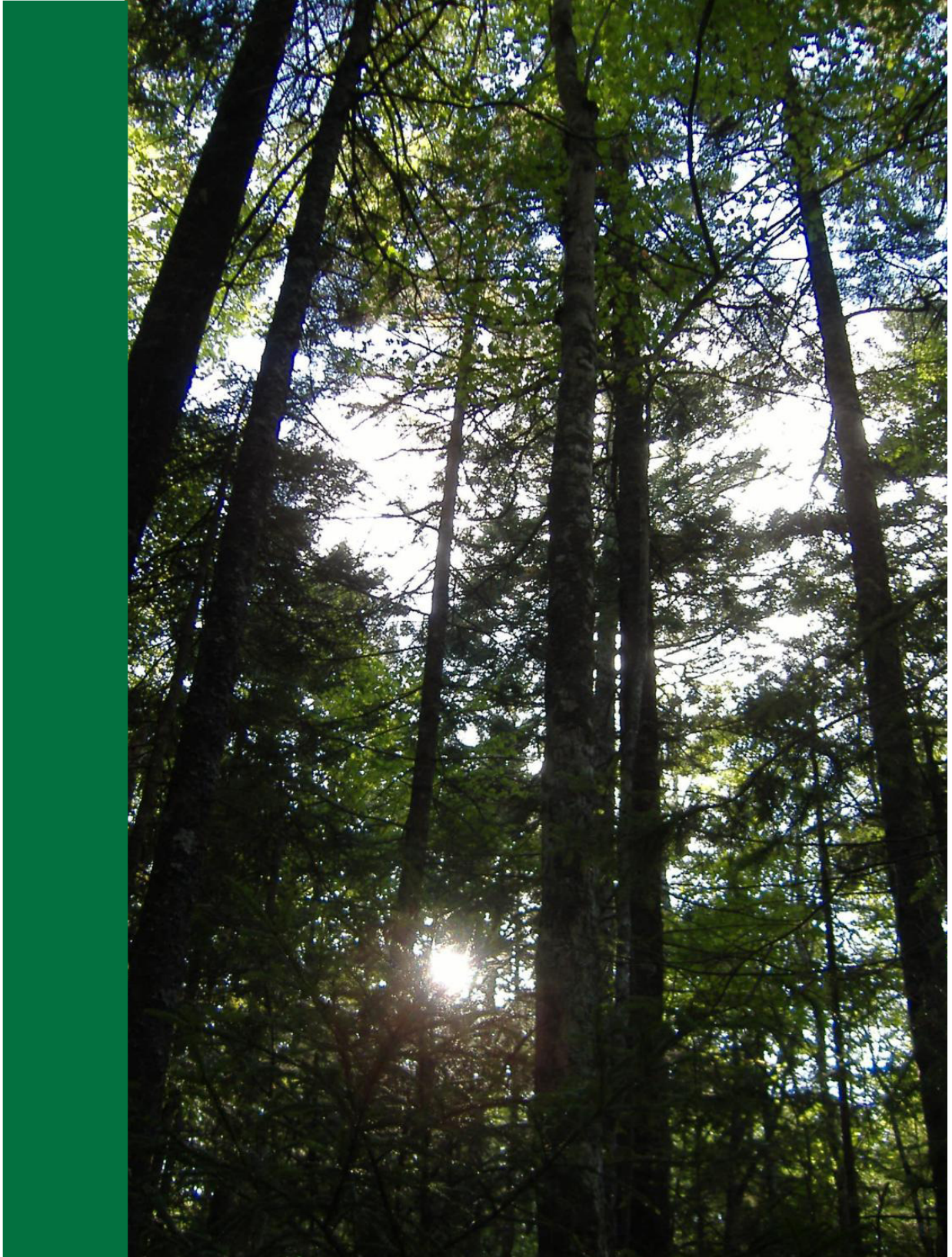
In 2010, NSE and DNR will work with other government departments and the Mi'kmaq of Nova Scotia to ensure that land interests are clearly understood and appropriately reflected in a conceptual protected areas plan. In late 2010 or early 2011, we will be ready to meet with interested groups and stakeholders, with the goal of completing a draft protected areas plan for broad provincial consultation in 2012.

For various reasons, we expect that the province will propose some lands for protection while the broader provincial analysis and consultation are still underway. In these cases, we are committed to consulting, as appropriate, with stakeholders and interested individuals to inform any protection decisions.

For more information on the protected areas program, or if you would like to be added to an email list to stay informed on the 12% process, please visit www.gov.ns.ca/nse/protectedareas, Email protectedareas@gov.ns.ca, or call (902) 424-2117.

Sterling Belliveau, Minister of Environment
John MacDonell, Minister of Natural Resources

Colin Stewart Forest Forum



Final Report - November, 2009

Colin Stewart Forest Forum

Final Report

Submitted by the Colin Stewart Forest Forum Steering Committee
November 2009

Executive Summary

The Colin Stewart Forest Forum (CSFF) is a protected areas planning process initiated by leading environmental non-government organizations (ENGOS) and the four largest forestry companies operating in Nova Scotia. It formed to resolve conflict among ENGOS and the forestry industry over the future of Nova Scotia's remaining wilderness, and to provide the provincial government with a roadmap towards completing the protected areas network.

The Forum has been finding a common path to these objectives through direct constructive dialogue between traditional adversaries. Through a Memorandum of Understanding (MOU) signed in 2005 by the Ecology Action Centre, Canadian Parks and Wilderness Society, Bowater Mersey, JD Irving Ltd., Neenah Paper (now Northern Pulp), and StoraEnso Port Hawkesbury (now NewPage Port Hawkesbury), and later by the Nova Scotia Nature Trust and Nature Conservancy of Canada, Forum partners agreed to "work together in good faith to develop a mutually agreeable proposal toward completion of the protected areas network and that mitigates associated wood supply and cost impacts for the forest industry". The partners also pledged that "Upon satisfactory completion, the parties agree to jointly carry the proposal forward to the Premier, with a joint recommendation that it be accepted by government." This document represents that proposal.

In July 2005, the provincial government offered to assist the Forum's work with resources and personnel, and integrated the Forum process within its own protected areas planning process. The Ministers of Environment and Natural Resources endorsed the Forum, and the process is referenced in several government policy documents including the Speech from the Throne (2007), and provincial Game Sanctuary Review.

In spring 2007, the Province enacted the *Environmental Goals and Sustainable Prosperity Act*, which set a goal of legally protecting 12% of Nova Scotia's land area by 2015. Annual reports on the Act reference the CSFF as a key vehicle for achieving the 12% target. This proposal provides direction to expand the protected areas network to meet the Province's 12%-by-2015 goal, make substantial progress on meeting previous representation commitments, mitigate wood supply and cost impacts for the forest industry, create greater land use certainty, and reduce conflict over protected areas among the industry, ENGOS, and government.

It should be noted that the Forum did not attempt to reconcile interests beyond the CSFF partners that may be affected by new protected areas. We recognize that the Province will need to integrate Mi'kmaq interests and consult with stakeholders, as well as the broader public in the review and implementation of this proposal.

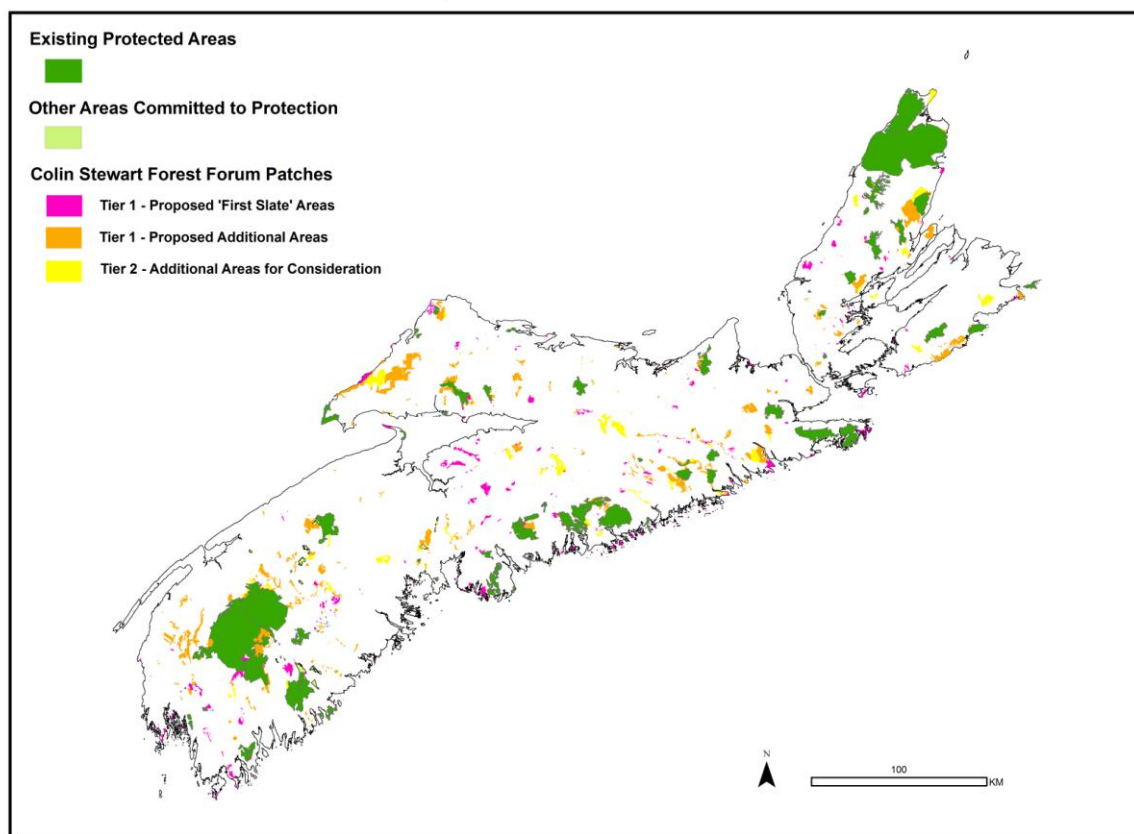
Protected areas proposal

The Forum's science-based protected areas analysis focused on Crown lands, as well as private lands owned by CSFF partners. These holdings account for 42% of Nova Scotia's land mass. Other lands, including all small private properties, were excluded from our analysis. Our analysis focused on the identification and prioritization of large remaining roadless wildlands, areas representative of the range of the province's landscapes and ecosystems, and concentrations of rare or

otherwise significant ecological features such as old-growth forests and habitats of species at risk. To a lesser extent, we also considered other values such as ecosystem services and ecological connectivity.

The Forum has identified 215,000 ha of “Tier 1” sites as top priorities for new protected areas. An additional 54,000 ha of “Tier 2” sites have been identified as secondary priorities. The Forum’s protected area proposal includes a combination of large sites with wilderness values and smaller sites with special-element values, scattered across the province on Crown lands and company lands. If implemented, this proposal would dramatically advance the Province’s longstanding commitment to a representative network of protected areas by increasing representation level for up to 35 of Nova Scotia’s 80 natural landscape regions. It would also afford protection to many remaining species-at-risk habitats, old forests, unique wetlands, and undeveloped lakes, rivers, and coastline. The cumulative area of sites identified as potential protected areas exceeds what is required for Nova Scotia to meet its 12%-by-2015 commitment. This was done to provide government with some flexibility in recognition that it may not be possible to protect all identified areas.

Colin Stewart Forest Forum - Proposed Protected Areas



Wood supply and cost mitigation

Forum partners have pledged to advise the Province on ways of mitigating the wood supply and cost impacts to the forest industry that result from protecting more land. Identifying and evaluating effective, feasible, and responsible mitigation options has been a core function of the Forum, equal in importance to the protected areas work.

The CSFF wants to ensure that new protected areas we recommend do not cause a decrease in the supply of softwood fibre that the forest industry utilizes for processing. While provincial wood supply forecasts predict a buoyant long-term supply exceeding the current harvest rate, the supply for the next twenty years is much tighter. Our strategies therefore focus on

bridging industry's pressing need to maintain short-term softwood supply over the upcoming constrained period. This proposal recommends several promising strategies to mitigate wood supply losses on Crown land and CSFF partner lands that go forward for protection, as well as associated cost impacts to the forest industry. Our preferred strategies were generated by pooling the combined expertise of Forum partners and outside specialists, and wherever possible testing the effectiveness of mitigation scenarios through wood supply modeling.

Preferred mitigation strategies that the CSFF identified include:

- overlapping some proposed protected areas with lands already constrained to timber harvesting
- increasing the level of pre-commercial thinning on Crown and small private lands
- developing a market for low quality hardwood to make marginal stands of softwood more economical to harvest
- factoring in relaxed harvesting constraints in marginal "old forest" areas
- allowing modified harvests in some future protected areas prior to designation
- accessing unallocated wood from Crown lands, particularly in western Nova Scotia
- increasing participation of small private woodlots
- land acquisition for both protected areas and future wood supply
- potential revenues for conservation from climate change mitigation scenarios

DNR conducted wood supply projections on behalf of the Forum to estimate the potential wood supply impact of new protected areas, and to test the effectiveness of various mitigation strategies in recouping affected wood supply. Results indicate that designating all Tier 1 areas proposed for protection on Crown land – without implementing any mitigation measures – would cause the potential Crown land spruce-fir and total softwood harvest to drop 9% and 11% respectively. (equivalent to a 2% drop in the potential harvest from all Nova Scotia forests).

The wood supply analysis suggests that the potential softwood supply affected when the proposed protected areas are withdrawn from the available wood supply can be recouped by applying various combinations of the Forum's preferred mitigation options. The applicability of mitigation strategies, and nuances regarding their implementation, vary among companies and Crown land regions. Specific needs for each individual company and region are covered near the end of this report. It must be stressed that a commitment to mitigation expenditure is essential before new protected areas recommended through this process (beyond the "first slate", noted below) are designated.

