

Building the Path to 2020 for Nova Scotia's Forests, Minerals, Parks and Biodiversity

*Submission to Voluntary Planning on the Natural
Resources Strategy*

Ecology Action Centre

July 31, 2008

When I sit down in solitude to the labours of my profession, the only questions I ask myself are, 'What is right? What is just? What is for the public good?'

~Joseph Howe

~

We dedicate this brief to the memory of Pam Langille who spent most of her time during the past two decades advocating for the protection of the Acadian Forest, wilderness areas and sustainable forest practices.

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EXECUTIVE SUMMARY

Nova Scotia has been built largely on the harvesting and extraction of natural resources. Given our distance from large markets and our low population, it is likely that natural resources will continue to play a key role in the economy of this province. There is overwhelming evidence that we have not managed our natural resources well, and have squandered the natural capital of this province. The mismanagement has hugely impacted the landscape and the lives and livelihoods of many people. We believe that there is widespread support among the majority of citizens, including many in the resource industries, for change in how we manage our resources. Nova Scotians see an imperative and urgent need for change.

The Department of Natural Resources must adopt an ecosystem-based approach to the use of natural resources, be it the management of coastal development, the cutting of trees, or mining. Peer-reviewed science, particularly from the fields of ecology and conservation biology, coupled with full cost-benefit accounting, should guide the Department's decision-making. Climate change and its impact should be a constant reference for those developing the Strategy. As espoused in the *Environmental Goals and Sustainable Prosperity Act*, "having one of the cleanest and most sustainable environments in the world by the year 2020" makes both good economic and environmental sense. If Nova Scotia does not move in this direction, its products could be less attractive to foreign markets and it could miss new opportunities such as coastal eco-tourism.

The Ecology Action Centre supports the Natural Resources Strategy Review. Given the length of this process, over three years from start to finish, and the amount of effort people will invest, it is crucial that the panel members and officials listen to and act upon the input of Nova Scotians. We look forward to the Government of Nova Scotia developing and implementing the Strategy and ensuring it is integrated with other provincial policies and the efforts of other levels of government.

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VISION AND VALUES FOR NATURAL RESOURCE USE IN NOVA SCOTIA

The Ecology Action Centre

The vision of the EAC is *to promote a society that respects and protects nature and provides sustainable opportunities for its citizens*. We are dedicated to promoting a healthy environment and a healthy economy, and believe, if done right, the two go hand-in-hand. Despite years of over-exploitation and poor practices, Nova Scotia is still blessed with a wealth of natural resources and these resources, if used and treated with respect and intelligence, can sustain us for a long time.

The Centre was founded in 1971 and today has over 1400 members from all across Nova Scotia. The organization has consistently played a pioneering role in this province, from promoting recycling in the early years to advocating for large-scale investments in energy conservation and renewable energy more recently. Such issues invited indifference and scepticism when initially promoted, yet now are key features of our lives and economy.

The Centre works on a range of issues including forestry, wilderness protection, mining, fishing, farming, energy and transportation, many of which are relevant to the development of the new natural resources strategy. A successful strategy will have to address all these issues as well as respond to regional and global forces, such as changing demographics and rising fuel prices. The EAC, as it grows, is taking a more integrated approach to environment issues and we look forward to the Government of Nova Scotia doing the same.

Our staff and members have a lot to offer to this process, and we are invested in a positive outcome. There is a great deal at stake both for the people of Nova Scotia and all the other life with which we share this province.

The EAC has produced several documents (footnoted below) for its own purposes or to submit to other consultative processes; panel members might find them useful as background documents when writing their report.^{1,2,3,4}

¹ Ecology Action Centre. 2008. Towards a Water Resources Strategy for Nova Scotia. http://www.ecologyaction.ca/water/water_management.htm

² Ecology Action Centre. 2007. Nova Scotia climate action plan and energy strategy: a contract for a low-carbon future in Nova Scotia. http://www.ecologyaction.ca/energy_issues/publications/2007/071218_Submission_EAC.pdf

³ Ecology Action Centre. 2007. Pathways to sustainable energy prosperity in Nova Scotia. http://www.ecologyaction.ca/energy_issues/press_releases/2007/EACEnergy.pdf

⁴ Sodero, S., L. Garrison, J. Powley, and T. Crabtree. 2008. Green Mobility Strategy. http://ecologyaction.ca/trax/documents/GMS_Full.pdf

Developing a New Natural Resources Strategy: Key Values

1. Process Values: The following values should inform the process of developing the new Natural Resources Strategy

a) Accountability and Transparency

There is clearly a high level of public interest in the outcome of this process given that over 2000 people attended the public consultation meetings and more than 200 individuals and organizations, many of which have large memberships, submitted briefs. Given the length of this process, over three years from start to finish, and the amount of effort people will invest, it is crucial that the panel members and officials listen to and act upon the input of Nova Scotians. The reports from the panels and the final strategy must incorporate the wishes of the majority of participants and clearly explain how and why recommendations and decisions were made. Most importantly, a strategy is only of value if it is implemented.

b) Leadership

There likely will be a majority of participants in the Voluntary Planning process who want the Department to adopt a more sustainable approach to natural resource use. Building on that consensus, the panel members will have to engage in their own analysis and make choices that put the long-term interests of the ecosystem and the people of Nova Scotia first. This is not a process of trying to please all, but rather of making wise choices for the future. To achieve this end, the panel members must draw on science, recognize the profound public concern about the environment, and heed the Government of Nova Scotia's own commitment to "achieve international recognition for having one of the cleanest and most sustainable environments in the world by the year 2020"⁵. In particular, the members of the VP committee must provide adequate guidance to those conducting Phase 2. If not, the public consultations will have been of little value. It would be inadequate, for example, for the VP panel to say that Nova Scotians value healthy forests without providing further guidance on what this entails in practice.

c) Urgency

There is urgency in these deliberations, be it because of climate change, rising fuel prices, or the rapidly changing economics of the natural resource industries. The world is changing quickly. In many ways, Nova Scotia cannot wait three years before it responds to these crises and starts to make changes. While the integrity of the consultations and process must be recognized, we believe that few people want three years of government inaction and the status quo. The Government will have to make decisions about natural resources in Nova Scotia before the strategy is complete. They should use the public's input into this process as a gauge or guidance for interim measures.

⁵ Province of Nova Scotia. Environmental Goals and Sustainable Prosperity Act. S. 4(1)(a). Viewed July 21, 2008, http://www.gov.ns.ca/legislature/legc/bills/60th_1st/1st_read/b146.htm.

d) Collaboration

Much of the discussion during Voluntary Planning's public meetings focussed on what government should do. This submission does likewise. Nonetheless, it is important for Nova Scotians who care about natural resources, regardless of their perspective, to understand that we are all in this together. Many constructive ideas are coming forward from individuals and stakeholder groups during this public debate. People with different backgrounds (and interest groups with different agendas) are talking to one another about solving problems. This goodwill and momentum should be harnessed and built upon and thereby achieve more widespread buy-in than any one person, group, panel of "experts", or government department could come up with on their own. The EAC values collaboration with other stakeholders to resolve conflicts over natural resources. We encourage government to include formal mechanisms for multi-stakeholder collaboration in the next phase of the strategy review.

2. Outcome Values: The following values should inform the content of the new Natural Resources Strategy

a) Commitment to Change

Government policies, programs and culture must keep pace with external realities, be they changes in values, science, market forces, demographics, or the natural environment (*i.e.*, climate change). Many of the policies of the Department of Natural Resources are outdated because previous attempts at change have failed. In addition, the Department needs to calibrate its policies with those of the Government, in particular the Government's business plan 'The New Nova Scotia: A Path to 2020'⁶ and the principles and goals of the *Environmental Goals and Sustainable Prosperity Act*. We believe that many current policies have adverse consequences for the province's environment and natural resources, and that there is widespread support, both in rural and urban areas, for more environmentally sustainable programs and practices. As the public's values change, it is key that the practices and culture of the Department itself also change. The status quo is not an option.

b) Environment and Sustainability as Economic Development Drivers

Awareness has grown over the last several decades of the relationship between, and interconnectedness of, the economy and the environment. In 1989 the Brundtland Commission popularized the concept of sustainable development. In 2007 the Nova Scotia Government took the pioneering step, with the support of all the other political parties, of enacting the *Environmental Goals and Sustainable Prosperity Act*. One of the *Act's* principles is that the health of the environment, the economy, and the people are all interconnected. In practice, this means that protecting the environment or acting in an environmentally sensitive manner usually makes good economic sense. The rejection of certain environmentally unsustainable projects or practices creates opportunities for the introduction of environmentally and economically sustainable activities.

⁶ Province of Nova Scotia. 2008. The new Nova Scotia: the path to 2020, Nova Scotia. Viewed July 21, 2008, <http://www.gov.ns.ca/2020/>

c) Aboriginal Engagement

For centuries, the Mi'kmak made use of the natural resources of Nova Scotia in a sustainable fashion. The arrival of Europeans changed forever their relationship with the land and its resources. The EAC supports the 'Made in Nova Scotia' process and encourages a resolution of the conflict between the Mi'kmak and the Nova Scotia and Canadian Government over their use of natural resources.

d) Climate Change and Energy

The impacts of climate change, as well as a rapidly changing mix of energy sources, must be central to the panel's deliberations. As the Inter-Governmental Panel on Climate Change has stated, climate change will have devastating impacts for our forests, water systems and coasts unless adequately mitigated. The panel must consider measures that increase the resilience of our natural systems to climate change, rather than ones that add further stress. The panel must consider the Government of Nova Scotia's commitment to reduce greenhouse gas emissions to 10% below 1990 levels by 2020 and the advice of the Inter-Governmental Panel on Climate Change that greater reductions are needed to avoid catastrophic climate change. In addition, the cost of fossil fuels will have profound consequences for natural resources activities and the economy in general.

e) Ecosystem-based Management

Simply put, ecosystem management means understanding, respecting and protecting the relationships and components of ecosystems when engaging in resource use. Historically in Nova Scotia, the basic principles of the science of ecology have not been applied to the use and management of our natural resources. This must change. Peer-reviewed science, particularly the science of ecology, should inform and guide decisions about the natural environment and our use of natural resources.

f) Policy Integration

Integration of policies across government and between levels of government is crucial. For example, one arm of government should not be promoting clearcutting, thereby contradicting the efforts of another arm of government to protect biodiversity, or a municipal government to protect municipal drinking water. We understand that the provincial government is already taking steps through increased communication and coordination among departments to ensure consistency among the various strategies under development and in the implementation of the Path to 2020. Further efforts in this direction are welcome as are efforts to work with the federal and municipal governments.

HIGH LEVEL RECOMMENDATIONS

Forestry

1. DNR should act to restore public confidence by engaging the public with regular opportunities for consultation, committing to greater transparency and accountability, establishing a new regulatory regime for forest management, and becoming more relevant to rural landowners.
2. DNR must make climate change mitigation and adaptation an over-arching goal of forest management policy.
3. The new forest strategy must include a substantial transition away from clearcutting and toward uneven-age and restorative harvesting methods.
4. DNR should institute a policy of ecosystem-based management on the vast majority (90%) of the working forest on Crown land, and, as part of this policy, implement new best practices guidelines for harvesting and silviculture that incorporate ecosystem-based management.
5. The province should overhaul the Forest Sustainability Regulations to ensure that a substantially higher proportion of silviculture effort in Nova Scotia is directed to uneven-aged and restorative treatments. Over a five-year period, increase funding for quality-improvement silviculture activities (Category 7) to 50% of the total silviculture budget; educational workshops and woodlot management plans would be included in this funding.
6. The Nova Scotia government should state its preference for FSC certification, and work aggressively to increase the number of FSC-certified forestry operations in the province.
7. The Province should recognize that the permanent forest loss and liquidation harvesting negatively impact all forest values and users, and work aggressively to stem them both.
8. The Department of Natural Resources must ensure that the forest ecosystem is not further degraded by harvesting of biomass for biofuels; biomass harvesting must not compromise site productivity and habitat.
9. The Province must make the value-added forest products industry a priority of economic development.
10. The Province should develop an aggressive program to mitigate impacts from logging roads. The program should include targets for reducing logging road density by

permanently decommissioning selected roads that are not essential for resource management.

11. The Province should recognize the critical role woodlot owners play in forest management by providing organisational support and encouraging quality improvement silviculture.

Mining

1. The Government of Nova Scotia should support an independent full cost-benefit accounting of mining in Nova Scotia.
2. The Department of Natural Resources should review and adopt a cradle-to-cradle approach whereby they consider the life-cycle of the mined products and alternatives to mining.
3. The Department of Natural Resources should replace the Integrated Resource Management process with Integrated Environmental Management which would consider the value of all land uses, including non consumptive land uses.
4. The Department of Natural Resources should seek zero discharge of mining effluent into lakes, rivers and groundwater and a reduction in greenhouse gases from mining operations.
5. The government of Nova Scotia must allow for mineral rights to be revoked on lands protected by nature preserves or conservation easements.
6. The Nova Scotia government should legislate a Mineral Aggregate Act to govern the mining or quarrying of aggregates in Nova Scotia. with respect to environmental assessments for quarries under 4 hectares, royalties, returns to the local community, and reclamation.
7. The government should recognize the environmental and social values practiced by mineral companies that work in Nova Scotia by encouraging a third-party Mineral Stewardship Certification system for new mines in Nova Scotia.
8. DNR should work with the Department of Environment to support an effective environmental assessment process, particularly with respect to ensuring meaningful public participation.
9. The government of Nova Scotia should legislate a permanent moratorium on uranium mining.
10. DNR should expand the Mining Matters conference to include non-industry perspectives.

Parks

1. Responsibility for high-level systems planning of the provincial parks network should be moved to the protected areas branch of the Environment Department. This should include prioritizing park reserve properties for protection and determining the appropriate designation of provincial park properties.
2. All provincial park management plans should be orientated to minimize damage to nature and interference with natural processes.
3. Further protection for coastal parks and beaches: a strong Provincial Park system is part of the solution for increased beach protection. Clear links between the provincial park system and a comprehensive coastal policy must be established.
4. The Department of Natural Resources should develop indicators to monitor ecosystem health and to track changes in provincial parks.
5. Marine parks and protected areas should become part of the province's protected area mandate.
6. The province must act to ensure coastal areas are well managed and adequately protected from inappropriate development and the effects of climate change.
7. Enforce all environmental regulations in provincial parks and protected beaches.
8. The province should increase public and non-motorized transportation options to rural areas and provincial parks.

Biodiversity

1. Responsibilities for wildlife and biodiversity conservation, including for the *Wildlife Act*, *Endangered Species Act*, and wildlife habitat and watercourse provisions of the *Forests Act*, should be transferred to the provincial Environment Department.
2. Conservation of biodiversity should be a priority for all branches and divisions of DNR, not just the Wildlife Division, and the Department should consider adopting a new ethic that explicitly values biodiversity.
3. Sable Island holds a special place in the hearts of Nova Scotians and the Government of Nova Scotia should continue to invest in its protection.
4. New data indicate that bird populations are under greater threat than previously thought. The Department needs to implement policies that protect the breeding habitat of birds.
5. The Department of Natural Resources should move quickly to protect our coasts, as the obstacles, including cost, will only increase with increasing levels of coastal development.

6. The Government of Nova Scotia should implement strategies and programs that have been developed at the national level, and abide by the terms of international agreements relating to invasive exotic species.
7. The Department of Natural Resources needs to actively support the government's legislated goal of protecting 12% of the province for conservation and to treat this as a priority for action.
8. Nova Scotia should include marine diversity in any diversity protection legislation.

Coastal

1. The provincial government should embrace its responsibilities to conserve Nova Scotia's coasts, and expand protections of coastal areas and associated ecosystem functions.
2. The province should identify key climate change vulnerabilities and prioritize adaptation by preventing inappropriate coastal development and infrastructure.
3. The Department should revise and strengthen the Beaches Act and designate new beaches under the Act.

Forestry: Vision

Our vision is of a naturally diverse and resilient Acadian forest restored to the majority of Nova Scotia's forested landscape. The intricate forest patterns and characteristics that our native flora and fauna adapted to over millennia are maintained, or gradually re-established where they were lost. Clearcutting, while still applied in rare cases, is mostly a relic of the past. Instead most forests are managed for big trees of native long-lived species and continuous multi-layered canopies. This forest provides a diversity of valuable products for a vibrant forest industry, good habitat for native species, lots of carbon storage, clean water and air for all of society, a reservoir of genetic diversity to cope with changing environments, and recreational and spiritual opportunities for residents and visitors. Management of this forest reflects public aspirations and good science, and is shared among private land owners, government and the people.

Values

1. Commitment to reform

We value forest stewardship that earns the confidence of the Nova Scotia public. This occurs in a new environment where government embraces a broad commitment to forest diversity and restoration. There is a new culture that welcomes reform, meets public aspirations, and demonstrates leadership and innovation in tackling forest issues. Government earns the trust of public stakeholders, who work collaboratively and constructively with them to advance a better forest environment and economy.

2. Ecosystem-based management and valuable working forests

We value science-based forest management that restores the character of our native Acadian Forest over the majority of the working forest land base. This is forestry that focuses on economic value rather than fibre growth. We value a working forest that produces high-value timber products, maintains or improves natural soil fertility, maximizes carbon storage, adapts to the effects of climate change, and provides habitat for forest wildlife. This is a working forest of which to be proud.

3. Completed protected areas network

We value a network of protected areas as a key plank of sound forest management. Protected areas provide a benchmark against which to judge our actions on the rest of the landscape, while providing a storehouse of natural biodiversity. They serve the spirit of Nova Scotians by providing opportunities to discover and appreciate the natural world.

4. Diverse, value-added forest industry

We value a diverse forest industry that capitalizes on Nova Scotia's naturally diverse forest resource, a resource with potential to increase in value with proper management. This is an industry dominated by small and medium sized secondary and tertiary manufacturing that increases the value and employment per unit of wood harvested. This is a stable industry that supports a diverse forest economy and stable employment.

Summary

The Acadian Forest

Nova Scotia is blessed with a forest that's naturally diverse. Known as the Acadian Forest, it covers most of the Maritimes and a bit beyond with a mix of hardwood and softwood trees found nowhere else in the world. Red spruce is a characteristic tree, and other common trees include yellow birch, balsam fir, hemlock, sugar maple and white pine. Trees of different ages tend to grow among each other in the Acadian Forest. Young trees establish under the cover of older trees in a system that provides nearly continuous cover over the forest soil. Sunlight and space for young trees are provided by the occasional deaths of a few trees at a time. Seen from a bird's eye view, much of the natural Acadian Forest is an ever-changing quilt-work of different trees at all stages of growth, from seedlings to veteran trees hundreds of years old.

A Changed Forest

Logging in Nova Scotia began in the 1700s with the cutting of massive white pine – some over 100 feet high and 4 feet across. Massive spruce and yellow birch were also cut for overseas markets. Today, however, few large trees remain. In fact, due to logging and land clearing for farming, our forest is far younger than it would be naturally: old growth forest has declined from an estimated 50% of the Maritimes to less than 1%. The abundances of trees in the forest have also changed: balsam fir, grey birch and white spruce, for example, have increased at the expense of red spruce, hemlock, and sugar maple. Nova Scotia's landscape is now dominated by young, even-aged forests with an over-abundance of trees that thrive in the harsh conditions of clearcuts and abandoned farmland. The World Wildlife Fund, an international conservation organisation, lists the New England / Acadian Forest as one of the most endangered forests in North America.