Next steps

The recommendations in this report outline several actions which we urge the Province to undertake to get this proposal off the ground. Key among them is a commitment to work with Forum partners to finalize acceptable mitigation terms based on the strategies we have recommended.

In the meantime, the Forum has identified a "first slate" of 175 proposed protected areas and protected area additions on Crown land totaling 58,000 ha that could be designated in the short term at a minimal cost to the Province. These areas have high ecological value but little importance for wood supply (e.g., coastal islands, unique wetlands, undesignated Provincial Park Reserves, administratively set-aside old forest sites). While Forum partners recommend mitigating the wood supply impact of protecting these sites, their cumulative impact is sufficiently low that their designation need not be delayed while mitigation details for the larger set of proposed protected areas are worked out. We urge government to take immediate steps toward the designation of these areas, including consultations with other interests. Incremental progress in protected area designations will increase the likelihood of Nova Scotia achieving its 12%-by-2015 commitment.

Other proposed protected areas on Crown land require a development moratorium to keep them intact pending formal designation. Bowater, Neenah Paper, Northern Pulp, and NewPage Port Hawkesbury have agreed to defer harvesting and

road building on most of their managed lands that the Forum has proposed for protection until December 31, 2010. This is intended to allow time for discussions with government regarding their potential protection and associated wood supply and cost mitigation.

Finally, we must stress the need to act quickly in the face of shrinking options to protect nature, rapid changes in land ownership, and unprecedented challenges and uncertainty facing the forest industry.

Recommendations

New protected areas. The Province should vigorously pursue the protection of Tier 1 areas as priorities to reach its 12%-by-2015 commitment. The protection of Tier 2 areas should be pursued to meet the 12% where Tier 1 areas are not available for protection, and to meet the Province's commitment to a representative protected areas network.

First slate. The Province should immediately commence the designation process for the "first slate" of recommended protected areas: 175 sites on Crown land totaling 58,000 ha. These are high-priority sites located entirely on public land that have low conflict with forestry and can be implemented with little cost. While it is still important to mitigate the wood supply impact of protecting these sites, that impact is sufficiently small that their designation need not be delayed while mitigation details are worked out.

No drop in wood supply or increase in costs due to new protected areas. The Province should ensure that new protected areas recommended through this proposal do not cause a decrease in the supply of softwood fibre utilized by the forest industry, nor an increase in the cost of wood delivered to the mill. This mitigation of wood supply and cost impacts requires a significant commitment of funding from the Province.

Mitigation details. Separate discussions among the Province, ENGOs, and each individual company should commence with the goal of finalizing mitigation terms that are acceptable to all three parties. For private and Crown license lands, such discussions should deal with proposed protected areas drawn from the respective operating area of each company, and that company's corresponding mitigation needs. Discussions should build on the specific strategies identified in this report as most promising for each individual company or land base.

Interim protection on Crown lands. The Province should institute a development moratorium on all Crown lands (Tier 1 and 2) recommended for protection through the CSFF proposal. The moratorium should apply to all industrial activities, including forest harvesting, resource extraction, road building, off-highway vehicle trail development, seismic exploration, energy/hydro development, and the granting of new legal rights such as camp leases, mining leases, and mineral exploration licenses. A development moratorium for proposed protected areas on unlicensed Crown lands should remain in effect until the sites are designated as legally protected, or formally excluded from further consideration as protected areas. Northern Pulp and NewPage Port Hawkesbury have agreed to defer harvesting and road building until December 31, 2010, on most licensed Crown lands managed by them that the Forum has proposed for protection.

Land acquisition. The Province should immediately resume discussions with JD Irving Ltd. and Wagner to acquire lands that the Forum previously recommended for acquisition, and pursue additional discussions with NPPH, Bowater, and Neenah Paper regarding lands that those companies are willing to sell. The Province should also develop a strategy to acquire industrial timberlands that come up for sale for dual objectives of wood supply and protected areas.

First Nations. The Forum encourages the Province to engage in a meaningful dialogue with the Mi'kmaq of Nova Scotia with respect to all aspects of the protected areas planning and mitigation process.

Public and stakeholder consultation. The Province should consult with parties whose interests may be affected by proposed protected areas and wood supply mitigation strategies, as well as the broader public, following the steps outlined in the Province's protected area planning process. CSFF partners strongly endorse an open, transparent, and meaningful consultation process that is accountable and accessible to the public.

Future steps. Under the MOU, Forum partners have agreed to work towards the completion of the protected areas network. While the implementation of this proposal will address many shortcomings in the existing protected areas network, gaps will remain. The Province should develop a framework for plugging remaining gaps in a manner that takes into account protected area requirements and industry's need for a sustainable wood supply. The Forum partners are available to assist with this.

Private land conservation. The Province should continue to support private land conservation through the further development of financial incentives such as the Conservation Property Tax Exemption and the EcoGifts program; the expansion of cost-shared land securement agreements such as the Campaign for Conservation and the Lands and Legacies Conservation Agreement; the expansion of the Nova Scotia Crown Share Land Legacy Trust; the establishment of other land-securment funding and land trust capacity-building mechanisms; and the allocation of more Provincial funds to purchase select private lands of high conservation priority.

Biodiversity conservation on unprotected lands. Under the MOU, Forum partners recognize that lands outside protected areas play an important role in conserving biodiversity and natural processes across the broader landscape, and have agreed to explore ways of conserving ecological values outside of protected areas. The Province should work with interested Forum partners to identify priority actions to this end. We recommend that developing strategies to prevent the permanent conversion of forests to other uses be among those priorities.

Implementation. Forum partners recognize that it will take time for the Province to review our recommendations, work out remaining mitigation details, conduct consultations with other affected parties, and conduct the various procedures needed to finalize protected area designations. It is critical that protected area and mitigation options are not lost during that time. To minimize those risks, we urge government to quickly develop an implementation plan that identifies tasks, processes and decision points, and involves progress updates to the Forum on the implementation of protected area designations and wood supply and cost mitigation strategies. The Forum partners are committed to assisting and advising government on the implementation of this process.

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Introduction

The Colin Stewart Forest Forum (CSFF) is an initiative between leading environmental non-government organizations (ENGOS) and the four largest forestry companies operating in Nova Scotia. It began with a conference in November 2004 among conservationists and forest industry representatives who shared an interest in reducing conflict and achieving greater certainty around future protected areas and wood supply. At that time, ENGOS had been troubled by the ongoing loss of wilderness and stalled progress reaching Nova Scotia's protected area commitments, while the forest industry feared potential wood shortages and uncertainty over which lands would be available for future harvesting without clear direction from government on the protected areas file. Primarily for these reasons, there was a common interest in replacing 'ad hoc' protected area announcements with a formal planning process.

A Memorandum-of-Understanding (MOU) signed in the Spring of 2005 by the Canadian Parks and Wilderness Society (CPAWS), Ecology Action Centre (EAC), Bowater Mersey Paper Company, JD Irving Ltd., Neenah Paper (now Northern Pulp), and StoraEnso Port Hawkesbury Ltd. (now NewPage Port Hawkesbury Ltd.) launched the multi-party discussions of the CSFF and the preparation of this final report. The MOU was later signed by the Nova Scotia Nature Trust (NSNT) and the Nature Conservancy of Canada (NCC). Midway through the CSFF discussions, Wagner Forest Management acquired half of Neenah Paper's private lands in Nova Scotia, and although not a signatory to the MOU, Wagner has agreed to have its lands included in the CSFF protected area analysis.

Shortly following the signing of the MOU, the provincial government formally endorsed the CSFF process, contributing resources and personnel to the project. The Departments of Environment and Natural Resources have subsequently integrated the Forum's work into the official government process to expand Nova Scotia's system of protected areas. Since joining the CSFF, the Province has taken several important steps to expand the protected areas network, including passing the *Environmental Goals and Sustainable Prosperity Act* in 2007 (which requires the provincial government to legally protect 12% of Nova Scotia's landmass by 2015), establishing the Nova Scotia Crown Share Land Legacy Trust using offshore oil and gas revenues, instituting a conservation property tax exemption, purchasing conservation lands from Bowater Mersey, designating new wilderness areas at Blue Mountain – Birch Cove Lakes, Shelburne River, Chignecto Isthmus, and Ship Harbour Long Lake, and committed to designating several new nature reserves.

The Forum is overseen by an all-party steering committee with representation from the ENGO and industry partners, as well as ex-officio representatives from the Nova Forest Alliance (NFA), and the Departments of Environment and Natural Resources. Decisions are reached through consensus. Two joint technical working groups reporting to the steering committee have carried out most of the analyses for this project; one for the protected areas analysis (Protected Area Joint Technical Working Group (PAJTWG)) and the other for the wood supply and costs analysis (Wood Supply and Costs Joint Technical Working Group (WSCJTWG)). Both groups contain representation from ENGOS and forest companies, as well as specialists from the Departments of Environment and Natural Resources. The NFA provides logistical and administrative support for the CSFF discussions, as well as neutral ground for meetings.

Purpose

The Forum's purpose is stated in the MOU:

"The parties pledge to work together in good faith to develop a mutually agreeable proposal toward completion of the protected areas network, and that mitigates associated wood supply and cost impacts for the forest industry. Upon satisfactory completion, the parties agree to jointly carry the proposal forward to the Premier, with a joint recommendation that it be accepted by government."

Founding Principles

The MOU recognizes two founding principles for the Forum's work:

"The parties recognize that a protected areas network has not been completed in Nova Scotia and in principle support its completion in a manner that recognizes ecological, social, and economic values."

"The parties also recognize that the management of forests for timber and production of wood products is important to the socio-economic well-being of Nova Scotia and that a completed protected areas network may affect wood supply and utilization."

Commitment to Science

Throughout the CSFF process, all parties have recognized the importance of objectivity and evidence-based analyses, and have been committed to using the highest level of scientific rigour in identifying the highest-priority sites for new protected areas, determining wood supply and cost impacts on the forest industry, and developing effective, feasible, and responsible mitigation strategies to offset those impacts. Results presented in this report are based on this sound commitment to science.

Colin Stewart Forest Forum land base

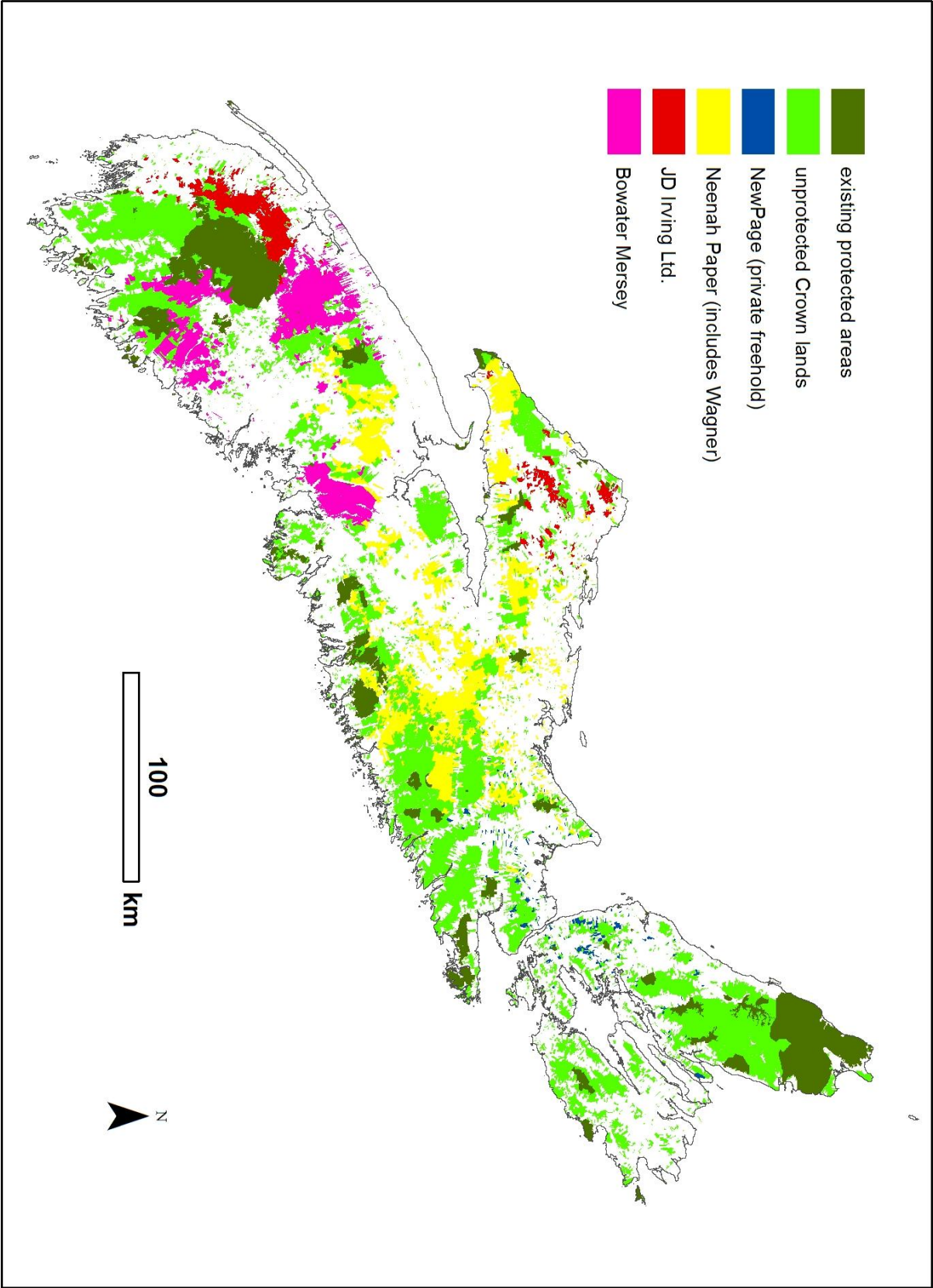


Figure 1.

Protected Areas Proposal

Nova Scotia has established a goal of protecting 12% of the provincial landmass by 2015. This goal builds on longstanding commitments to protect lands representative of each of the province's 80 natural landscapes, and to protect and recover species at risk of extinction. The CSFF provides a road map for the provincial government to achieve this legislative goal.

Assessing the Current System of Protected Areas

As of September 2009, Nova Scotia's existing system of protected areas covered 475,000 hectares, or 8.6% of the provincial landmass. Additional areas committed for protection, but not yet designated as nature reserves or wilderness areas, total nearly 7,000 ha. Once these areas are designated, 8.7% of Nova Scotia will be legally protected. To reach the 12%-by-2015 target, over 181,000 additional hectares of land will need to be protected.

Box 1. What IS a protected area?

Nova Scotia's *Environmental Goals and Sustainable Prosperity Act* (EGSPA) defines "legally protected" to include: *"designated and protected under the Wilderness Areas Protection Act, under the Special Places Protection Act, as a national park under the National Parks Act (Canada), under the Conservation Easements Act or under the Canada Wildlife Act (Canada), primarily dedicated to the protection of biodiversity and natural processes under the Provincial Parks Act or held by non-government charitable land trusts"*.

The common features of these protected areas are that they are especially dedicated to the protection of nature, that the protection is legal and permanent, and that long-term management of the areas is free of industrial uses.

For purposes of national and international reporting on progress towards the protection of biodiversity, these areas equate to World Conservation Union (IUCN) protected area categories I, II, or III.

Gaps in the System

The existing system of protected areas in Nova Scotia consists of provincial wilderness areas and nature reserves; national parks and national wildlife areas; larger, protection-oriented provincial parks; and sites protected by conservation land trusts such as the Nova Scotia Nature Trust and Nature Conservancy of Canada (see inset box "What IS a protected area?"). A review of the existing system of protected areas in the province shows that the system provides satisfactory representation of 18 of the province's 80 natural landscapes; near-satisfactory representation of 10 landscapes; partial representation of 16 landscapes; and inadequate representation of 36 landscapes (Figure 2). The system protects about 16% of the province's remaining old forests, one-quarter of known occurrences of rare species, 14% of freshwater wetlands, 5% of saltwater wetlands, 0.4% of Windsor Group bedrock terrain (known for rare plants, old-growth forests, and bat caves), and 14% of remaining forested floodplains (also known for rare plants).

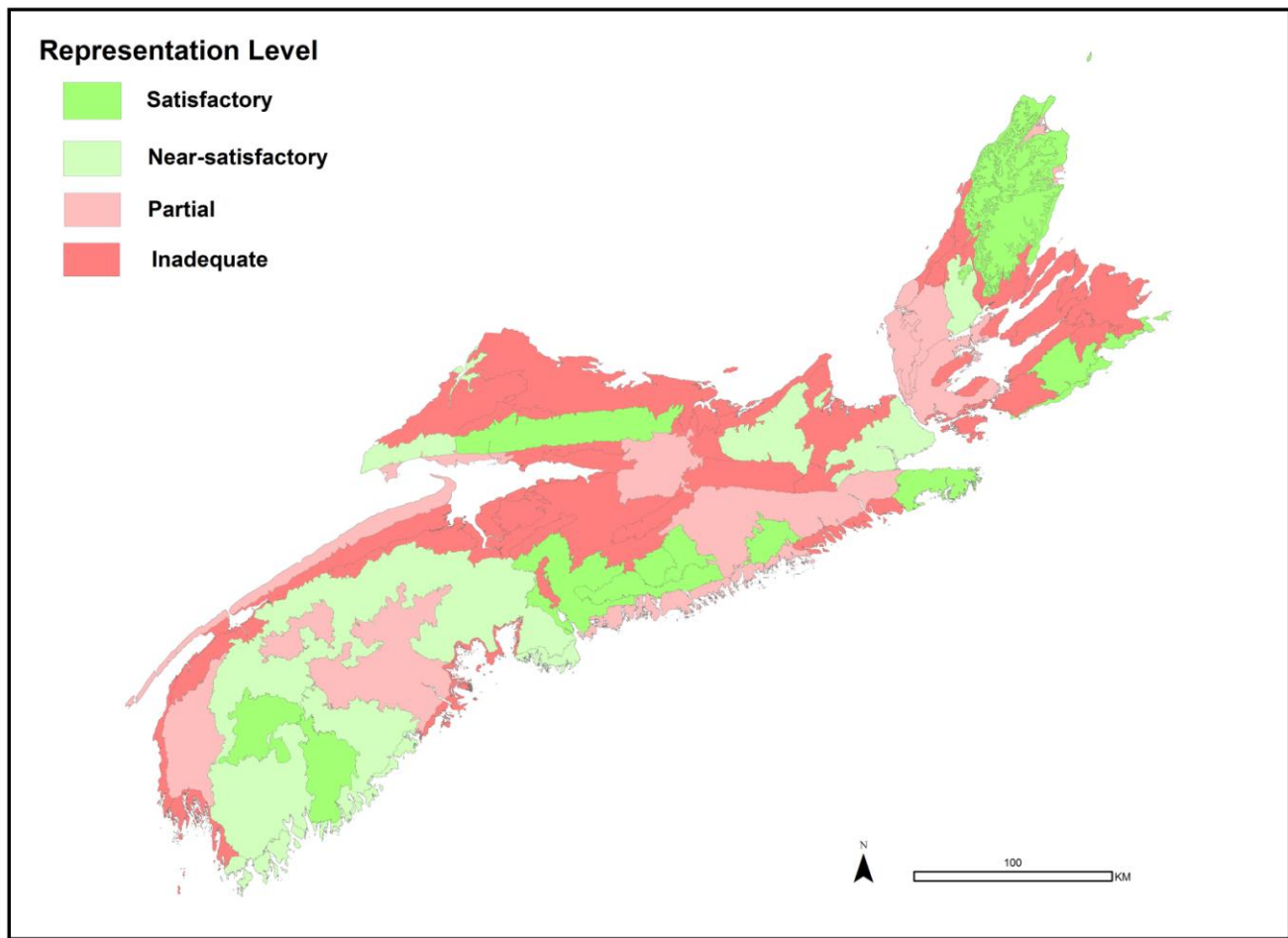


Figure 2. Level of landscape representation by protected areas as of November 2009, according to Colin Stewart Forest Forum analysis.

The existing system of protected areas does not adequately represent the richer, more biologically productive landscapes and ecosystems of the province. These areas have been favoured for settlement, farming (including marsh drainage and saltmarsh dyking), and forestry, and are dominated by private (vs. Crown) land ownership. Many of the province's most threatened ecosystems and species occur in these areas. To date, about 99% of protected areas (by area) occur on provincial or federal Crown lands. Because Crown lands are unevenly distributed across landscape and ecosystem types, protected area system goals such as representation and biodiversity protection cannot be met by a strategy focused solely on Crown land. Strategic acquisition and protection of select private lands, and voluntary protection by landowners through incentives, is also essential.

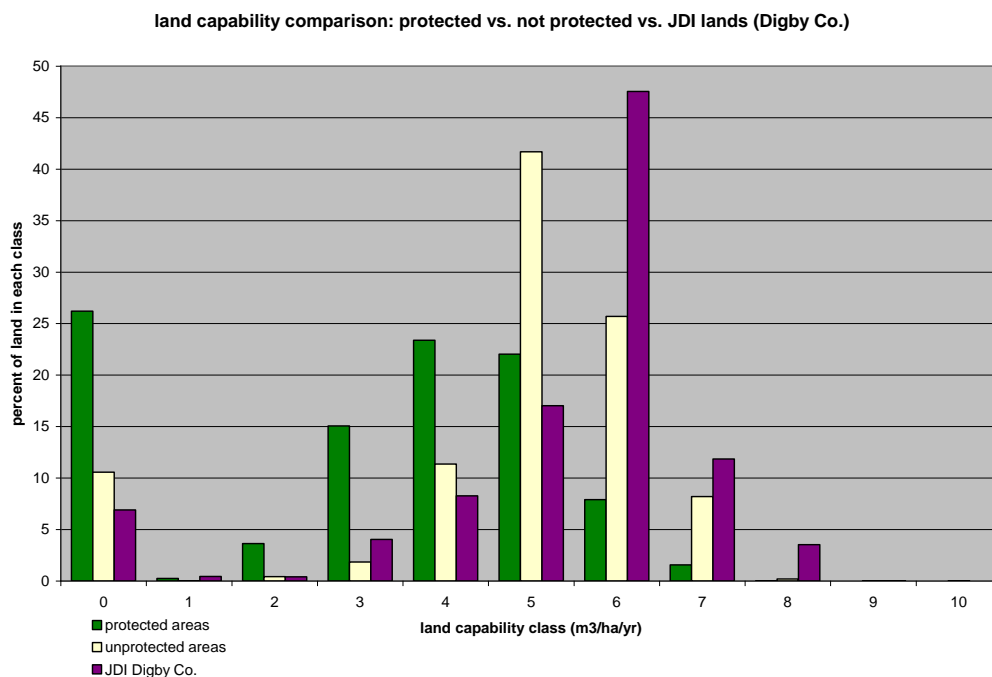
The protected area system over-represents the biologically poorer landscapes and ecosystems compared to their distribution in the province. For example, only about 7.9% of forests are protected, compared to 13.9% of wetlands (primarily acidic bogs and fens) and 34.1% of barrens. Also, only 7.7% of well-drained softwood forests are protected, compared to 9.0% of mixedwood forests and 11.1% of hardwoods. Barrens cover 2.1% of the province, but constitute 9.0% of protected areas. Wetlands cover 6.4% of the province, but 13.9% of protected areas.

Because our protected areas contain disproportionately large amounts of barren, bog, and other low-productivity, species-poor ecosystems, they contain proportionately less habitat to support populations of the full range of native species, especially those dependent on older stages and larger areas of climax softwood and mixed Acadian forests.

Box 2. Productivity of land inside and outside existing protected areas.

One way to illustrate that existing protected areas under-represent the biologically richer landscapes and ecosystems of the province is to look at "land capability class" – i.e., the rate at which trees grow on land of particular site characteristics (e.g., soil conditions, topography, and climate). The graph below shows that existing protected areas (green bars) have a much greater tendency to incorporate lands with either no or limited capability to grow trees (classes 0 through 3) than lands outside protected areas (yellow bars). The graph also shows an example of how some of the highest quality growing lands are owned by private forestry companies (purple bars).

The capability of land to grow forest can be an indicator of the complexity, richness, and diversity of the habitats that will develop there. Habitat complexity is often a major determinant of the richness and variety of biodiversity that an area will support.



Expansive tracts of provincial and federal Crown land have provided opportunities to create large protected areas in Nova Scotia, including the two largest remaining wildlands in the Maritimes. The Tobeatic and Shelburne River Wilderness Areas and Kejimikujik National Park together encompass over 144,000 ha (1,440 square km) of wilderness. Cape Breton Highlands National Park and Polletts Cove-Aspy Fault Wilderness Area together enclose nearly 122,000 ha (1,220 square km).

Despite the presence of these two large protected area complexes, large contiguous, forest-dominated natural areas are rare and threatened compared to pre-European-settlement times. In a province of 5.5 million ha, the protected areas system contains only eight areas larger than the 10,000-ha minimum core size recommended by the Nature Conservancy

for the Northern Appalachian/Acadian Ecoregion to accommodate most species and natural processes. Only six areas are larger than the 16,000-ha core size recommended by the Nature Conservancy for some of our region's most area-sensitive species, like American Marten. Because these areas are relatively small, scattered, and often ecologically isolated across fragmented landscapes, the species within them are at greater risk of extinction.

Priorities for Gap-filling

These considerations have led the Forest Forum to identify the following major priorities for filling gaps in the protected areas system:

- 1. Large, intact natural areas (especially those dominated by productive forests);*
- 2. Large representative areas (especially in landscapes with few or no protected areas); and*
- 3. Natural areas containing 'special elements', such as old forests, rare species, rare or unusual ecosystems such as karst (gypsum sinkhole) topography, coastal wetlands, etc.*

Secondary priorities for gap-filling include areas with particular ecological connectivity value, wilderness recreation potential, or potential to be restored to a more natural condition, especially in landscapes where few or no protected areas currently exist.

Analysis of Potential Protected Area Opportunities on Forest Forum-Partner Lands

The Forum's landscape analysis to identify potential new protected areas was conducted by its Protected Areas Joint Technical Working Group (PAJTWG), which consists of representatives from ENGO and industry partners, as well as specialists from the Departments of Environment and Natural Resources. The analysis considered all private lands owned by the Forum's industry partners and all Crown lands. Approximately 2.3 million ha, or roughly 42% of the provincial landmass were assessed (See Figure 1) for their potential to fill gaps in the existing system of protected areas.

Information sources used for this analysis included provincial forest inventories; Landsat satellite imagery; ecological land classifications; ecological inventories and compiled records of 'special elements'; topographic, geological, soil, wetland, road, hydrological, and other thematic mapping; as well as input from specialists in biodiversity, protected areas, forestry, and land management from the provincial government, the partner companies, non-governmental conservation organizations, universities, and the Nova Scotia Museum. Geographic information systems (GIS) were used extensively for the analysis. In some regions MARXAN - a selection optimization algorithm - was used to assist in identifying areas.

The initial coarse-filter analysis identified over 800,000 ha of land having some potential to meet protected area objectives. The Forum evaluated these lands according to the conservation priority themes. Through an iterative process, the selection of lands having high value as potential protected areas was reduced to approximately 276,000 ha. Consultation with the companies and the provincial government led to some limited reductions, boundary adjustments, or area substitutions to accommodate short-term wood supply demands. The Forum generally avoided overlapping selections of potential protected areas with lands that received a significant amount of previous silviculture investment.