Clearcuts and Plantations

Forest harvesting in Nova Scotia is dominated by clearcutting: 85% of harvesting is clearcutting, and another 10% is shelterwood cutting, which is a two-stage clearcut. Clearcutting at this rate destroys the complexity of natural Acadian Forest. It also often destroys potential for high-value timber and associated employment. Worse yet, some clearcut lands are converted to softwood plantations, which displace natural forest and require expensive treatments such as herbicides. Given the range of management options available within the art and science of forestry, clearcutting and planting are blunt and outdated tools.

Forest Industry and Employment

Forest industries based on 2x4s, pulp and paper are suffering. Global competition, cheap wood fibre from southern regions, the downturn of the US economy and a degraded local supply of timber are exacting a toll on the forest industry. Paper mills all across Canada have closed – 112 in 2007 alone. Of our three mills, Neenah Paper sold half its lands; Stora Enso was itself sold to NewPage, and Bowater-Mersey was amalgamated with Abitibi Paper. Even if our mills survive, the decline in demand for their products may continue. Forest-based employment decreased in Nova Scotia by over 35% between 2004

and 2006, from 11,000 to 7,150. Mills are closing and forest companies are selling off forestlands. Business analysts call it an industry in crisis.

Permanent Forest Loss

The way we use a substantial amount of forest land is beginning to change in a dramatic and unsettling way. As the forest industry changes, many companies are selling land. The new owners often have little interest in continuing to manage the forest. It can be more lucrative to subdivide timberlands for new housing and cottage developments, exclusive recreational estates, energy projects, etc. This trend, already a dominant forest management challenge in New England, has arrived in Nova Scotia. The extent to which permanent land use conversion will impact biodiversity and wood supply can be minimized by proactive policies.

Issues and Recommendations

1. Restoring Public Confidence

Unfortunately, DNR is sometimes seen as a poor manager of our forest resources, indifferent to public opinion and cosy with the big players in the forest industry. The Department has a reputation for conducting one-way public consultations and dismissing input with which it disagrees. Public priorities such as forest conservation seem unattended to, laws to prevent bad forestry are lacking, and media reports seem to affirm that the few rules we have to safeguard forests are rarely enforced.

But the DNR “brand” is not dead, nor should it be. It is rooted in a prouder history going back to the days of Lands and Forests, when the management of Crown lands set the example for others to follow. We hope that the Department is on the cusp of finding its place again, especially as it relates to forests. In recent years, the Department has shown signs of reform:

- It has taken steps to promote ecosystem-based management on Crown and private lands.
- It has adopted selection management as the norm for harvesting in tolerant hardwood forests on Crown land.
- For a second year, DNR has made a modest amount of funding available to help private woodlot owners carry out selection harvesting and quality improvement treatments. DNR also funded an outreach and field tour program to help woodlot owners learn more about these treatments.
- The Department has become supportive of, rather than vigorously opposed to, the completion of a provincial protected areas network.
- Many individual field staff and conservation officers that constitute the Department’s public face continue to be well respected in their communities.

- The Department opted for a third party (Voluntary Planning) to conduct public consultations on the new natural resources strategies, rather than doing them in-house. Independent expert panels will be tasked with recommending future direction and policy.

The EAC applauds these initiatives and believes they will help restore public confidence in DNR. Nonetheless, there is more work to do. The Department, for example, must develop means to routinely seek feedback from the public. “We want a say” was a common refrain during the Voluntary Planning meetings, and DNR should oblige. For instance, the Department engage the public through advisory committees, which would help make DNR programs more relevant to the public, while increasing the public’s understanding of the Department’s role in resource management. Some resource companies already do this, and with positive results.

The following recommendations address issues of public participation and engagement, transparency, regulations and enforcement, and the relevance of the Department to people in rural communities, and as such would improve the public’s view of the Department. In the long-haul, the proof will be in the pudding – public satisfaction will depend on whether or not people see the changes on the ground for which they are yearning. For that, we hope recommendations provided elsewhere in this document will be helpful.

Recommendations

The Department should act to restore public confidence by engaging the public with regular opportunities for consultation, committing to greater transparency and accountability, establishing a new regulatory regime for forest management, and becoming more relevant to rural landowners.

- 1. Provincial and regional advisory committees.** DNR should establish provincial and regional public advisory committees to advise the Department on major provincial policy initiatives, and pertinent regional issues, respectively. Such committees should have equitable representation from conservation groups, forest enterprises, woodlot owners, and general public.
- 2. Stronger role for the Resources Committee of the Legislature.** We suggest that the committee be supported by a two full-time researchers, and receive an annual report on the state of land and resource conservation from an independent Land Use and Resources Commissioner.
- 3. Extension Service.** The Department should strengthen its relevance to rural Nova Scotians by creating a progressive extension service to advise landowners on environmentally responsible forest management. Furthermore, field offices should have sufficient resources to monitor forest operations in their area and enforce forestry regulations.
- 4. New regulatory regime.** The Province should establish a new regulatory regime for forest management. Rules governing the licensing of contractors, right-to-practice for forestry professionals, and harvesting practices should all be addressed.
- 5. Commitment to transparency.** This should include formal public notification and review of proposed forest harvesting on Crown lands.

2. Climate Change and Forests

Climate change has two major implications for forest management in Nova Scotia. First, we need to implement practices that promote a naturally diverse and resilient forest ecosystem that can adapt to and recover from the increased environmental and biological stresses that climate change will bring. Second, we have an opportunity to increase the amount of carbon stored in the forest, both in living biomass and in forest soils, thereby realizing the carbon sink potential of our forests.

The majority of forest management in Nova Scotia, however, (1) contributes to global warming by increasing the amount of young forest through clearcut harvesting, thereby decreasing the amount of carbon stored per hectare, and (2) compromises the resiliency of our forest ecosystems and their ability to adapt to a changing climate by increasing the abundance of tree species with more northern affinities, and by increasing the amount of even-aged forest dominated by softwood species.

A resilient forest

Scientists forecast that climate change will increase stress to our forest over the coming decades, leading to economic and ecological losses. Anthropogenic factors, principally those related to land use, will compound these impacts of climate change. Scientists predict that some species with northern affinities, such as balsam fir and black spruce, may be largely eliminated from the Acadian Forest region by 2100.⁷

The following statement by researchers with the federal Canadian Forest Service (2008), summarize the precarious position of our forest in the face of climate change.

*The future fate of the already highly stressed ecosystems of the remnant Acadian Forest remains uncertain. Shifts in the abundance of insects, pathogens and herbivores have the greatest potential to adversely affect forests.*⁸

Climate change stresses to forests include

- frequent winter thaws and late spring frosts, leading to tree crown dieback;
- possible drought stress; especially affecting trees with shallow root systems
- increased risk of forest fires
- more diverse and more abundant insect pests; increased vulnerability of trees to insect damage; northern shifts of the ranges of insects and pathogens and rapid adaptation of insects to climate change, increasing their ability to exploit trees;
- greater risk of ice storms, wind damage; and
- increased abundance and diversity of invasive species, including exotic diseases.

⁷ Prasad, A. and L. Iverson. 2002. A climate change atlas for 80 forest tree species of the eastern United States, Delaware, Ohio, viewed June 21, 2008, www.fs.fed.us/ne/delaware/atlas/.

⁸ Vasseur, L. and N. Catto. 2008. From Impacts to Adaptation: Canada in a Changing Climate: Atlantic Canada. Government of Canada, Ottawa, p. 119-170.

At highest risk are even-aged forests dominated by one or two species. These types of forest stands are most likely to suffer increased damage from climate change given they are more susceptible to insect, storm and fire damage, especially if comprised of species with northern affinities such as black spruce, white spruce or balsam fir.⁹ Forest stands without a hardwood component, for example, tend to suffer greater extent and severity of spruce budworm damage.^{10, 11} Similarly, creating species-poor plantations has been shown to promote insect outbreaks.¹²

On the other hand, old forests with a diversity of species and uneven-aged growth, well suited to local growing conditions, are likely to best resist and recover from the effects of climate change. Natural, old forests can survive for hundreds of years in the face of unfavourable conditions and are more likely to house the biodiversity required to adjust to a new climate.¹³ Trees common in natural older forests, such as red spruce and eastern hemlock, have fewer disease problems in old-age than pioneer-type species.¹⁴

A carbon-rich forest

Nova Scotia's forests have potential to store more carbon than they currently hold,¹⁵ largely because our forests are far younger than they would be in the absence of extensive clearcutting.¹⁶ Given that natural, old forests tend to store more carbon than young forests,^{17, 18, 19, 20, 21} intensive forest management (clearcutting and plantations) results in a net carbon loss from the forest.^{22, 23}

A 1998 study in New Brunswick, for example, concluded that a landscape managed as shifting mosaic of plantations on a 60-year rotation would store only 22% as much above-ground carbon (*i.e.* in live trees, standing dead trees, fallen trees and branches, and forest floor) as a landscape covered in older-growth natural forest.²⁴ In other words, a

⁹ Saloniuss, P. 2007. Silvicultural discipline to maintain Acadian forest resilience. *Northern Journal of Applied Forestry*, 24: 91-97.

¹⁰ MacKinnon W.E. and D.A. MacLean. 2003. The Influence of Forest and Stand Conditions on Spruce Budworm Defoliation in New Brunswick, Canada. *Forest Science* 49: 657-667.

¹¹ Su, Q., TD Needham, DA MacLean. 1996. The influence of hardwood content on balsam fir defoliation by spruce budworm. *Can. J. For. Res.* 26: 1620-1628.

¹² Mosseler, A., J.A. Lynds, and J.E. Major. 2003. Old-growth forests of the Acadian Forest Region. *Environ. Rev.* 11: S47-S77.