In recognition that not all potential protected area selections are required to meet the 12%-by-2015 target, individual sites within the 276,000 ha of higher value lands were assigned to one of two categories based on their potential contribution to protected areas system goals.

“Tier 1” areas are those of highest priority and conservation value (Figure 3). Most Tier 1 areas are truly irreplaceable, meaning that they represent the last opportunities to fill particularly critical gaps in the protected areas network, or to capture highly significant ecological features. Tier 1 areas comprise 215,000 ha, a figure which exceeds the 181,000-ha target, in recognition that not all Tier 1 areas will be available for protection and some flexibility and substitution will be required.

“Tier 2” areas are secondary priorities for protection (Figure 3); Tier 2 areas comprise 54,000 ha. Many Tier 2 areas are the only options available on CSFF-partner lands to meet the Province’s commitment to a representative network of protected areas, but they tend to be less biologically rich, less representative, smaller, and/or more disturbed than Tier 1 areas.

Colin Stewart Forest Forum - Proposed Protected Areas

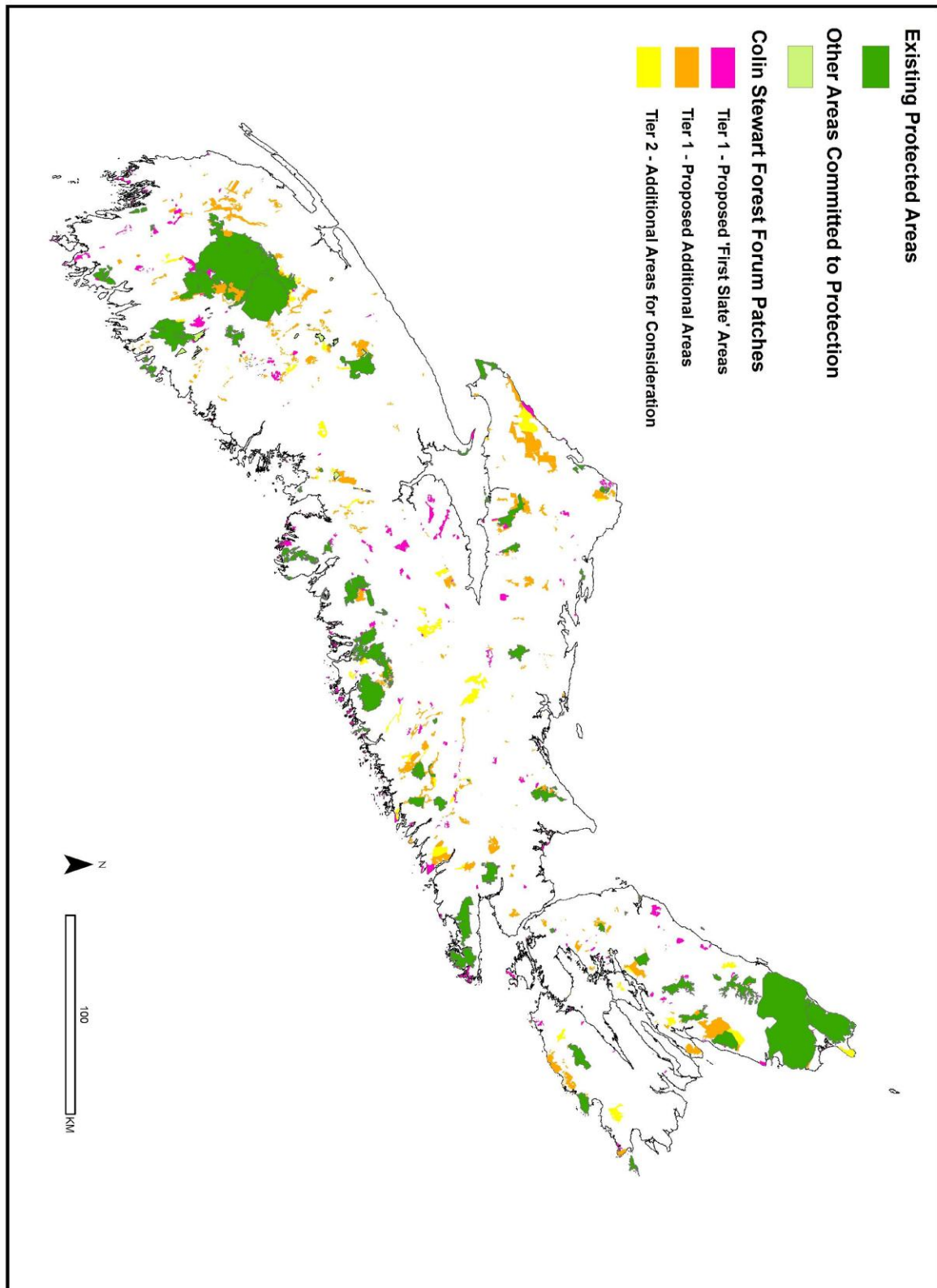


Figure 3. Areas recommended by the Colin Stewart Forest Forum to be considered for protection. “Tier 1” = high priority (includes “First Slate” sites with high ecological value but low impact on the forest industry); “Tier 2” = secondary priority.

First Slate

Within the set of Tier 1 areas, the CSFF partners have identified a “first slate” of proposed protected areas totaling 58,000 ha spread over 175 sites on Crown land. These areas have both high ecological value and low conflict with forestry interests (Figure 3). Most overlap existing land-use constraints that already preclude forestry (e.g., International Biological Programme [IBP] sites, DNR old forest zones, endangered species habitat) or are otherwise outside of the operable forest (e.g., significant wetlands, offshore islands, steep slopes).

Wood supply modeling conducted by DNR indicates that these areas can be protected with relatively little impact on the provincial wood supply and at little cost to government. The Forum recommends that government begin the process towards protection of these areas immediately. The impact on wood supply, while low, is still important and needs to be mitigated as part of the overall package proposed in this report. However, the designation of these sites need not be delayed while mitigation details are worked out for sites with significant wood supply impacts.

The designation of first-slate areas would advance the percentage of protected land in the province from the current 8.6% to 9.7%, with little impact on the forestry industry. This represents about one-third of the remaining gap to achieve the 12%-by-2015 target. Counting existing protected area commitments (e.g., lands purchased from Bowater Mersey for protection) the proportion of protected land in Nova Scotia would rise to 9.8.

Potential Achievements

By protecting all Tier 1 areas and following through on existing protected area commitments, the Province could achieve significant progress towards completion of the protected areas system.

- The percentage of the provincial land base protected would increase by 4.1%, from 8.5% to nearly 12.6%. However, because the CSFF site-selection process focused on filling gaps in the system, the increase in percentage protected of most priority themes would be substantially higher.
- The number of natural landscapes having satisfactory or near-satisfactory protected area representation would increase from 28 to 43, with a drop in the number of inadequately represented landscapes from 36 to 15 (Figure 4). This represents an increase in the percentage of satisfactory or near-satisfactory landscapes from 35% to 54%, and a decrease in the percentage of inadequate landscapes from 45% to 19%.
- The number of areas larger than 10,000 ha (combining adjacent areas) would increase from nine to eleven, while the number of areas larger than 16,000 ha would increase from six to seven.
- The protection of most priority conservation themes would increase by more than 4.3%, indicating that the selection process for Tier 1 areas has been relatively efficient (Figure 5). For example, the area of significant old/unique forests protected would increase from 16% to 25% and the number of protected occurrences of rare species would increase from 25% to 32%. Notably, protected occurrences of Windsor Group bedrock terrain, already a significant gap in the protected areas system, would only increase from 0.4% to 2.8%, reflecting a shortage of this type of feature on Crown and company freehold lands.
- A moderate re-balancing of dominant land cover types in protected areas versus in the wider landscape would occur, with the proportion of barrens being reduced from 9.0% to 6.8%.

- With regard to the two largest wilderness cores in the Maritimes, the Tobeatic-Shelburne River-Kejimikujik core would increase in size from 144,000 ha to nearly 157,000 ha, while the Cape Breton Highlands-Polletts Cove-Aspy Fault core would not change significantly.

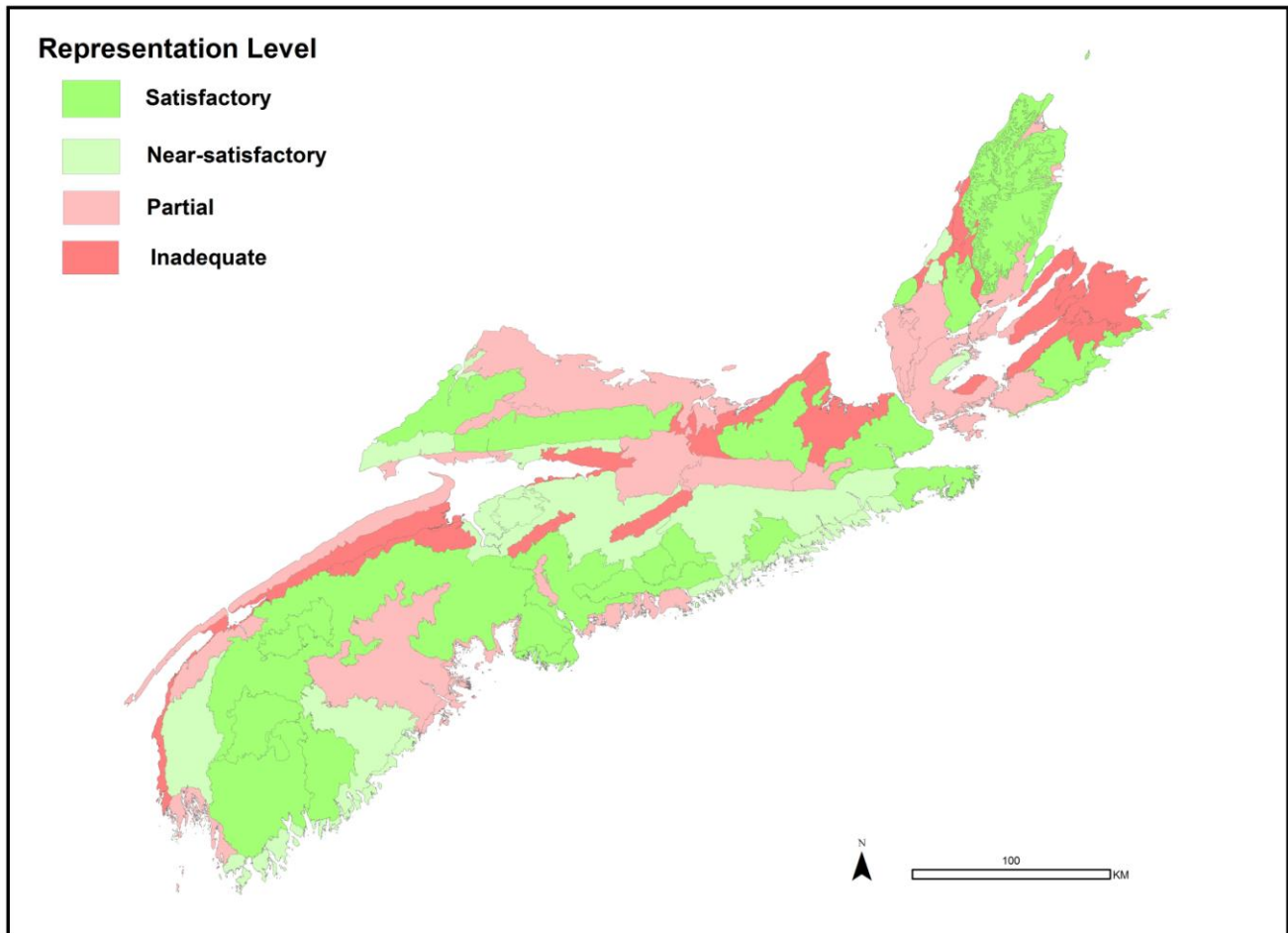


Figure 4. Potential level of landscape representation with protection of Tier 1 areas.

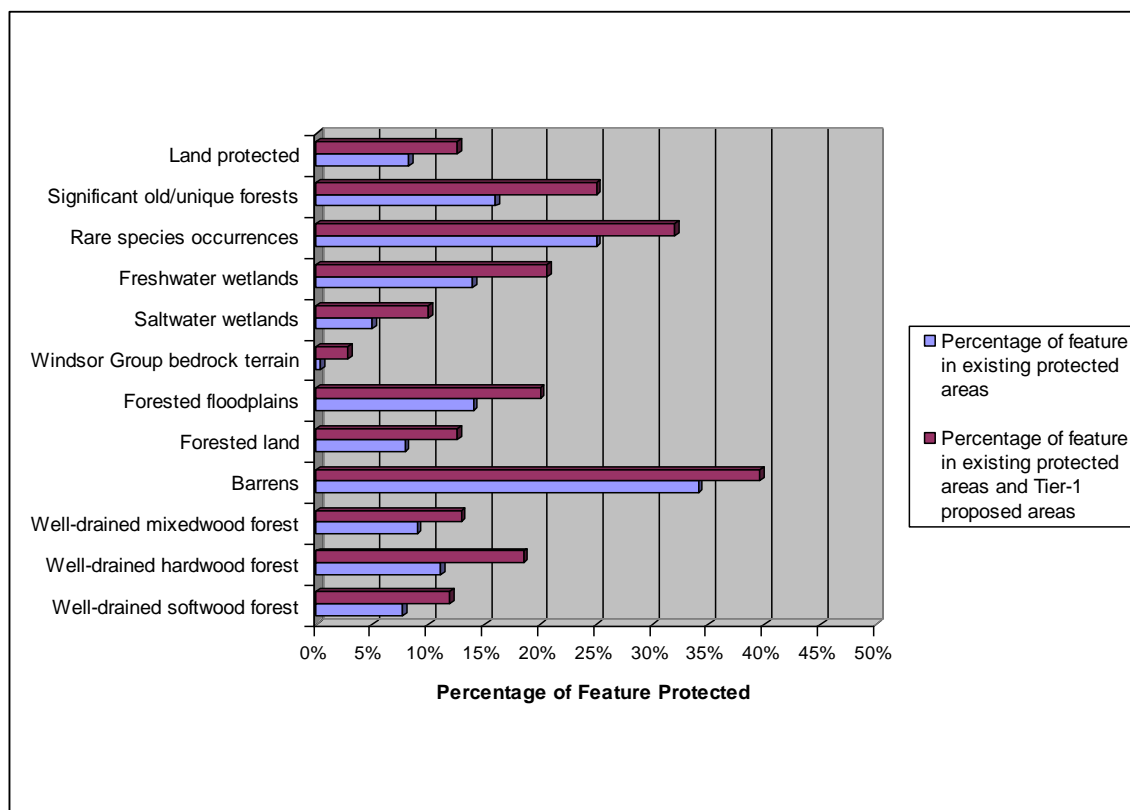


Figure 5. Potential increase in protection of priority conservation themes and other land cover classes if Tier 1 areas are protected.

Remaining Gaps

Several important gaps will still exist in the protected areas system, even if all Tier 1 areas are protected. This is because the proposed protected area selections are restricted to Crown and partner company lands, and their cumulative area is limited to reflect the Forum’s focus on providing a roadmap specifically to help the Province achieve its 12%-by-2015 commitment.

The biggest gap is ecologically significant areas located on small private lands, which were not assessed as part of the CSFF proposal. This means that the areas recommended for protection by the Forum still contain only a relatively small percentage of rare species and ecosystems associated with rich lowland, calcareous, drumlin, and coastal areas. Certain landscapes containing very little Crown land or private freehold land owned by the CSFF partners still contain very few, or in some cases no proposed new protected areas.

Regarding landscape representation, patches which could potentially represent four additional landscapes to a satisfactory or near-satisfactory level were left out of Tier 1 (but occur in Tier 2) in the interest of focusing on the areas of highest conservation value.

Some additional areas that are currently in a poor ecological condition (e.g., highly fragmented by roads and past harvesting), but nonetheless constitute opportunities to plug representation gaps in certain landscapes with Crown or

partner lands, are also not being recommended for protection by this proposal. This gap arises from the CSFF's emphasis on intactness when evaluating large natural patches. The approach tended to de-emphasize the importance of highly disturbed lands, even in landscapes with no representation but ample Crown lands and lands owned by the forest companies. While existing, intact, large forested natural areas are appropriate priorities due to their current high value as reservoirs of biodiversity, the restoration of some highly disturbed areas will eventually be required to establish protected areas in several poorly represented and fragmented landscapes.

Another gap relates to the protected areas system existing as a scattering of protected 'islands' in a sea of human-altered and fragmented landscapes. The long-term viability of this system depends ecological connections being maintained and restored in the intervening landscape, and where possible, functional *networks* of protected areas being established. The Tier 1 areas include many sites that have significant connectivity value, but connectivity is still lacking from the overall system. In order for the collection of protected areas to have resiliency over time, it is imperative that connectivity be re-established across the broader landscape. Connectivity corridors can be and in some cases are already incorporated into the working landscape in modern sustainable forest management practices.

Wood Supply and Cost Mitigation Analysis

Secure access to a stable and predictable wood supply is critical to the success and longevity of the forest industry in Nova Scotia. Through the MOU, the CSFF partners agreed to develop a joint proposal towards completion of the protected areas network in a manner that “mitigates associated wood supply and cost impacts for the forest industry”.

Provincial wood supply projections from DNR indicate a tight softwood supply relative to current harvest levels for the next twenty years, after which supply increases substantially as previous silviculture investments pay off and today’s young forests mature (Figure 6). Forecasts for private lands of individual companies participating in the Forum follow the same general trend.

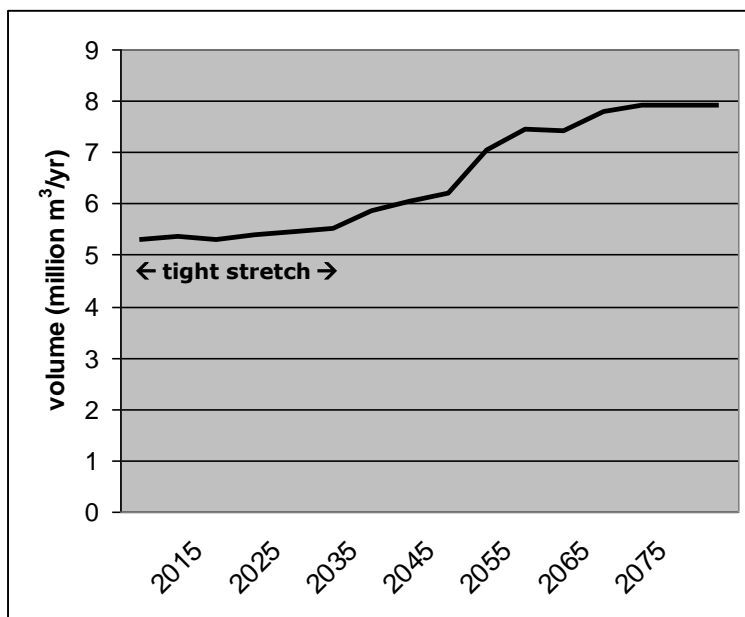


Figure 6. Potential softwood harvest projection for Nova Scotia (all lands) Source: DNR Nova Scotia Wood Supply Forecast for Nova Scotia 2001 – 2100: Preliminary Results

DNR is projecting dramatic and sustained increases in the potential softwood harvest for Crown lands in both the short term (primarily from western Nova Scotia) and long term (across all Crown lands). The actual harvest from Crown lands is now considerably lower than the potential harvest, especially in western Nova Scotia. Given the overall wood supply trend for all of Nova Scotia’s forests, the Forum’s mitigation discussions and analysis have focused on ensuring that adequate wood supply can be maintained during the current “tight stretch”.

The Forum identified over fifty potential options for mitigating wood supply and cost impacts of new protected areas. We assessed the effectiveness and feasibility of each option, as well as potential negative effects on other forest and biodiversity values. At the request of the Forum, DNR modeled the wood supply impact of proposed Crown land protected areas and tested the effectiveness of various mitigation strategies to recoup wood “lost” to new protected areas. Summary results are provided in the appendices. Based on our initial review, DNR’s wood supply modeling, and subsequent discussions among Forum partners, we narrowed the list of mitigation options to nine preferred strategies, specific to the companies involved in the CSFF and for the geographic regions of the province (e.g. Eastern, Central, Western). The Forum’s analysis indicates that the implementation of these strategies should provide sufficient mitigation to allow for most of the protected areas identified in this proposal to be designated.

Impact of proposed protected areas on potential harvest

While the results of analytical wood supply projections can change depending on modeling assumptions, they nonetheless provide a useful estimate of how much potential wood supply could be affected by new protected areas, and the scale at which wood supply mitigation should be pursued. Wood supply model runs conducted for the Forum were restricted to Crown lands only, which account for 75% of the total area (Tier 1 and 2) identified as potential protected areas. Results indicate that excluding all Tier 1 areas from future timber harvesting, would cause the maximum sustained yield of spruce-fir supply from Crown lands to drop by 83,000m³/year, and total softwood supply to drop by 117,000m³/year – if no mitigation measures are adopted and current management practices are held constant. These figures represent a decrease from the currently available potential harvest on Crown lands of 9% and 11% respectively, or about 2% of the potential provincial harvest from all lands.

For Crown lands, the wood supply impact of proposed new protected areas is not spread evenly across the province. For example, model results indicate that the protection of all Tier 1 areas would cause a decrease in the potential softwood supply of 5% from NewPage's Crown license, and 17% from unlicensed lands in the Central Region.

A separate wood supply projection for the proposed "first slate" of new protected areas estimates that only 24,000m³/year of potential spruce-fir harvest and 29,000m³/year of potential total softwood harvest would be affected if the Province proceeded with their protection. These figures represent a drop of 2.6% in the potential wood supply from Crown land and roughly 0.5% from the overall provincial supply, while allowing the protected areas system to be expanded by roughly 58,000 ha. The estimated impact is probably somewhat inflated, as several sites that DNR keeps off-limits for harvesting, particularly in Central Nova Scotia, are not acknowledged in the wood supply model as official set-asides (e.g., Raven Head, Devils Jaws).

The appendices detail how the potential wood supply affected by new protected areas can be recouped through various mitigation strategies. These strategies are discussed in the next section.

Wood Supply and Cost Mitigation Proposal

In recommending this mitigation proposal, the CSFF partners emphasize that implementing these measures will require an annual commitment from the Province of several million dollars in additional silvicultural and forest management expenditures plus a one-time capital investment in land and infrastructure in the range of 100 million dollars (Exact financial requirements have not been calculated by the Forum). The Province is cautioned that a commitment to mitigation expenditure is essential before new protected areas recommended from this process (beyond the “first slate”) are designated. It will also be important that the amount and nature of mitigation that is applied toward this proposal be tracked, and that mitigation is proportionately linked to the creation of new protected areas.

The Forum believes that wood supply and cost impacts stemming from the protected area proposal can be mitigated to the satisfaction of all Forum partners by applying the strategies described below. These are the most promising mitigation strategies we evaluated. The applicability and effectiveness of various strategies will vary among companies and regions, and strategies will typically need to be applied in combination with one another. A summary of how these strategies specifically apply to each company and Crown land region follows this section.

Box 3. Criteria for good wood supply mitigation strategies

The Forum has sought to identify wood supply mitigation strategies that are acceptable to Forum partners and the Province. Three criteria have guided our mitigation recommendations. Good wood supply mitigation strategies should be:

Effective. Strategies will actually work to address short-term wood supply impacts of new protected areas on the forest industry.

Feasible. Strategies are technically feasible, affordable, and will not compromise mill competitiveness.

Responsible. Strategies will not diminish other forest values, such as biodiversity across the broader landscape.

Selection of proposed protected areas

A proposed protected area’s effect on wood supply can vary dramatically from one area to the next. The Forum overlapped protected area selections with lands under existing constraints in many cases where doing so did not conflict with ecological criteria for the selections. This form of “upfront mitigation” was the first strategy we employed.

Some protected area selections we are recommending will have no effect on wood supply because they overlap with lands that are already off-limits to timber harvesting through policy (rather than regulation). Just over 5,000 ha of Tier 1 areas overlap with undesignated Provincial Park Reserves. Another 25,000 ha fall under DNR’s old forest program. In both cases, these lands are already off-limits to harvesting, but lack legal protection and therefore do not contribute to provincial

protected area targets (e.g., 12% by 2015). Protected area selections that capture unforested habitats such as lakes, wetlands, beaches, barrens, and offshore islands also do not affect wood supply.

Other areas recommended for protection will have a reduced effect on wood supply because timber harvesting on these lands, while permitted, is already constrained. Such areas are not capable of supplying as much wood as comparable unconstrained parcels. Harvesting limitations may be due to biophysical constraints (e.g., too wet, too steep), special management or regulatory requirements (for example, higher retention harvests in species-at-risk habitat), poor accessibility, an undesirable species mix, poor site classes, or several such factors combined.

A handful of the proposed protected areas will have a delayed effect on wood supply. A higher proportion of forests within these areas are not yet mature, causing them to fall outside the short-term harvest queue. This decreases the amount of short-term wood supply that must be mitigated over the “tight stretch”.

In delineating preliminary boundaries of recommended protected areas, we typically minimized the inclusion of lands with high forest management investment such as plantations and treated stands, as the removal of such areas from harvest eligibility would have a disproportionately high impact on wood supply.

The overlap of protected area selections with constrained lands presents an opportunity for the Province to take immediate steps towards the designation of a “first slate” of new protected areas totaling 58,000 ha (Figure 3). The protection of these areas can occur prior to the implementation of wood supply mitigation measures with little impact on the forest industry.

Pre-commercial thinning (PCT)

The Forum considered all the categories of silviculture that DNR promotes through the Forest Sustainability Regulations, including plantation establishment, early competition control, pre-commercial thinning (PCT), and commercial thinning, as well as uneven-age and quality improvement treatments of selection management, crop tree pruning, and crop tree release.

Wood supply runs conducted to determine the effectiveness of various silviculture treatments in recouping potential wood losses to new protected areas chose to allocate virtually all new silviculture effort to additional PCT. An increase in Crown land silviculture spending of 50% recouped half of the potential softwood supply “lost” if all Tier 1 areas on Crown land were designated as new protected areas. When the model doubled spending, 80% of the potential harvest from Tier 1 areas was recouped, with further increases providing diminishing returns. The analysis results support a much more ambitious PCT program on Crown land to mitigate short-term impacts to potential wood supply which may be negatively affected by new protected areas, particularly in western and central Nova Scotia.

Managers of Neenah’s private lands feel that increasing PCT would provide a significant boost to short-term wood supply from those lands, while Bowater anticipates that PCT could provide only a small portion of the mitigation they would require to replace wood supply losses from potential protected areas on their private lands. Although it has not been modeled, the Forum believes that more PCT on small private lands would also provide a meaningful short-term wood supply lift to mitigate new protected areas, as many private woodlots have not benefited from past silviculture.

Our analysis found that more treatments targeted to the earliest stages of stand development, such as planting and early competition control (e.g., spraying, weeding) would provide little short-term boost to wood supply, regardless of who owns the land. The benefits of such treatments accrue in the distant future, well beyond when wood supply is projected to be

constrained. Other intermediate treatments such as partial harvests were not modeled but may also be capable of increasing wood supply and could be explored further.