¹³ Saloniuss, P. 2007. Silvicultural discipline to maintain acadian forest resilience. *Northern Journal of Applied Forestry*, 24: 91-97.

¹⁴ Mosseler, A., J.A. Lynds, and J.E. Major. 2003. Old-growth forests of the Acadian Forest Region. *Environ. Rev.* 11: S47-S77.

¹⁵ Chen, J., J. Weimin, J. Cihlar, D. Price, Liu, J., W. Chen, J., Pan, A. Black and A. Barr²⁰⁰². Spatial distribution of carbon sources and sinks in Canada's forests. *Tellus*, 55B: 622-641.

¹⁶ Panno, L. and R. Colman. 2008. GPI Forest Headline Indicators. *GPI Atlantic*, Halifax.

¹⁷ Harmon, M. 2001. Carbon sequestration in forests: addressing the scale issue. *Journal of Forestry*, 99: 24.

¹⁸ Neilson, E.T., D.A. MacLean, F.-R. Meng, and P.A. Arp. 2007. Spatial distribution of carbon in natural and managed stands in an industrial forest in New Brunswick, Canada. *Forest Ecology and Management*, 253: 148-160.

¹⁹ Suchanek, T.H., Mooney, H.A., Franklin, J.F., Gucinski, H., and Ustin, S.L. 2004. Carbon Dynamics of an Old-growth Forest. *Ecosystems*, 7: 421-426.

²⁰ Harmon, M.E., Bible, K., Ryan, M.G., Shaw, D.C., Chen, H., Klopatek, J. and Li, X. 2004. Production, respiration, and overall carbon balance in an old-growth Pseudotsuga-Tsuga Forest Ecosystem. *Ecosystems*, 7: 498-512.

²¹ Canadian Council of Forest Ministers. 2005. Criteria and indicators of sustainable forest management in Canada. National Status 2005. Indicator 4.1.2 - Forest ecosystem carbon storage by forest type and age class. http://www.ccfm.org/ci/rprt2005/English/pg79-87_4-1-2.htm

²² Kurz, W.A., S.J. Beukema and M.J. Apps 1998. Carbon Budget Implications of the transition from natural to Managed Disturbance Regimes in Forest Landscapes. *Mitigation and Adaptation Strategies for Global Change* 2, 405-421.

²³ Cooper 1983, Harmon et al. 1990, Karjalainen 1996 as cited in Colombo C.J., W.C. Parker, N. Lukai, Q. Dang and T. Cai. The effects of forest management on carbon storage in Ontario's forests (Climate change research report; CCR-03). Ontario Ministry of Natural Resources Applied Research and Development Branch. Queens Printer for Ontario, Ontario, Canada. p. 73.

²⁴ Fleming, T. and Freedman, B. 1998. Conversion of natural, mixed-species forests to conifer plantations: implications for dead organic matter and carbon Storage. *Ecoscience* 5: 213-221

landscape dominated by intensive industrial forestry stores just over a fifth of the carbon that a more natural forest stores.

A 2007 study from Nova Scotia found a similar result: clearcutting results in much lower carbon storage than natural forests. This was due to the greater disturbance frequency in the harvest scenario, increased volumes of decomposing biomass carbon, and the removal of carbon in forest products.²⁵

A Canada-wide survey by the Canadian Forest Service found that 82% of carbon in our forests is stored in the soil and forest floor litter,²⁶ thus when forests are clearcut, a large amount of stored carbon is lost due to accelerated rates of decomposition of soil biomass. It takes many decades (60-80 years according to one study) to restore the lost soil organic matter and deadwood.²⁷

Recommendations

The Department of Natural Resources must make climate change mitigation and adaptation an over-arching goal of forest management policy.

1. Ecosystem-based management. DNR must recognize that ecosystem-based forest management is the most prudent strategy in the face of an uncertain future, thus move beyond the current clearcut and intensive management approach. A critical element of adopting such a management strategy is to decrease the amount of 0-20 year-old forest, and increase the amount of uneven-aged, mixed-wood, old forest.

2. Increase carbon storage in forests. Crown land forest management and private land forestry guidelines should include an objective to maintain or increase both stand-level and landscape-level carbon density, including the soil and forest floor litter carbon pools. Silviculture funding should be directed towards treatments that help to increase the amount of carbon stored in the forest, and away from treatments that do not. A critical component is to increase the funding allocated to uneven-aged silviculture treatments.

3. Carbon storage data. Partner with universities or other research institutions to gather province-wide data on forest carbon-stock levels to help understand how much carbon our forests currently store, and the potential to increase carbon stored in the forest. Methodology should be consistent with neighbouring jurisdictions.

²⁵ Morton, C. 2007. Estimating Current and Future Carbon Budgets in the Cloud Lake, Eigg Mountain-James River, Gully Lake, and Middle River-Framboise Wilderness Areas of Nova Scotia. *MREM report*. Dalhousie University, Halifax, NS.

²⁶ Canadian Council of Forest Ministers. 2005. Criteria and Indicators of Sustainable Forest Management in Canada. National Status 2005. Indicator 4.1.2 - Forest ecosystem carbon storage by forest type and age class. http://www.ccfm.org/ci/rprt2005/English/pg79-87_4-1-2.htm

²⁷ Aber, J.D., D.B. Botkin, and J.M. Melillo. 1978. Predicting the effects of different harvesting regimes on forest floor dynamics in northern hardwoods. *Can. J. For. Res.* 8:306-315.

3. Clearcutting

No forestry issue in Nova Scotia is as contentious as clearcutting. The practice is unpopular with the public and is often associated with ecological degradation of the forest. A new forest strategy for Nova Scotia must include effective strategies to dramatically reducing clearcutting if it is to get public buy-in or claim to be ecological sustainable.

Nova Scotia forests are clearcut at the rate of approximately 500km² per year.²⁸ According to the Canadian Council of Forest Ministers, the practice currently accounts for 94% of all forest harvesting in Nova Scotia.²⁹ The Forest Products Association of Nova Scotia estimates that it is “closer to 85%”.³⁰ Either figure is far too high, when considered against the public’s opinion of clearcutting, the persuasive scientific evidence linking clearcutting to ecosystem stress and biodiversity loss, and the provincial government’s vision of a greener economy for Nova Scotia.

Public opinion

Acknowledging and addressing public aspirations is a critical component of good governance and government policy. In the case of clearcutting, public opinion is clear: most Nova Scotians dislike the practice and want less of it. This is a consistent result of at least four independent public opinion surveys in the past decade^{31, 32, 33, 34}, one of which was limited to just woodlot owners. The province has also received negative public feedback on clearcutting throughout multiple public consultation exercises over the past decade, including consultations on wildlife habitat regulations³⁵, Integrated Resource Management³⁶, and the government’s proposal to de-list most of Nova Scotia’s game sanctuaries and wildlife management areas³⁷. Failure to combat clearcutting in the new forest strategy will likely precipitate its rejection by the public.

Science

Participants in Voluntary Planning’s public meetings, including representatives from the forest industry and conservation groups, repeatedly spoke of the importance of using science to influence policy development.

Key to assessing the ecological appropriateness of any broadly applied silviculture system is the extent to which the resulting forests resemble those that would occur

²⁸ Silviculture Statistics by Province/Territory. 2008. Viewed July 23, 2008, http://nfdp.ccfm.org/compendium/data/2008_06/tables/com61e.htm (The figure represents an average over ten years, between 1998 and 2007).

²⁹ *ibid.*

³⁰ FPANS. No date. Forestry facts and frequently asked questions. Viewed, July 23, 2008, <http://www.fpans.ca/content/faq.aspx>.

³¹ Sanderson, L., K. Beesley, and R. Colborne. 1999. Public perceptions and attitudes towards forestry issues: public opinion survey in central Nova Scotia, 1999. *Nova Scotia Agricultural College*, Truro, NS.

³² Sanderson, L., K. Beesley, and R. Colborne. 2000. Public perceptions and attitudes toward sustainable forest management: central Nova Scotia, 2000. *Nova Scotia Agricultural College*, Truro, NS. Viewed, July 23, 2008, <http://www.novaforestalliance.com/media/documents/publicperceptions.pdf>.

³³ Sanderson, L., R. Colborne, and K. Beesley. 2000. Woodland owners’ perceptions and attitudes towards sustainable forest management: central Nova Scotia, 2000. *Nova Scotia Agricultural College*, Truro, NS. Viewed July 20, 2008, http://www.novaforestalliance.com/media/documents/WOP_finalreport_2000.pdf.

³⁴ Corporate Research Associates. 2008. Spring Quarterly Survey prepared for the Ecology Action Centre, Halifax, NS.

³⁵ Smith, B. 1999. Summary of public comments: public review of the draft wood sustainability regulations and the draft wildlife habitat regulations. Info series DNR 1999-1. Bruce Smith Consulting Inc.: Liverpool, NS.

³⁶ DNR. 2001. Summary of public comments from IRM public information sessions, fall 2000. Information series IRM 2001-1.

³⁷ DNR. 2006. 2005 public review of Nova Scotia’s game sanctuaries and wildlife management areas. Report WDL 2006-1.

without human exploitation, especially with respect to their physical structure, ecological functions, and species abundance and diversity.^{38, 39, 40} The basic concept is that species native to any forest region have adapted to the natural conditions and patterns in those forests. When forest conditions are dramatically altered, species and ecological processes falter. Decades of clearcutting as the predominant harvesting method has helped to make Nova Scotia's forests substantially younger, scrubbier, and more simplified.^{41, 42, 43}

Natural disturbance-based forest management can be used to conserve biodiversity by keeping the intensity, spatial extent, and frequency of disturbances from forest harvesting within the range of naturally occurring disturbances. The approach has been broadly promoted by forest scientists in North America for over a decade, and the concept has gained some acceptance within DNR. However, several forest scientists have criticized the Department's preliminary assessment of natural disturbances specific to Nova Scotia, stating that the work ignores relevant research and exaggerates the role of catastrophic disturbances. The vacuum created by the ensuing confusion has prevented natural disturbance-based management from being applied on the ground. This issue should be resolved quickly and credibly, with the participation of forest scientists.