Access softwood from low-quality hardwood stands

Nova Scotia contains vast areas of forest where scattered merchantable softwood grows among poorer quality trees, especially low-grade hardwood. It is too expensive for companies to harvest only softwood in these areas. Without a market for low grade wood, such lands are effectively knocked out of the potential wood supply pool. A substantial volume of “new” merchantable softwood that is tied up in these stands could be tapped with the emergence of a stable market for low quality hardwood.

The wood supply analysis included a base constraint that limited hardwood harvest to 20% of the softwood harvest level. Model projections show big gains in potential softwood harvest as this constraint is relaxed; half the potential softwood supply on Tier 1 areas across all Crown lands could be recouped by raising the proportion of hardwood in stands eligible for harvesting from 20% to 25%. The lift is not spread evenly across the province. The amount of new wood supply generated in eastern Nova Scotia from this mitigation option exceeds what would be withdrawn for new protected areas, while slightly over 40% of the drop in potential harvest would be recouped in western region and just 15% in central Nova Scotia.

A market for low quality wood may emerge as demand for biomass grows. If there is investment in the development of co-generation or other facilities requiring biomass in Nova Scotia, an option exists for the Province to tie their development to the creation of new protected areas, by counting the new softwood supply that is generated as mitigation.

ENGO and industry partners recognize that biomass harvesting can have negative impacts on the environment, making it paramount that it be conducted in a sustainable manner that reduces the impact on the environment and does not inhibit the ability of forests to regenerate. Where this mitigation strategy is pursued, it is critical that scientifically determined levels of fine and coarse woody debris, as well as dead or dying trees, be left in the stand to ensure long-term site productivity and provide wildlife habitat. ENGO support for this strategy also requires that it not result in a significant amount of clearcutting. The silviculture system used for biomass harvesting should be ecologically appropriate for the site.

Factor in mature wood freed-up from marginal “old forest” areas

DNR’s old forest program represents a significant harvesting constraint on Crown lands. The program, which predates the CSFF, aims to retain and restore representative old forest types on 8% of the Crown land base. It has administratively placed 39,665 ha of unprotected forests off-limits to logging, two-thirds of which the Forum has recommended for legal protection. DNR has committed to identifying another 4,165 ha across eight ecodistricts where they remain short of the 8% target.

The old forest program calls for DNR to review the status of “old forest” blocks when new protected areas are established, on the assumption that some forests in the protected areas will contribute to the program’s targets. In some cases, lesser quality “old forest” areas could be relieved of their harvesting prohibition if similar or better old forests are formally protected within the same ecodistrict. Our analysis found that several areas delineated for the old forest program had only marginal old forest characteristics. There also appears to be an over-representation of black spruce-fir forest at the expense of forests dominated by characteristic climax conifer species of the Acadian forest such as red spruce and hemlock.

While model projections indicate limited overall effectiveness for this strategy, it does generate a meaningful boost to short-term wood supply for NPPH's Crown license lands. Because much of the Forum's protected areas analysis was conducted remotely, it is important that on-the-ground analysis is conducted to assess the relative quality of "old forest" sites considered for harvest.

NPPH has committed to modified harvesting aimed at retaining or restoring old forest characteristics of any "old forests" areas that become eligible for harvesting as a result of new protected areas. Extending these measures to remaining Crown lands would create a consistent policy and help restore old forests on Crown lands while freeing up some mature wood for immediate harvest.

Modified harvesting prior to designation

Some areas proposed for protection may lend themselves to a limited amount of timber harvesting prior to designation. This may be appropriate where the supply of mature softwood is particularly tight (e.g., central Nova Scotia), where companies have already made considerable investments to access certain areas, or where proposed protected areas contain scattered plantations. This strategy provides immediate utility in bridging the short-term wood supply crunch by making mature wood available for harvest right away.

This approach should be used sparingly, and in a manner that minimizes ecological impacts on the proposed protected area. DNR staff have suggested that harvesting in such instances be conducted off existing roads and be limited to the periphery of future protected areas. They also suggest that practices be modified to provide a restoration function. This should include targeting early successional species over climax species, removing wood from relict plantations, retaining a high degree of canopy closure, maintaining or restoring an uneven-age stand structure wherever possible, and leaving lots of snags, mature trees of climax species, and woody debris on site. Operating plans for modified harvests prior to designation should be prepared in consultation with Forum partners.

Access wood from unlicensed Crown lands

Crown lands in western Nova Scotia are under considerably less harvesting pressure than other land bases the Forum considered. These Crown lands are not encumbered by long-term forest management licenses and relatively few saw mills harvest here. Model runs conducted by DNR show that these lands are capable of supplying considerably more timber than what is actually being harvested. There appears to be some flexibility on Crown lands in the Western Region for the creation of new protected areas without significantly impacting the flow of wood to the mills.

Some of the pressure caused by reducing the amount of Crown land available for harvesting in central Nova Scotia could be alleviated if mills in that region with forest utilization agreements received alternative allocations from western Nova Scotia. Added trucking and operating costs of managing land further from mills can potentially be offset by the security of a longer term allocation.

Similarly, there may be an opportunity for underutilized Crown lands in western Nova Scotia to compensate for some of the wood supply lost to new protected areas on private company lands. Mechanisms for doing this may include land trades or a long-term forest management license.

Additionally, a substantial amount of Crown land in eastern Nova Scotia are not in the NPPH license (nor recommended for new protected areas), and not currently under active forest management. Some of these lands could be made available to

replace areas withdrawn from NPPH's license for new protected areas. Others recommended for protection could be designated without affecting regional wood supply.

Increase participation of small private woodlots

Private woodlots account for just over half of Nova Scotia's forested land base, and have supplied approximately 57% of provincial softwood harvest over the past decade. Yet many landowners choose not to participate in forest management, effectively excluding their woodlots from the accessible wood supply pool. This accounts for a considerable amount of untapped potential wood supply. A detailed survey of woodlot owners in central Nova Scotia conducted by the Nova Scotia Agricultural College in 2000 found that nearly three-quarters of respondents did not have a forest management plan. DNR assumes that 15% of small private lands are unavailable for harvesting when they run long-term supply projections for the province.

Reasons for not participating in forest management may include unattractive wood prices, other land use priorities (e.g., conservation or recreation), uncertainty over what management practices to employ, difficulties in obtaining silviculture funding, distrust of those who propose to cut their land, and a lack of information about or lack of interest in forest management. Findings from the Agricultural College survey and the more recent Uneven-aged Management Outreach Project administered by the Association for Sustainable Forestry suggest that opposition to clearcutting from some landowners also contributes to non-participation.

Specific measures to increase small woodlot owner participation might include the revitalization of DNR's extension service, and more professional and technical assistance for woodlot owners (including in the development of management plans). More support for non-clearcutting treatments such as thinnings, and partial, selection, and restoration harvests on small private lands could bring landowners into the provincial wood supply pool who would otherwise not allow timber harvesting on their properties. These incentives would also address ENGO concerns that increasing small woodlot participation could simply lead to more clearcutting.

The Forum considered ways in which increased private woodlot owner participation could be counted as a factor mitigating for withdrawal of other lands for protection. We concluded that a mitigation offset could be generated whenever a non-participating landowner allows harvesting on their property as a result of such new initiatives, and a Forum partner uses a portion of that wood to replace volume that is no longer available due to a new protected area. It would be necessary to estimate the volume of wood supply that a Forum partner would recoup through this strategy to ensure that new wood supply it generates is directly linked, and scaled appropriately, to the creation of new protected areas.

Northern Pulp and NewPage Port Hawkesbury are interested in pursuing this strategy to recover a portion of the wood supply that would be affected by proposed protected areas on their land base.

Land acquisition

Land acquisition by the Province can help realize the Forum's objectives by securing important conservation lands for protection, and ensuring that other lands remain or are made available for wood supply. Land acquisition also provides forestry companies with direct monetary compensation for new protected areas.

Crown acquisition of industrial woodlands for general forest management does not generate new wood supply if those lands were likely to be harvested anyway. However, acquisitions can prevent additional strain on provincial wood supply by

ensuring that those lands are not acquired by new owners who would stop investing in forest management. That trend, already common in New England, has emerged in Nova Scotia in recent years. It is important that the Province pursue the acquisition of key industrial timberlands quickly and vigorously. These are “once in a generation” opportunities to secure large tracts of land for public benefit, including complementary objectives of protected areas and wood supply. Such opportunities are time-limited and may not reoccur, or be reduced to bits and pieces of what is currently available, and at a steeper price. Land prices in Nova Scotia historically outpace inflation and growth in government revenues.

The Forum has previously advised the Province to buy several properties from JD Irving Ltd. and Wagner, as these companies are selling land and are not interested in pursuing wood supply mitigation. The remaining companies – Bowater, NPPH, and Neenah – may consider selling limited amounts of their private lands for new protected areas where doing so would not affect their wood supply needs or obligations.

Climate change mitigation opportunities

Opportunities may exist to mitigate cost impacts associated with the creation of new protected areas through accessing the global carbon market. Carbon sequestration in forested ecosystems, and avoided deforestation, could become key elements to a national climate change strategy that will value carbon in the economic market. There may be many examples where the value of protecting a wilderness zone exceeds the value in harvesting the timber growing there, and accessing the carbon market could open-up substantial opportunities for the provincial government and the forest companies. There is an opportunity here to tap into a revenue stream that will help pay for the costs of the new protected areas.

Company- and Crown-Specific Proposals

Through the CSFF negotiations it has become clear that different mitigation options are needed for different companies and different land ownerships. Below we present some of the most promising mitigation proposals for each company and for unlicensed Crown land parcels in Western and Central Regions. These results are based upon direct discussions among ENGOs, companies, and government. To implement the recommendations of the CSFF, the provincial government will need to negotiate directly with each company to work out the details of company-specific mitigation strategies.

Bowater Mersey Paper Co. Ltd.

Land trade and/or secure Crown license. Bowater would consider trading private lands that the Forum has recommended for protection to the Province for Crown lands of equivalent value on which to conduct forestry operations. Replacement lands would need to have a similar capacity to supply merchantable wood to the company at a comparable cost and time to those transferred to the Province and not include lands recommended for protection through this proposal. If insufficient Crown lands are available to replace proposed protected areas on Bowater land, the company would consider assistance from the Province to implement other mitigation measures, including appropriate compensation and a secure long-term license to operate on Crown land and/or silviculture *in lieu* of land.

Land acquisition. Bowater may be willing to sell to the Province some small properties for new protected areas.

Increase PCT. More pre-commercial thinning on Bowater lands and/or on Crown lands under a Crown license in western Nova Scotia, could generate a small increase in short-term wood supply for the company.

JD Irving Ltd.

Land acquisition. JD Irving Ltd. has informed the CSFF and the Province that the company is willing to sell several thousand hectares of land to the Province. In February 2008 the Forum wrote to the Ministers of Environment and Natural Resources to recommend the Crown purchase 25,120 ha of JD Irving land, mostly in Yarmouth, Digby and Cumberland Counties. Slightly over two-thirds of this area (16,900 ha) was envisioned for protected areas, with the remainder for wood supply. These lands contain a number of ecologically-significant and irreplaceable components of Nova Scotia's natural diversity, and are priorities for acquisition and protection, including those portions that the company has since sold to private buyers.

NewPage Port Hawkesbury Ltd.

Note: NPPH has identified areas where specific mitigation options may or may not be appropriate.

Selection of proposed protected areas. Sites from NPPH's Crown license totaling 17,500 ha could be designated as part of a "first slate" of new protected areas, with negligible effects on the company's wood supply. Several other protected area selections overlap with species-at-risk habitat (e.g. marten) and other lands where harvesting is already constrained. NPPH also has existing voluntary protected areas on company freehold lands that are currently outside of the company's wood supply that could contribute to new protected areas.

Increase PCT. More PCT treatment on small private lands would likely generate a meaningful increase in short-term regional wood supply for NPPH. A small increase would occur through more PCT on the company's private freehold lands and licensed Crown land.

Access softwood growing among poor quality hardwood. DNR's wood supply projections and NPPH's internal projections both indicate that the company could recoup all wood supply lost to new protected areas on its Crown license by accessing mixedwood stands that are currently uneconomical to enter. For this, NPPH requires a secure market for low quality hardwood. The company's preferred market is a future co-generation facility at its Port Hawkesbury mill.

Freed up DNR "old forests". A number of old forest zones within NPPH's license contain only marginal old forest values. Trading some of these zones for legal protection of higher-quality old forest sites inside the boundaries of proposed new protected areas could free-up significant short term wood supply for NPPH. On-the-ground analysis to assess the relative quality of marginal old forest sites is recommended.

Increase participation of small private woodlots. NPPH acquires nearly half of its wood supply from small private landowners in eastern Nova Scotia. The company believes more supply from this land base can help it offset land withdrawals for new protected areas. Strategies to encourage private woodlot participation by the Province should be pursued.

Unlicensed Crown lands. A substantial amount of Crown land in the seven eastern counties is neither recommended for protection nor currently inside NPPH's Crown license. Some of these lands could be used to replace potential losses of wood supply from designating new protected areas within the company's license. Unlicensed Crown lands proposed for protection could be designated without impacting the flow of wood to the mill.

Land acquisition. NPPH may entertain selling some of its private properties to the Province for new protected areas.

Neenah Paper and Northern Pulp Ltd.

Selection of proposed protected areas. Sites from Northern Pulp's Crown license totaling 1,800 ha could be designated as part of a "first slate" of new protected areas, with minimal impact on the company's wood supply. Several other protected area selections on the company's Crown license lands overlap with special management zones along watercourses where harvesting is already constrained.

Increase PCT. An increased PCT program on both Neenah's private land and Northern Pulp's Crown license lands, is likely to increase short-term wood supply, although the company does not believe that this will increase overall wood supply.

Modified harvesting prior to designation. Some areas proposed for protection within Northern Pulp's Crown license may lend themselves to some modified harvesting on their periphery prior to designation, given the tight short-term wood supply picture in central Nova Scotia. Operating plans for modified harvests prior to designation should be prepared in consultation with Forum partners.

Unlicensed Crown lands. Some unlicensed Crown lands, particularly in central Nova Scotia, could be used to replace potential losses of wood supply from designating new protected areas within the company's license.

Land acquisition. Neenah Paper has expressed an interest in selling land to the Province, some of which may be suitable for protected areas.

Wagner Forest Management

Land acquisition. Wagner has informed the CSFF and the Province that it is willing to sell several thousand hectares of land to the Province. In September 2008 the Forum wrote to the Ministers of Environment and Natural Resources to recommend the Crown purchase 6,072 ha from Wagner. Most of this land was envisioned for protected areas. The Wagner lands recommended for acquisition are scattered throughout central Nova Scotia. These lands contain a number of ecologically-significant and irreplaceable components of Nova Scotia's natural diversity, and are priorities for acquisition and protection even if they are sold to a private buyer in the interim.

Unlicensed Crown lands (Central Region)

Selection of proposed protected areas. Sites from unlicensed Crown lands in the central region totaling 24,000 ha could be designated as part of a "first slate" of new protected areas, with negligible effects on wood supply because they overlap existing constraints or fall outside of the operable forest.

Increase PCT. More pre-commercial thinning on unlicensed Crown lands in the central region would likely generate a modest increase in short-term wood supply.

Modified harvesting prior to designation. Some of the areas proposed for protection on unlicensed Crown lands in central Nova Scotia may lend themselves to modified harvesting on their periphery prior to designation, given the tight short-term wood supply picture in this region. Operating plans for modified harvests prior to designation should be prepared in consultation with Forum partners.

Alternative allocations from Western Region. There is currently unused wood supply on Crown lands in the Western Region that could replace wood supply in Central Region lost to the creation of new protected areas. The Crown should explore replacing a portion of its wood volume allocations in central region with comparable allocations from Western Region.

Unlicensed Crown lands (Western Region)

Selection of proposed protected areas. Sites from Crown lands in the western region totaling approximately 16,500 ha could be designated as part of a "first slate" of new protected areas with negligible effects on wood supply due to existing land-use, policy, and operability constraints.

Increase PCT. More pre-commercial thinning on Crown lands in the Western Region would likely generate a meaningful increase in short-term wood supply.

Unused wood supply. For several years, there has been unused wood supply available on Crown lands in the Western Region. Accessing this wood supply can help offset impacts from new protected areas on Crown and private lands. New protected areas can be established in this region with limited impacts on regional wood supply availability.

Commitment to deferral of harvesting and road-building

NewPage Port Hawkesbury, Northern Pulp, Neenah Paper, and Bowater have agreed to defer harvesting and road building until December 31, 2010, on all lands under their management that the Forum has recommended for protection. This includes both Tier 1 and Tier 2 areas on Crown license lands and private lands. The intent is to give the Province time to engage in direct negotiations over the protection of these lands and associated wood supply and cost mitigation. At their expiration, the companies will reassess their commitment to their respective harvesting and road-building deferrals, and may consider extending them if suitable mitigation measures, such as alternative harvesting areas, are instigated in the interim.

Recommendations

New protected areas. The Province should vigorously pursue the protection of Tier 1 areas as priorities to reach its 12%-by-2015 commitment. The protection of Tier 2 areas should be pursued to meet the 12% where Tier 1 areas are not available for protection, and to meet the Province's commitment to a representative protected areas network.

First slate. The Province should immediately commence the designation process for the "first slate" of recommended protected areas: 175 sites on Crown land totaling 58,000 ha. These are high-priority, low-conflict sites located entirely on public land that can be implemented with little cost. While it is still important to mitigate the wood supply impact of protecting these sites, that impact is sufficiently small that their designation need not be delayed while mitigation details are worked out.

No drop in wood supply or increase in costs due to new protected areas. The Province should ensure that new protected areas recommended through this proposal do not cause a decrease in the supply of softwood fibre utilized by the forest industry, nor an increase in the cost of wood delivered to the mill. This mitigation of wood supply and cost impacts requires a significant commitment of funding from the Province.

Mitigation details. Separate discussions among the Province, ENGOs, and each individual company should commence with the goal of finalizing mitigation terms that are acceptable to all three parties. For private and Crown license lands, such discussions should deal with proposed protected areas drawn from the respective operating area of each company, and that company's corresponding mitigation needs. Discussions should build on the specific strategies identified in this report as most promising for each individual company or land base.

Interim protection on Crown lands. The Province should institute a development moratorium on all Crown lands (Tier 1 and 2) recommended for protection through the CSFF proposal. The moratorium should apply to all industrial activities, including forest harvesting, resource extraction, road building, off-highway vehicle trail development, seismic exploration, energy/hydro development, and the granting of new legal rights such as camp leases, mining leases, and mineral exploration licenses. A development moratorium for proposed protected areas on unlicensed Crown lands should remain in effect until the sites are designated as legally protected, or formally excluded from further consideration as protected areas. Northern Pulp and NewPage Port Hawkesbury have agreed to defer harvesting and road building until December 31, 2010, on most licensed Crown lands managed by them that the Forum has proposed for protection.

Land acquisition. The Province should immediately resume discussions with JD Irving Ltd. and Wagner to acquire lands that the Forum previously recommended for acquisition, and pursue additional discussions with NPPH, Bowater, and Neenah Paper regarding lands that those companies are willing to sell. The Province should also develop a strategy to acquire industrial timberlands that come up for sale for dual objectives of wood supply and protected areas.

First Nations. The Forum encourages the Province to engage in a meaningful dialogue with the Mi'kmaq of Nova Scotia with respect to all aspect of the protected areas planning and mitigation process.

Public and stakeholder consultation. The Province should consult with parties whose interests may be affected by proposed protected areas and wood supply mitigation strategies, as well as the broader public, following the steps outlined in the Province's protected area designation framework. CSFF partners strongly endorse an open, transparent, and meaningful consultation process that is accountable and accessible to the public.

Future steps. Under the MOU, Forum partners have agreed to work towards the completion of the protected areas network. While the implementation of this proposal will address many shortcomings in the existing protected areas network, gaps will remain. The Province should work with the Forum to develop a framework for plugging remaining gaps in a manner that takes into account protected area requirements and industry's need for a sustainable wood supply.

Private land conservation. The Province should continue to support private land conservation through the further development of financial incentives such as the Conservation Property Tax Exemption and the EcoGifts program; the expansion of cost-shared land securement agreements such as the Campaign for Conservation and the Lands and Legacies Conservation Agreement; the expansion of the Nova Scotia Crown Share Land Legacy Trust; the establishment of other land-securment funding and land trust capacity-building mechanisms; and the allocation of more Provincial funds to purchase select private lands of high conservation priority.

Biodiversity conservation on unprotected lands. Under the MOU, Forum partners recognize that lands outside protected areas play an important role in conserving biodiversity and natural processes across the broader landscape, and have agreed to explore ways of conserving ecological values outside of protected areas. The Province should work with interested Forum partners to identify priority actions to this end. We recommend that developing strategies to prevent the permanent conversion of forests to other uses be among those priorities.

Implementation. Forum partners recognize that it will take time for the Province to review our recommendations, work out remaining mitigation details, conduct consultations with other affected parties, and conduct the various procedures needed to finalize protected area designations. It is critical that protected area and mitigation options are not lost during that time. To minimize those risks, we urge government to quickly develop an implementation plan that identifies tasks, processes and decision points, and involves progress updates to the Forum on the implementation of protected area designations and wood supply and cost mitigation strategies. The Forum partners are committed to assisting and advising government on the implementation of this process.

Concluding Remarks

By working together, the environmental non-governmental organizations and forestry companies have developed win-win scenarios that bring greater certainty to all parties, expands the protected areas system, addresses wood supply and cost impacts for the industry, assists government in achieving their environmental goals, and reduces conflict between two groups that traditionally disagree on most forest management issues. We collectively request that the Province act on all the recommendations presented in this report and we look forward to its successful implementation.

APPENDICES

Forest Modeling Framework

At the request of the Forum, DNR provided forest modeling support to help quantify potential impacts to the available wood supply from Crown land from new protected areas. The modeling also tested the effectiveness of selected mitigation strategies. To fully comprehend the findings of this exercise it is critical to understand the context in which the exercise was completed, as well as key underlying assumptions behind the process.

The analysis was strongly focused on the Forum's desire to forecast potential softwood supply and more specifically changes to this supply as a result of designating new protected areas in combination with mitigating management strategies. The analysis was limited to Crown land (which contains 75% of the area proposed for protection) as a forecasting model that could be restructured to meet Forum needs within the time constraints. Key assumptions included:

- Maximizing the short-term softwood harvest volume with a focus on spruce and fir
- Maintaining wood supply within four management units (western unlicensed, central unlicensed, Northern Pulp license, NewPage license)
- No explicit indicator for wood cost so any results need to be interpreted with an eye to potential changes in wood costs
- Inclusion of current softwood silviculture options (plantation, early competition control, pre-commercial thinning)

The resulting forest modeling framework allowed the Forum to examine potential supply impacts under the given assumptions. Due to the broad context of the model the focus should not be on the actual supply numbers reported but rather the relative change, and general trends of various mitigation strategies.

Summarized results are provided below.

Summarized wood supply model results

Mngt. Unit	Scenario	Estimated Short-Term Harvest (1000's m ³ /yr)(% change from Base)					
		Softwood		Spruce-Fir		Hardwood	
CNL	R01:Base	84	n/a	75	n/a	15	n/a
	R02:RmTier1	77	(-8%)	69	(-8%)	13	(-12%)
	R02:RmTier12	77	(-9%)	69	(-8%)	13	(-12%)
CSL	R01:Base	400	n/a	385	n/a	144	n/a
	R02:RmTier1	380	(-5%)	367	(-5%)	139	(-3%)
	R02:RmTier12	372	(-7%)	359	(-7%)	138	(-5%)
CFC	R01:Base	262	n/a	226	n/a	54	n/a
	R02:RmTier1	219	(-17%)	190	(-16%)	41	(-24%)
	R02:RmTier12	212	(-19%)	183	(-19%)	39	(-28%)
CFW	R01:Base	350	n/a	225	n/a	61	n/a
	R02:RmTier1	303	(-13%)	202	(-10%)	52	(-16%)
	R02:RmTier12	298	(-15%)	199	(-12%)	50	(-19%)
Total	R01:Base	1,096	n/a	911	n/a	274	n/a
	R02:RmTier1	979	(-11%)	828	(-9%)	245	(-11%)
	R02:RmTier12	958	(-13%)	810	(-11%)	240	(-13%)

*All reported harvest levels are gross merchantable volume at min 9cm dbh, 7cm top diameter & 15cm stump height. No adjustments were made for:
1)Operational Factors (adjacency, etc.) (~1-5%) 2)Stand Retention (~1%) 3)Cull and Wastage(~3-7%) 4)Insect, Fire and Disease Loss (2-4%)

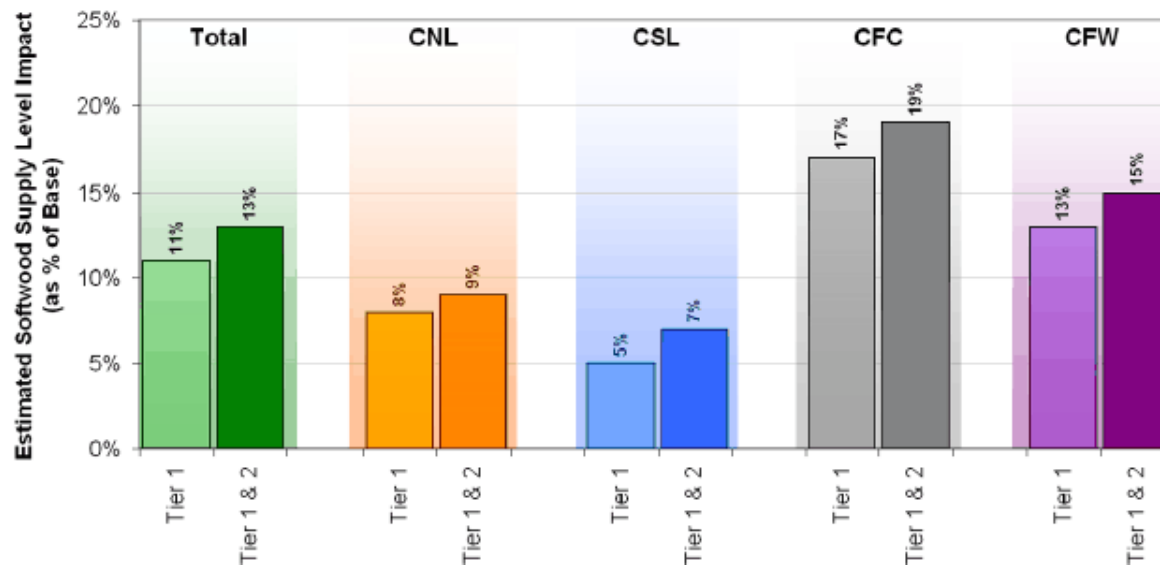


Figure 1. Wood supply impact of protecting just "Tier 1" areas and both "Tier 1" and "Tier 2" without mitigation (Crown lands only). CNL=Crown Northern Pulp license, CSL=Crown NewPage license, CFC= unlicensed Crown (Central region), CFW=unlicensed Crown (Western region).