In the meantime, there is little doubt about the *direction* in which forest science compels us to move. A 2002 study by researchers at the University of Maine, for example, offers a thorough review of natural disturbance studies in the Acadian forest region.⁴⁴ The research confirmed – again – that the vast majority of the Acadian forest is shaped by small, localized disturbances. Catastrophic disturbances do occur, but at very long (300-1200 years) return intervals. The University of Maine researchers concluded that large clearcuts on short rotations are way out of sync with natural patterns:

Indeed, one can encounter forest managers purporting to embrace a natural disturbance model, with statements such as “All forests are wiped out periodically; our clearcuts are no different”. This superficial statement ignores the growing body of evidence about what the natural disturbance regimes were really like in presettlement forests before people dramatically altered them.

A path forward

An overarching challenge in developing a new forest strategy is to identify ways to substantially reduce clearcutting without devastating the forest products industry. Practical alternatives to clearcutting exist, but they may come with added initial costs and complications. Replacing clearcutting with more ecologically appropriate alternatives will not occur overnight. An incremental approach is realistic, wherein multiple

38 Lindenmayer, D. and J. Franklin. 2002. Conserving forest biodiversity: a multiscaled approach. Island Press, Washington, DC.

39 Seymour, R. and M. Hunter. 1999. Principles of ecological forestry. In Maintaining biodiversity in forested ecosystems. Cambridge University Press, Cambridge, UK.

40 Mladenoff, D. and J. Pastor. 1993. Sustainable forest ecosystems in the northern hardwood and conifer forest region: concepts and management. In Defining sustainable forestry. Island Press, Washington, DC.

41 Loo, J. and N. Ives. 2003. The Acadian forest: historical condition and human impacts. *The Forestry Chronicle* 79(3): 462-474.

42 Wilson, S. and R. Colman. Nova Scotia GPI forest accounts volume 1: indicators of ecological, economic & social values of forests in Nova Scotia. GPI Atlantic. Glen Haven, NS.

43 DNR. 2008. State of the forest report 1995-2005: Nova Scotia forests in transition. Report FOR 2008-3.

44 Seymour, R.S., A.S. White, and P.G. deMaynadier. 2002. Natural disturbance regimes in northeastern North America: evaluating silvicultural systems using natural scales and frequencies. *Forest Ecology and Management*. 155: 357-367.

strategies are phased in over the next decade or sooner to bring about a smooth and economically-viable shift away from clearcutting.

A responsible path forward must be technically sound and get broad buy-in. No one entity, be they government, NGOs, industry, or academia, can, in isolation, devise a workable plan to move Nova Scotia away from clearcutting. Phase 2 of the forest strategy review would benefit from pooling the expertise of all these constituencies in a multi-stakeholder collaboration aimed at resolving the clearcutting issue. The EAC looks forward to being a constructive participant in this process.

Recommendations

A top priority for the new forest strategy should be to bring about a substantial transition away from clearcutting toward uneven-age and restorative harvesting methods.

- 1. Multi-stakeholder working group:** A multi-stakeholder working group that includes specialists from government, conservation groups, academia, and industry, should be convened during Phase 2 of the strategy development to identify a path to substantially reducing clearcutting in Nova Scotia.
- 2. Resolve natural disturbance question:** The Department should work quickly, and with the participation of forest scientists, to establish credible guidelines for natural disturbance-based forest management in Nova Scotia.

4. Ecosystem-based Forest Management

Applied to forestry, the practice of ecosystem-based management strives to emulate the conditions of a natural forest, specific to the local forest type. Simply put, this is an approach to forestry that works with the forest rather than against it, in contrast to forestry that replaces natural forest with artificial systems akin to agricultural production.

Ecosystem-based forest management

- takes advantage of the resiliency of natural forest ecosystems to insects and diseases; a diversity of tree species in close proximity, for example, reduces damage by spruce budworm by lowering the concentration of the budworm's food supply and increasing habitat for budworm predators;⁴⁵

⁴⁵ Su, Q., D.A. MacLean, and T.D. Needham. 1996. The influence of hardwood content on balsam fir defoliation by spruce budworm. *Canadian J. of Forest Research*, 26: 1620-1628.

- takes advantage of natural site productivity and local conditions by encouraging trees that are best suited to local growing conditions;
- supports the value-added industry sector by ensuring a diverse supply of forest products;
- maintains aesthetically pleasing landscapes by maintaining higher levels of forest canopy closure compared with clearcutting; and
- sustains natural levels of biodiversity by emulating natural patterns and processes of the forest.^{46, 47}

Part 2: Silviculture and Harvesting Techniques

Natural forest biodiversity, and attendant ecological services, can be promoted by modifying current forestry practices and by adding additional harvesting methods to the toolbox of forestry practices on Crown land.

Pre-commercial thinning (PCT), for example, can be used to promote natural biodiversity by using it to encourage tree species that have been reduced in abundance by past forestry practices (particularly high-value species such as red spruce, yellow birch and sugar maple).⁴⁸ Selection, strip cut, and irregular shelter-wood are harvesting techniques that can be used in some cases as alternatives to clearcutting.^{49, 50, 51}

These techniques may require greater investment of time in the planning stage and sometimes greater short-term harvesting costs, but offer the rewards of improved forest conservation and, especially over the long-term, high-value trees that can supply value-added manufacturers.

⁴⁶ Seymour, R.S., A.S. White, P.G. deMaynadier. 2002. Natural disturbance regimes in northeastern North America – evaluating silviculture systems using natural scales and frequencies. *Forest Ecology and Management*, 155: 357-367

⁴⁷ Zelazny, V., and H. Veen. 1997. The Acadian Forest, Past and Present. In Proceedings Ecological Landscape Management Workshop, Oct. 6-7, 1997. Fredericton, NB. Canadian Pulp and Paper Association, Montreal, QC.

⁴⁸ Simpson, J. In press. Restoring the Acadian Forest: A guide to stewardship for woodlot owners in the Maritimes. Res Telluris: Canning, Nova Scotia.

⁴⁹ Salonius, P. 2001. Management for Acadian mixedwoods in New Brunswick. Forest Health & Biodiversity News. Canadian Forest Service, 5(2).

⁵⁰ Seymour, R. 2004. Integrating natural disturbance parameters into conventional silvicultural systems: experience from the Acadian forest of NE North America. Invited Plenary Session, IUFRO International Workshop on Balancing Ecosystem Values: Innovative Experiments for Sustainable Forestry. Portland, OR. Aug. 18, 2004. Viewed, June 30, 2008, http://www.forest.umaine.edu/facstaff/facstaff_pages/seymour/

⁵¹ Salonius, P. 2007. Silvicultural Discipline to Maintain Acadian Forest Resilience. [Northern Journal of Applied Forestry](#). 24: 91-97.

Recommendations

DNR should institute a policy of ecosystem-based management on the vast majority (90%) of the working forest on Crown land, and, as part of this policy, implement new best practices guidelines for harvesting and silviculture that incorporate ecosystem-based management.

- 1. Late successional tree species:** Ensure harvesting and silviculture practices encourage late successional tree species appropriate to the site, as guided by DNR's soon-to-be completed forest ecological classification project. This requires ecodistrict-specific harvesting rules (Crown land) and guidelines (private land) based on regional natural disturbance regimes and expected natural forest type.
- 2. Mature forest:** Increase the mature forest (over 100 years of age) area target on Crown land to 25%.
- 3. Deadwood targets:** Establish minimum thresholds for levels of deadwood, both fallen and standing, based on expected natural levels.
- 4. Natural regeneration:** Require users of Crown land to rely on natural regeneration except where remedial planting is necessary to restore species diversity.
- 5. Pre-commercial thinning:** Introduce a pecking order requirement for pre-commercial thinning on Crown land that favours late successional and uncommon tree species appropriate to the site. Introduce a similar requirement for pre-commercial thinning undertaken with government silviculture funds.
- 6. Clearcutting alternatives:** Require users of Crown land to implement irregular shelterwood and strip cut harvesting on Crown land as alternatives to clearcutting.

5. Forest Sustainability Regulations

The provincial government introduced the "Forest Sustainability Regulations" (FSRs) under the *Forests Act* in 2000 in response to concerns that silviculture investments, particularly on small private woodlots, were not keeping pace with harvest levels⁵². The regulations were designed to ensure adequate long-term wood supply by tracking the volume of annual wood harvests and requiring matching silviculture investments.

⁵² DNR (Department of Natural Resources). 1999. Wood supply forecast for Nova Scotia, 1996-2070.

The FSRs require “registered buyers”, mostly mills who acquire more than 5,000m³ of wood annually from private lands, to invest in silviculture in proportion to the amount of wood they acquire. Buyers can do the work themselves or pay into a provincial silviculture fund. A credit schedule prepared by DNR specifies how various silviculture treatments translate into credits toward meeting a buyer’s obligation.

The purpose of the FSRs is to ensure a sustained future wood supply. Silviculture treatments do not need to be appropriate for the site or conserve ecological values. In fact, the silviculture carried out by the registered buyers is strongly lopsided toward even-age treatments that promote the type of forest products on which their mills depend. This, in turn, tends to promote clearcutting and further forest degradation. While most of Nova Scotia’s forests are naturally suited to uneven-aged conditions, less than 1% of the silviculture investment through the regulations since their inception has been applied to uneven-aged or “Category 7” treatments such as selection management, crop tree release, and crop tree pruning.