Scenario	Strategy	Description
1	Base	Base starting assumptions for CSFF analysis
2	RmNPs	Base scenario with CSFF Natural Patches (NPs) removed from working landbase
3(a,b,c,d)	IncSilv	Mitigation scenarios based on increasing silviculture budget to various levels: a) 3 million/yr b) 4.6 million/yr c) 10 million/yr d) Unconstrained Budget
4(a,b,c,d)	Hmax	Mitigation scenarios based on relaxing hardwood flow constraint: a) Maximum of 35% of softwood harvested b) Maximum of 50% of softwood harvested c) Maximum of 75% of softwood harvested d) Unconstrained
5(a,b,c)	MUnits	Mitigation scenarios based on merging management units: a) 3 MUnits: CNL,CSL,CFC+CFW b) 2 MUnits: CSL,CNL+CFC+CFW c) 1 MUnit: CNL+CSL+CFC+CFW
6	NetOF	Mitigation scenarios based on relaxing DNR old forest net of other restrictions (15,000ha increase to working landbase {CNL~2000ha; CSL~7000ha; CFC~3000ha; CFW~3000ha})
7(a,b,c,d)	Combined	Mitigation scenarios based on combination of results from previous strategies: a) Silv@4.6million/yr - Hmax@50% - 4MUnits - NetOF-out b) Silv@4.6million/yr - Hmax@50% - 4MUnits - NetOF-in c) Silv@6million/yr - Hmax@75% - 2MUnits - NetOF-in d) Silv Unconstrained - Hw Unconstrained - 1MUnit - NetOF-in

Figure 2. Description of mitigation scenarios tested by wood supply model (See Figures 3 and 4.)

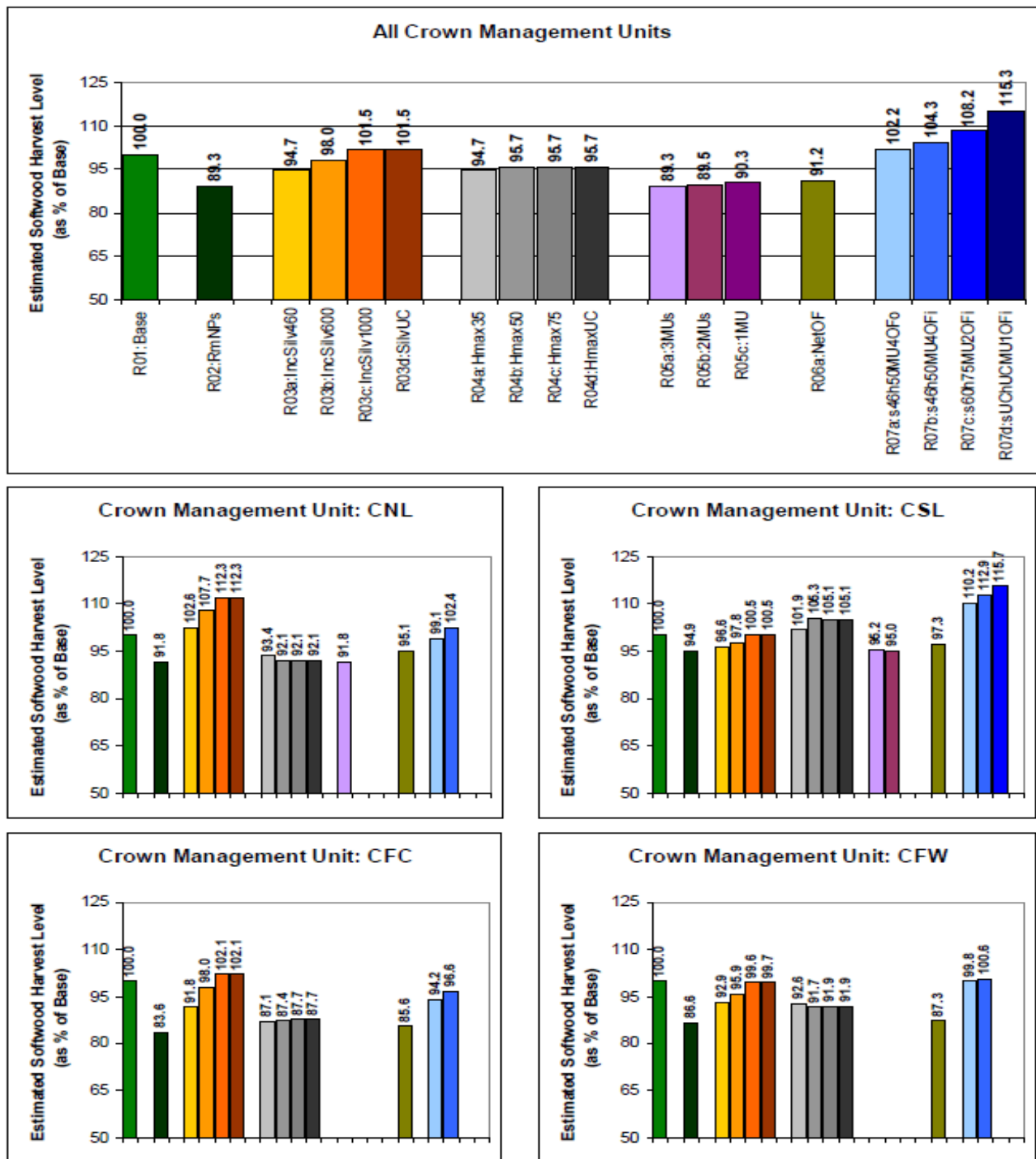


Figure 3. Impact of withdrawing "Tier 1" sites from the working land base and effectiveness of various mitigation scenarios in recouping lost potential wood supply. The solid green bar on the left (R01) depicts the status quo (no new protected areas or mitigation) and is set at 100. The second bar (R02) shows the relative drop in potential softwood supply if all "Tier 1" areas were protected. The rest of the chart shows the effectiveness of various strategies in recouping lost wood supply, including increasing silviculture (R03, orange bars), increasing the hardwood component of harvestable stands (R04, grey bars), combining management units (R05, purple bars), accessing marginal "old forest" stands (R06, light green bar), and various combinations of these strategies (R07, blue bars). Results are limited to Crown lands. CNL=Crown Northern Pulp license, CSL=Crown NewPage license, CFC=unlicensed Crown (Central region), CFW=unlicensed Crown (Western region).

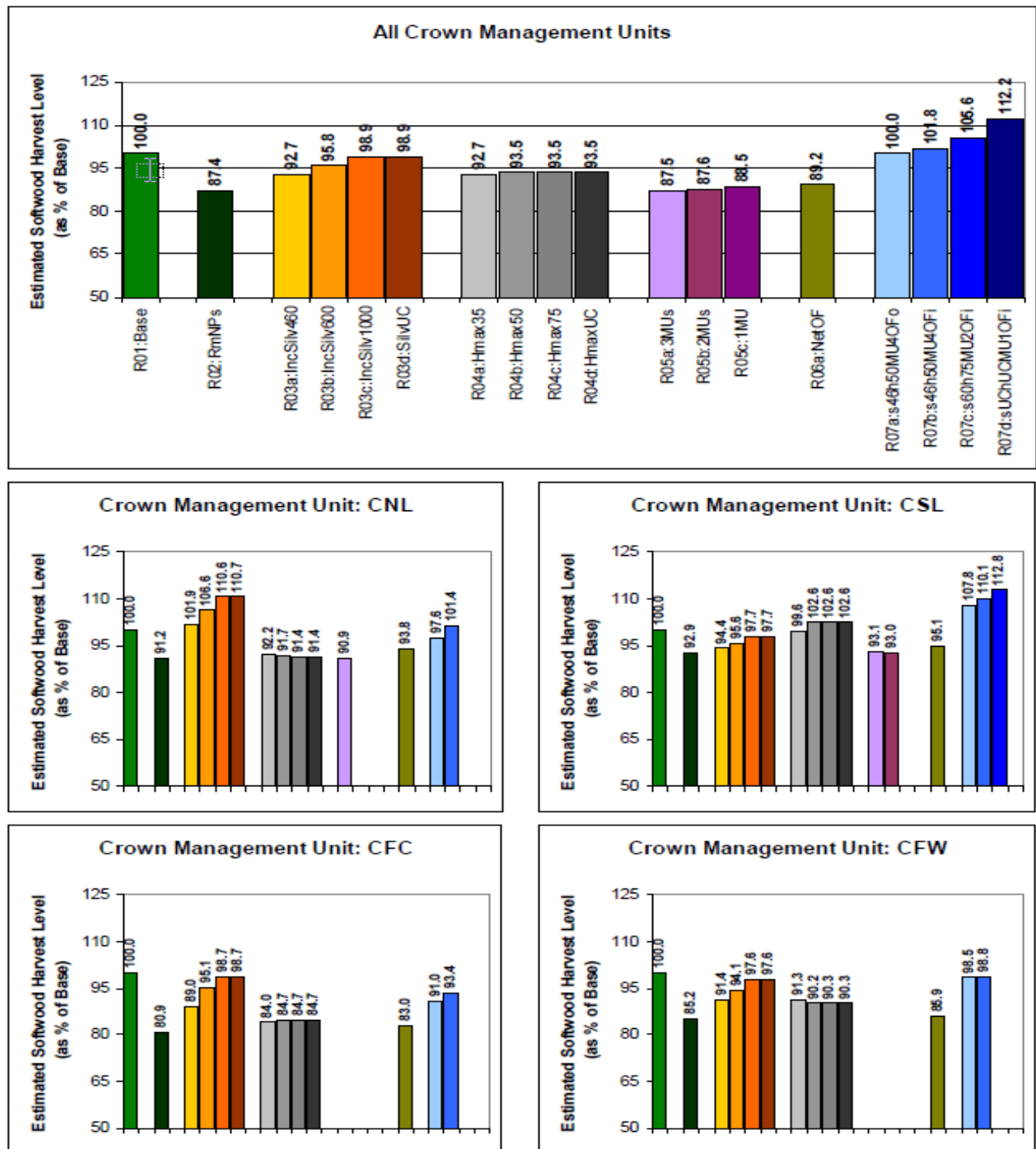


Figure 4. Impact of withdrawing "Tier 1" and "Tier 2" sites from the working land base and effectiveness of various mitigation scenarios in recouping lost potential wood supply. The solid green bar on the left (R01) depicts the status quo (no new protected areas or mitigation) and is set at 100. The second bar (R02) shows the relative drop in potential softwood supply if all "Tier 1" and "Tier 2" areas were protected. The rest of the chart shows the effectiveness of various strategies in recouping lost wood supply, including increasing silviculture (R03, orange bars), increasing the hardwood component of harvestable stands (R04, grey bars), combining management units (R05, purple bars), accessing marginal "old forest" stands (R06, light green bars), and various combinations of these strategies (R07, blue bars). Results are limited to Crown lands. CNL=Crown Northern Pulp license, CSL=Crown NewPage license, CFC= unlicensed Crown (Central region), CFW=unlicensed Crown (Western region).

Wood supply model results for the “first slate”

Crown Land Area Summary by Management Unit

Management Units ¹	Landbase Area Statistics (ha)(ha & % CSFF NPs Impact)(ha & % CSFF S1 Impact)		
	Total Landbase	Forested Landbase	Working Landbase
CNL	80,798 (14568ha / 18%) (1772ha / 2.2%)	68,741 (12387ha / 18%) (1562ha / 2.3%)	58,826 (9520ha / 16.2%) (381ha / 0.6%)
CSL	666,808 (98516ha / 14.8%) (15766ha / 2.4%)	547,971 (80156ha / 14.6%) (11889ha / 2.2%)	396,386 (54463ha / 13.7%) (4539ha / 1.1%)
CFC	281,004 (58532ha / 20.8%) (24162ha / 8.6%)	241,255 (50058ha / 20.7%) (18821ha / 7.8%)	168,027 (38003ha / 22.6%) (11657ha / 6.9%)
CFW	461,267 (47066ha / 10.2%) (14625ha / 3.2%)	369,137 (39645ha / 10.7%) (10569ha / 2.9%)	232,719 (33744ha / 14.5%) (7133ha / 3.1%)
Total All Units	1,489,877 (218682ha / 14.7%) (56325ha / 3.8%)	1,227,104 (182246ha / 14.9%) (42841ha / 3.5%)	855,958 (135730ha / 15.9%) (23710ha / 2.8%)

¹CNL=Crown Northern Pulp License; CSL = Crown Newpage License; CFC=Unlicensed Crown Central; CFW=Unlicensed Crown Western;

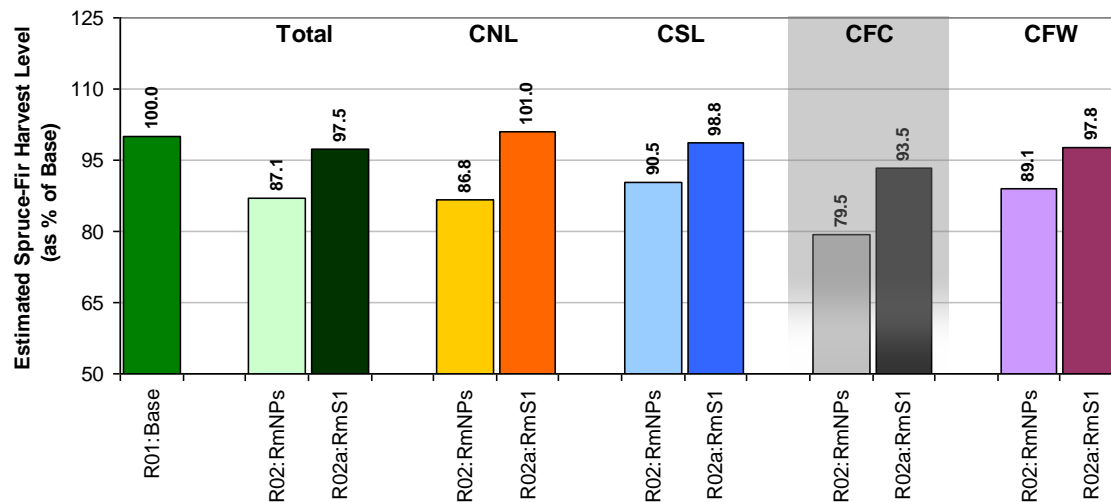


Figure 5.