There is considerable untapped potential to promote forest management (and access wood supply) on small private woodlots by promoting Category 7 silviculture. This is based partly on the popularity of a new landowner outreach program that resulted from a partnership of the Ecology Action Centre, Association for Sustainable Forestry, NS Woodlot Owners and Operators Association, and DNR. The high level of participation in the program’s demonstration tours speaks to the interest of many landowners to explore alternatives to clearcutting. This program was one of several recommendations that came out of a 2005 workshop hosted by the Ecology Action Centre that examined how the regulations could better promote uneven-aged management⁵³. To their credit, the Department accepted recommendations to improve Category 7 technical standards and the credit rate for initial stand entries.

⁵³ deGooyer, K. 2005. Nova Scotia’s forest sustainability regulations and uneven-aged forest management: conflicts and opportunities. Ecology Action Centre, Halifax.

Recommendations

The province should overhaul the Forest Sustainability Regulations to ensure that a substantially higher proportion of silviculture effort in Nova Scotia is directed to uneven-aged and restorative treatments.

1. Category 7 recommendations: The remaining recommendations from a 2005 workshop on the regulations and uneven-aged management should be adopted by government. These include placing higher emphasis on wood quality, further improving technical standards for Category 7 work, and further increasing Category 7 credit rates.

2. Shift to uneven-aged management: The proportion of silviculture credits expended on uneven-age and restorative treatments needs to be increased. This can be achieved by (a) increasing credit rates for uneven-age and restorative treatments, while lowering them for treatments that promote clearcutting; (b) requiring registered buyers to allocate a minimum portion of their obligation to such treatments; (c) capping the amount of credit available province-wide for some treatments (*e.g.*, plantation establishment); (d) requiring treatments to meet site conditions; (e) and redirecting public silviculture funding to appropriate treatments.

6. Forest Stewardship Council (FSC) Certification

The concept of forest certification to brand “green” forestry operations began in earnest in the early 1990s. The basic concept is to reward companies who do good forestry with a green label that may help market their product.

The best-known certification body in the world is the Forest Stewardship Council (FSC), established in 1993 through collaboration among environmental organizations, forestry companies, First Nations communities, and labour interests. FSC is an international non-profit and non-government organization that has raised the bar for good forestry practices worldwide, while ensuring that certified operations are socially beneficial to local communities and economically viable over the long term. Among the many benefits, clearcutting and pesticide use are restricted, and ecologically valuable areas must be set aside or managed in a low-impact way.

FSC is often called the gold standard of forest certification, and is the only major certification scheme recognized by conservation groups as legitimately promoting better forestry. Industry-initiated copycat schemes, such as Sustainable Forestry Initiative (SFI) developed by the American Forest and Paper Association, do not require sustainable management practices. Instead they tend to rubber stamp the status quo and are therefore often dismissed as disingenuous and ineffective.

The marketing advantages of FSC need to be carefully considered in the development of a new forest strategy. Companies such as Home Depot, Wal-Mart, Scotiabank, Dell, and Time Warner have already committed to buying FSC certified products, and more will

join them. The growth of the FSC market has persuaded over 6,000 forest products suppliers worldwide to achieve FSC certification. Several US States have mandated FSC on all their state lands.

We have seen some uptake of FSC in Nova Scotia, originally with the Pictou Landing First Nation, Nagaya Forest Restoration Ltd., and Nova Scotia Landowners and Forest Fiber Producers Association. In 2008 NewPage Port Hawkesbury became the first large industrial player in the Maritimes to achieve FSC certification, showing that FSC can be a good fit regardless of a company's size. The Ecology Action Centre worked constructively with NewPage and FSC auditors on protected area and harvesting practices issues during that assessment. We look forward to working collaboratively with other mills who want to go the FSC route.

Nova Scotia cannot be left behind as more environmentally savvy consumers (and large corporate buyers) demand green products. More FSC certification will improve forest management on the ground and help secure access to increasingly selective markets.

Recommendations

The Nova Scotia government should state its preference for FSC certification, and work aggressively to increase the number of FSC-certified forestry operations in the province.

- 1. Assist companies to achieve FSC certification:** The Province should provide professional, administrative, and technical support to help fast-track Nova Scotia forestry companies towards FSC certification. All of DNR's forest management programs should be reviewed for opportunities to integrate FSC objectives into routine program delivery.
- 2. FSC certification of Crown lands:** The Province should set the example for good forest management by setting an ambitious timetable to have all Crown lands achieve FSC certification. In the meantime, preferential access to Crown land should be granted to companies FSC certified or on track to do so.
- 3. FSC in green procurement policy:** Consistent with the objectives of the *Environmental Goals and Sustainable Prosperity Act*, the province's green procurement policy should require preferential purchase of FSC-certified building materials and paper products.

7. Permanent Forest Loss and Liquidation Harvesting

With global restructuring in the forest products industry, Nova Scotians can not assume that large tracts of privately owned woodlands will always be owned by forestry companies. Nor can we assume they will be used indefinitely for forest management, as other land uses become more lucrative than growing and cutting trees.

The sale of half of Neenah Paper's lands, then the province's largest landowner, to Wagner in

2006, marked the start of a worrisome trend in forest ownership – the acquisition of vast expanses of woodlands by non-resident land speculators who expect higher returns on their investment than can be generated through sustainable timber harvesting. Land acquired for this purpose often ends up being stripped of its remaining timber, followed by re-sale for other uses. Properties that provide coastal, lake, or river access are particular threatened by subdivision for homes or get-away estates. The recent purchase of over 2,000 hectares of industrial forest land to Cottage Country is a case in point. The new owner has applied to the Municipality of East Hants to develop 290 housing units on 500 hectares as Phase 1 of a multi-phase development near Mount Uniacke.

We can expect this trend to continue and likely accelerate as forestry companies seek additional ways to generate cash at the same time as a retiring wave of baby boomers pushes up demand for recreational properties. This is in addition to the ongoing nibbling away of large and small private woodlots to urban sprawl, highway construction, energy developments, etc. In 2006, Eastern Canada lost an estimated 331 hectares per week of forest and farm land to residential and commercial development.⁵⁴ Forest biodiversity, wood supply, and recreational access to the forest are all at risk.

In seeking strategies to address land speculation and conversion to non-forest uses, Nova Scotia can learn from New England, where forest stakeholders have grappled with this issue for over a decade. In that region, working forest conservation easements have become a standard and successful tool to ensure the longevity of working forests. The basic idea is that a landowner negotiates with a land trust or a government agency to permanently extinguish various development rights through a legally-binding easement. In most cases, the landowner is paid for those rights. Timber harvesting is still permitted. To tailor easements to the needs of different landowners the negotiating parties may choose to include other provisions, such as specifying a desired future forest condition, favouring certain harvesting practices, or providing allowances for recreational access. Research from New England shows that easements typically do not inhibit the flow of wood products to the marketplace.⁵⁵

A related challenge for Nova Scotia is liquidation harvesting. Liquidation harvesting is the opportunistic removal of all or most of the merchantable timber from a forest without regard to improving or regenerating it.⁵⁶ It is the “worst of the worst” of forestry practices, leaving the land impoverished of timber for a very long time. Liquidated woodlots often end up being converting to another use.

The State of Maine has addressed this problem, in part, by levying substantial fines on those convicted of liquidation harvesting.⁵⁷ Incentives for good management are, not enough.

⁵⁴ Stoddard, M.D., and D. K. Murrow. 2006. Climate Change Roadmap for New England and Eastern Canada. *Environment Northeast*.

⁵⁵ deGooyer, K., and D. Capen. 2004. An analysis of conservation easements and forest management in New York, Vermont, New Hampshire, and Maine. Final report to North East State Foresters Association.

Viewed July 20, 2008, <http://www.nefainfo.org>.

⁵⁶ McEvoy, T. 2000. *Introduction to forest ecology and silviculture (2nd edition)*. Natural Resource, Agriculture, and Engineering Services: Ithaca, NY.

⁵⁷ Scott, C. R. 2005. Liquidation Timber Harvesting in Maine: Potential Policy Approaches. *Harvard Environmental Law Review*. 29: 251-278.

Recommendations

The Province should recognize that the permanent forest loss and liquidation harvesting negatively impact all forest values and users, and work aggressively to stem them both.

1. Widespread adoption of working forest conservation easements: The Department should support the widespread adoption of working forest conservation easements in Nova Scotia. Working forest conservation easements should complement the province's protected areas network.

2. Liquidation harvesting legislation: Nova Scotia should explore legislation to deter liquidation harvesting.

8. Biomass and Biofuels from the Forest

Given the increasing pressure to develop non-fossil fuel energy sources, the burning of 'waste' forest biomass, such as branches, tops and otherwise non-saleable trees, to produce energy is gaining popularity. Indeed, wood from our forests has the potential to provide a relatively green and potentially carbon-neutral energy source. Wood can be burned to produce heat and electricity, to heat homes and to derive ethanol. Examples from Europe demonstrate that communities can achieve energy self-sufficiency with the use of small bio-fuel co-generation power plants.⁵⁸

However, increasing the volume of wood removed from the forest threatens to negate the potential benefits of bioenergy. Removing more than live stem wood (that is, living tree trunks) from the forest has negative consequences for long-term soil productivity, water flow regulation, carbon storage and wildlife habitat. In terms of forest management, maintaining standing and fallen dead trees is perhaps the easiest and most effective action managers can take to promote wildlife and sustain a healthy, resilient and productive forest.⁵⁹ Introducing a market for this critical component of healthy forest ecosystems will accelerate the degradation of our forests.

A recent article illustrates the issue (emphasis added):

The beauty of the idea is its ability to run on the ugly stuff; the bark, the lumber leftovers, the logs of dubious marketing quality, and even the dead trees in the forest. 'Why would New Brunswick want to bring in oil from Venezuela when we have 10 million tonnes of wood rotting in the forest every year?' asks George Jenkins, a research scientist at the Wood Science and Technology Centre with the University of New Brunswick.⁶⁰

⁵⁸ Fullerton, George (2008). The Gussing Experience. *Atlantic Forestry Review*. 14(5):43-45

⁵⁹ Simpson, Jamie. In press. *Restoring the Acadian Forest: A guide to stewardship for woodlot owners in the Maritimes*. Res Telluris: Canning, Nova Scotia.

⁶⁰ Simms, Gavin. June 19, 2008. Wood scientist sees a better path through the dark forest of energy options. *The Packet*.

The current state of forest management in Nova Scotia does not give much hope that biomass harvesting will be sustainable. Introducing a new market for a product with low quality requirements will often lead to intensified degradation of the forest under the current management scenarios. Previously non-merchantable forest biomass would be removed from the forest, including tree tops and branches that are normally left on site during a harvest, naturally occurring fallen dead trees and branches (downed woody debris), standing dead trees (snags), and the large volumes of low-value hardwoods in the region. Harvesting this additional material has ramifications for ecosystem health, nutrient capital and carbon cycling.⁶¹ With a new market for biomass, *clear-cutting* our forests may evolve into *clear-scraping* our forests.

Carbon Storage

Biomass in the forest, if not harvested, tends to end up as soil organic matter, which holds 2/3 of all terrestrial stores of carbon.⁶² Removing biomass, of any sort, removes this potential carbon storage. Carbon storage is more fully addressed in this report under the Climate Change section.

Ecosystem Health

At least ¼ of our wildlife species depend on woody debris or dead or dying trees for habitat.⁶³ From beetles to salamanders to woodpeckers to bears, wildlife relies on deadwood for a place to rest, escape predators and store food. As well, numerous species of insects, fungi, bacteria, mosses, liverworts and lichens find nourishment in deadwood, gradually decomposing the wood as they feed on it. Dead and dying trees also provide germination spots for small seeds, regulate water flow, contribute to the nutrient cycle and build soil.

Experience in Sweden over that past century demonstrates the potential harm to biodiversity of biomass harvesting. In 1890, distribution of woody debris in central Sweden was approximately 13 cubic metres per hectare. Intensified logging and the development of bioenergy systems reduced this; by 1966 the distribution of woody debris was only 0.1 cubic metres per hectare.⁶⁴ This dramatic reduction in woody debris was correlated with a rapid decline in biodiversity: some 800 species that depend on deadwood are on the country's Red List of threatened and endangered species. In the whole of Europe, the species that depend on deadwood make up the largest single group of threatened species.⁶⁵

⁶¹ Kimmins, Hamish. 2008. CARBON & NUTRIENT CYCLING: Is Forest Bioenergy Sustainable? *Canadian Silviculture*. May issue.

⁶² Post, W.M., Peng, T.H. Peng, W.R. Emmanuel. A.W. King, V.H. Dale, and D.L. DeAngelis. 1990. The global carbon cycle. *Am. Sci.* 78:310-326.

⁶³ Elliott, Catherine (ed.). 1999. Biodiversity in the Forests of Maine. University of Maine Cooperative Extension.

⁶⁴ Berg, A. 1994. Threatened plant, animal, and fungus species in Swedish forests: distribution and habitat associations. *Conservation Biology*. 8: 718-731.

⁶⁵ World Wildlife Fund. 2004. *Deadwood – Living Forests: The importance of veteran trees and deadwood to biodiversity*. Gland, Switzerland.

Nutrient Capital

There is strong evidence that biomass harvesting will affect forest soil fertility.⁶⁶ The majority of nutrients in trees are stored in the bark, small branches and leaves. These are most often left on site following conventional harvests, but are likely to be removed during a biomass harvest, and in fact may be the dominant fuel source for bio-energy. Soils in Nova Scotia are young and generally have small nutrient reserves.⁶⁷ On shallow and nutrient-poor soils, several successive harvests of branch and leaf material, even in small amounts, may seriously affect nutrient availability for future growth.⁶⁸ Removal of biomass during clearcut harvesting also tends to result in increased nutrient loss due to an accelerated rate of decomposition and increased rate of water run-off, carrying soluble nutrients into water courses.

Taumeay Mahendrappa and Peter Salenius, researcher scientists with the Canadian Forest Service, Atlantic Region, recently described the effects on soil of biomass harvesting:

*...full tree harvest methods have been flagged as problematic on many site types because of the significant removals of calcium, nitrogen and potassium in the small branches with high bark to wood ratios and the attached foliage.... Recent research results from Finland, showing 8 to 12% declines in growth rates of rotations of pine and spruce that follow full tree harvest, indicate that removing nutrient-rich slash from many forest sites would not be sustainable.*⁶⁹

The Northeastern Research Station of the United States Department of Agriculture echoes this message of caution:

*In forests with limited nutrient capital, such as much of the forest landscape in New England, the efficient cycling of nutrients between soil, plant and forest floor is critical to maintaining healthy and productive forests.... New England forests in particular have been subject to heavy acid deposition loads and repeated timber harvest. Continuing losses of base cations [nutrients] due to these disturbances will lead to nutrient deficiencies and imbalances and subsequent declines in forest health and productivity.*⁷⁰

⁶⁶ Freedman B. 1981. Intensive Forest Harvest: A review of Nutrient Budget Considerations. Fredericton, New Brunswick: Maritime Forest Research Centre, Canadian Forest Service.

⁶⁷ Mahendrappa, T. 2005. Biomass for bioenergy: The dangers of whole-tree harvesting. *Atlantic Forestry Review*.

⁶⁸ Boyle, J. and Ek, A. 1972. An Evaluation of Bole and Branch Pulpwood Harvesting on Site Macronutrients. *Canadian Journal of Forest Research*. 2: 407

⁶⁹ Mahendrappa, T. and P. Salenius. 2006. Potential Decrease in Forest Site Productivity Caused by Whole-Tree and Biomass Harvesting. *Forest Health and Biodiversity News*, Canadian Forest Service, Atlantic Region, 10, 1.

⁷⁰ USDA Forest Service, Northeastern Research station, 2003: www.fs.fed.us/ne/durham/4352/wud.shtml

Recommendations

The Department of Natural Resources must ensure that the forest ecosystem is not further degraded by harvesting of biomass for biofuels; biomass harvesting must not compromise site productivity and habitat.

1. Whole tree harvesting. The Department of Natural Resources should ban whole- and full-tree harvesting. If this type of harvesting is not banned, annual allowable harvest rates must be established, and the definition of merchantable volume must be extended to include material removed for bio-fuel.

2. Deadwood objectives. Keep deadwood in the forest. Set minimum stand-level objectives for numbers of standing and fallen dead and dying trees, and volume of woody debris, and require harvest planning to account for ongoing recruitment of snags and downed woody debris.

3. Carbon budgeting. Require forest management planning on Crown Land to incorporate carbon budgeting; harvesting and silviculture activities must not result in long-term net loss of carbon from the forest.

4. FSC certification. Provide incentives to achieve FSC certification to groups of woodlot owners willing to supply bio-fuel to community-based bio-fuel plants.

5. Best practises for bio-energy plants. Promote and assist bio-energy plants that (a) are co-generators (electricity and heat), (b) meet best practice air emissions standards, (c) are small and regionally dispersed, and (d) are tied to local production and consumption of energy.

9. Value-added Forest Products Industry

Adding value to wood during manufacturing has economic, social and ecological benefits. It keeps money in local communities, employs more people per unit of wood harvested, and provides high-end markets for high quality trees. Diversified in terms of products and markets, the value-added forest products economy tends to weather economic ups and downs better than single product, single market enterprises, thus providing stable employment.⁷¹ As an industry largely rooted in rural communities, it provides an important source of economic opportunities.

Several comprehensive studies on the status and potential for the value-added wood products industry provide ample evidence of the sector's benefits. A report

⁷¹ Watts, Sid. Market Development Officer for the PEI Department of Environment, Energy and Forestry. Personal Communication, June 24, 2008.

commissioned in 2003 by the province of Ontario, for example, stated that “Ontario’s value-added wood products sector generates 181% more sales, 186% more exports, and 271% more jobs per unit of fibre manufactured than does the commodity wood product sector.”⁷²

Importantly, a vibrant value-added industry creates local markets for high quality trees of a diversity of species, thus providing incentive to landowners to grow high value trees. Serendipitously, growing high value trees has ecological and societal spin-off benefits. The type of forest management required to grow high value trees tends to also provide for continuous forest canopy, large diameter trees, mixes of hardwoods and softwoods, improved water flow regulation and increased carbon storage. A strong and diverse value-added industry is an essential component of a healthy forest – healthy community – healthy economy complex.

In spite of the obvious advantages of a vibrant and diverse value-added industry, Nova Scotia has not developed or implemented a strategy to promote this industry. The fact that Nova Scotia ranks second to last among all the provinces in terms of dollars added per unit of wood harvested is telling. Worse yet, the size of Nova Scotia’s value added industry actually shrank between 1998 and 2004, from \$127 to \$107 per cubic metre of wood harvested. This was below the Canadian average of \$183 per cubic metre, below New Brunswick’s \$176 per cubic metre, and well below Manitoba, which achieved a value-added rate of \$425 per cubic metre.

Other jurisdictions have taken action. Manitoba and Prince Edward Island, for example, actively promote their value-added sector through a dedicated staff and direct reference in their forest management policies.^{73, 74} Nova Scotia, on the other hand, has yet to act on the recommendations made in a report on the value-added industry commissioned by the Nova Scotia Community College and the Atlantic Canada Opportunities Agency.^{75, 76} Instead, the province continues to support a softwood-focused forest industry based on pulp and paper and dimensional lumber, at the expense of a healthy and diverse native Acadian Forest.⁷⁷

⁷² Jaakko-Pöyry. 2001. Assessment of the status and future opportunities of Ontario’s solid wood value-added sector. Prepared for: Living Legacy Trust, Province of Ontario.

⁷³ PEI Provincial Government. 2006. Moving to Restore a Balance in Island Forests: Prince Edward Island Forest Policy.

⁷⁴ Pannozzo, L. and R. Colman. 2008. GPI Forest Headline Indicators. *GPI Atlantic*, Halifax, NS.

⁷⁵ Aktrin-Dossenbach Associates. 2003. Nova Scotia value-added wood products industry: sector export strategy. Prepared for the Nova Scotia Community College, and the Atlantic Canada Opportunities Agency.

⁷⁶ Wilson, Adrian. Nova Scotia Community College. Personal Communication, June 24, 2008.

⁷⁷ Jozsa, John. 2008. Government subsidy and program support for Nova Scotia’s Forest-Based Industries. Jozsa Management and Economics. Prepared for the Ecology Action Centre.

Recommendations

The Province must make the value-added forest products industry a priority of economic development.

1. Fund a Nova Scotia secondary wood products group:

The Province should dedicate funding to ensure that an organization (such as the Nova Scotia Secondary Wood Products Association, for example) is empowered to implement a value-added strategy in the province in concert with other regional associations.

2. Mandate a Nova Scotia secondary wood products group to develop and implement a value-added wood products strategy for Nova Scotia:

This strategy would include improving access to a diversity of locally grown and high quality trees, promoting clustering of mutually-beneficial businesses in the value-added sector, finding and cultivating markets, and building a regional brand. The focus must be on implementation of recommendations already generated by research projects carried out to-date.

3. Build links between primary production and value-added industries:

Value-added industries need a diverse, secure and sustainable supply of high quality trees. The poor quality and management of Nova Scotia's forest, however, is a major obstacle to providing the value-added industry with high quality trees. The Department of Natural Resources can help address this by (a) dedicating at least 50% of silviculture money towards treatments that improve stand quality (*i.e.*, Category 7 treatments); and (b) promoting regional log sorting yards to ensure logs, especially hardwood logs, are directed to the best end use.

4. Develop educational programs relevant to the value-added sector:

The Province should ensure an adequate workforce for the value-added industry by providing training opportunity for woodworking, product design, machine operation and maintenance, industrial engineering, and marketing.

5. Encourage FSC certification:

FSC certification will help value-added producers secure a sustainable supply of high quality logs and an added marketing advantage, especially in international markets.

6. Adopt policy of log sorting on Crown land, and promote log sorting yards for private woodlot owners:

Optimizing the value from logs and ensuring the highest end-use for logs multiplies the value generated from harvesting trees, and helps ensure a sustainable supply of raw material for value-added industries.

7. Optimize Value rather than Volume:

Computer models of forest management are designed to maximize the amount of softwood fibre volume grown in the forest. While this approach makes sense for growing low value products such as pulpwood, it does not make sense for growing valuable trees. DNR should change the optimization targets in its computer modeling from fibre volume to economic value.

10. Forest Access Roads

Ecologists worldwide are alarmed by the negative impacts of roads on biodiversity as research in the emerging discipline of road ecology confirms that logging roads often wreak havoc on forest ecosystems^{78, 79}. Although roads are often overlooked, serious impacts stem from both the presence of roads and associated use.

Nova Scotia has a surprising amount of roads: over 93,000 km. Lined up end-to-end along the equator, they would circumnavigate the Earth more than twice. Logging roads impact biodiversity in Nova Scotia in numerous ways; for example:

- silt builds up in fish streams as roadbeds erode and culverts plug up;
- animals that require interior habitat are displaced when intact forests are carved into smaller pieces;
- poachers and parasite-carrying deer access otherwise remote moose areas;
- logging trucks drive over rare snakes and turtles (direct mortality);
- remote lakes with big fish become easy to reach, thus are often over fished;
- the risk of forest fires increases with increased access to the backcountry; and
- irresponsible use of OHVs and pickups create ruts, garbage, harassed wildlife, illegal camps, etc.

The financial burden of building and maintaining roads is such that DNR cannot adequately maintain the existing road network on Crown land.

Various NGOs, researchers, and staff from DNR and some forestry companies are grappling with solutions to reduce the impacts of logging roads:

- Researchers at Dalhousie University have developed a road impact assessment and mitigation framework.
- DNR is working on a GIS-based “road index tool” to spatially identify where road fragmentation is most problematic.
- The province’s OHV Action Plan will restrict OHVs to a designated trails network on Crown lands, rolling back the proliferation of OHV use on roads where they damage the environment.
- As part of their FSC certification, NewPage Port Hawkesbury has committed to completing, by 2009, a “road impact mitigation plan” for several thousand hectares of high conservation value forests.

It will be important for DNR and other players in the forest industry to support widespread road impact mitigation, now that promising research and planning is underway.

⁷⁸ Trombulak, C.T., and C.A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology* 14: 18-30.

⁷⁹ Forman, R.T., D. Sperling, J. Bissonette, A. Clevenger, C. Cutshall, V. Dale, L. Fahrig, R. France, C. Goldman, K. Heanue, J. Jones, F. Swanson, T. Turrentine, and T. Winter. 2003. *Road Ecology*. Island Press: Washington, DC.

Recommendations

Nova Scotia should develop an aggressive program to mitigate impacts from logging roads. The program should include targets for reducing logging road density by permanently decommissioning selected roads that are not essential for resource management.

11. Woodlot Owner Sector

Owning 60% of Nova Scotia's forestland and contributing over 70% of the province's annual wood harvest, small private woodlot owners play an integral role in the management of Nova Scotia's forest. There are two main policy issues that influence forest management on private woodlots: (1) the type and amount of funding for silviculture activities, and (2) infrastructure and organizational support.

At present, the bulk of silviculture funding (97%) is spent on activities that support clearcut harvesting (*i.e.*, site preparation for planting, planting, herbicide application and post-clearcut thinning.) As one forestry contractor offered,

If I clearcut, then I can get all kinds of money from the government. I get money for site preparation, money for herbicides, money for planting, money for thinning. As a contractor, this makes clearcutting look appealing. But if I do what I think is best for the woods and long-term economic value, then it's difficult to get funding.

In 2007, 3% of the silviculture budget (\$570,000) was allocated for silviculture activities not dependant on clearcutting, known as quality improvement activities (selection harvesting, crop tree release and pruning), and educational workshops on alternatives to clearcutting. Despite the high demand among woodlot owners for funding for quality improvement activities, DNR plans to increase the budget only marginally, by \$170,000.⁸⁰ While this is a step in the right direction, it is critical that a substantial proportion (50%) of the silviculture budget be dedicated to quality improvement activities, if the province is truly committed to reducing the amount of clearcutting and promoting the value-added industry. This shift must be accompanied by continued educational opportunities for woodlot owners, and a new category of funding for creating woodlot management plans. These changes will help reduce clearcutting, promote a forest better able to resist the effects of climate change, and provide woodlot owners with a better diversity of quality forestry products and the attendant protection against market fluctuations.⁸¹

⁸⁰ Letter from Minister David Morse to Jamie Simpson, June 25, 2008.

⁸¹ Nova Scotia Woodlot Owners and Operators Association (NSWOOA) (2008). AGM Presentation. Web accessed July 14th, 2008: http://vp.gov.ns.ca/files/u4/2008_AGM_presentation_4_.pdf

Earmarking 50% of silviculture funds for quality improvement activities is not unprecedented: the government of PEI did this in 2006:

*The funding emphasis will be shifted from the current ratio of 90:10 in favour of creation and maintenance of plantations (greater than 1,600 seedlings per hectare) to a more balanced 50:50 ratio between plantations and alternative, enhancement-style treatments (e.g., partial planting, enrichment planting, patch cuts, strip cuts, thinning, etc.).*⁸²

Further, woodlot management plans must be made eligible for funding assistance, and pre-harvest management plans must be made a pre-requisite to receiving silviculture funding. The PEI government, again, has done just this.

Equally critical for the woodlot sector is organizational support. At present, woodlot owner organizations are somewhat fractured across the province, and lack a unified structure. New Brunswick, on the other hand, has a network of regional woodlot marketing boards, all of which belong to a province-wide federation. The regional marketing boards deliver silviculture funding, offer educational courses, provide management advice, and find and develop markets for forest products. Some organizations operate log sorting yards and trucking services for small batches of wood. The provincial organization represents the regional groups to both the provincial and federal governments. The following recommendations are derived from consultations with woodlot owners, woodlot owner organizations, and staff with the PEI government.
83, 84, 85, 86

82 PEI Government. 2006. Moving to Restore a Balance in Island Forests: Prince Edward Island Forest Policy.

83 Watts, Sid. PEI government staff. Personal communication, July 2008

84 Wood Products PEI (2008). Web accessed July 15th, 2008: <http://www.peiwood.com/vw.php>.

85 Brison, Paul. Secretary, NS Woodlot Owners and Operators Association. Personal communication, July 2008

86 Palmer, David. Manger, YSC Marketing Board, NB. Personal communication, June 2008.

Recommendations

The Province should recognize the critical role woodlot owners play in forest management by providing organisational support and encouraging quality improvement silviculture.

- 1. Funding for quality-improvement silviculture:** Over a five-year period, increase funding for quality-improvement silviculture activities (Category 7) to 50% of the total silviculture budget; educational workshops and woodlot management plans would be included in this funding.
- 2. Require management plans for access to funding:** Over a five-year period, phase-in a requirement that pre-harvest management plans are pre-requisite to receiving silviculture funding.
- 3. Organisational support:** Provide support for woodlot owner groups to implement woodlot owner services including (1) log sorting yards, (2) trucking system to collect small loads from groups of woodlot owners, and (3) virtual wood yards to facilitate buying and selling of woodlot products and services.
- 4. Marketing board system:** Implement a marketing board system similar to that in place in New Brunswick.