

Forests

THE PATH WE SHARE

A Natural Resources Strategy
for Nova Scotia 2011-2020
Five-year Progress Report

APPENDIX 3

GOAL 9: ECOSYSTEM APPROACH

Work together to maintain healthy forests.

33 Fully implement an ecosystem approach to forest management.

WHAT WE'RE DOING

- Through a series of three-week workshops in 2012 and two-week workshops in 2013–14, contractors in both Eastern and Central Regions worked with the Canadian Woodlands Forum to upgrade their skills in forest ecosystem classification and employing partial-harvest techniques in test harvests.
- The department required that pre-treatment assessments be conducted on Crown lands and that they be encouraged on private lands. These assessments require collection of many stand-level details, including vegetation and soil type, species, tree diameter, existing regeneration, and data on other values, such as special wildlife landscaping, habitat buffers, and geology. This information helps ensure that appropriate treatments—including selection harvesting and pre-commercial thinning—are prescribed. Electronic and paper tools are now available through the department to help ensure detailed data collection.
- The department announced, in October 2014, that forestry allocations on specific western Crown lands would be based on a percentage of available harvest rather than a fixed volume. This model gives the department important flexibility to better balance economic and conservation goals as changing circumstances may require (if, for example, a forest fire or a natural disaster, such as a hurricane, affects the province). It is supplemented by maps that help stakeholders be more aware of where harvesting is taking place.
- The department implemented two technologies to address the commitment to track harvesting: by focusing on using Landsat imagery and other satellite technologies to capture large-scale forest changes and by hiring the Canadian Woodlands Forum to educate, train, and install 40 FPDat units in the lead harvesting machines of contractors in the province. The FPDat device helps operators monitor their location in the harvest area and tracks their production while sending the data through satellite to a website hosted by FPIInnovations. Staff can then track harvesting activity by type and amount of area without having to rely on industry or contractors themselves to report their harvesting activity.
- The department worked with third-party groups, such as the Association of Sustainable Forestry, to modify delivery and enhance silviculture for woodland owners. Following stakeholder feedback, credit values for registered buyers were also adjusted in 2012 to influence the type and amount of silviculture activity performed.
- In August 2015, the department created a Forest Biodiversity Science Advisory Committee to enhance the management of Nova Scotia's Crown-owned woodlands. Members of the committee have extensive experience in biodiversity science, and their independent advice will improve government's capacity to address complex biodiversity conservation and resource-use issues. The committee will focus on helping government identify knowledge gaps that have to be filled for the successful implementation of an ecosystem approach to forestry and forest biodiversity conservation.
- In spring 2015, the department initiated a pilot project in collaboration with Port Hawkesbury Paper LLP (PHP) to develop and implement a landscape management framework on Crown lands under PHP licence.

Important ecological goods and services are supported across landscapes, not within forest stands or landowner properties alone. This framework is designed to enable site-scale forestry activities to be planned with a greater understanding of how larger-scale values are affected across landscapes. Planning with better knowledge of accumulated values and impacts will enable decision making that will both help conserve biodiversity and maintain a sustainable forest industry.

- The department prepared a revised long-term forest management plan for the former Bowater lands.
- The department is providing funding to the Nova Scotia Woodlot Owners and Operators Association for the new Woodland Owner Mentorship Program. Through a series of field days throughout the province, this program will create opportunities for forest landowners to learn from each other, provide places for experienced woodlot owners to share their knowledge, and reinforce the information provided in DNR's existing Woodlot Management Home Study Program.
- The department continues to support the Nova Scotia Woodland Owner of the Year Program, which recognizes landowners for sustainable forest management and helps landowners learn from each other.

34 Apply the Code of Forest Practice on publicly and privately owned woodlands.

WHAT WE'RE DOING

- In August 2012, the department released and officially made the *Code of Forest Practice* mandatory on Crown lands. The code is encouraged on privately owned woodlands.
- The department required that pre-treatment assessments be conducted on Crown lands and that they be encouraged on private lands. These assessments require collection of many stand-level details, including vegetation and soil type, species, tree diameter, existing regeneration, and data on other values, such as special wildlife landscaping, habitat buffers, and geological considerations. This information helps ensure that appropriate treatments—including selection harvesting and pre-commercial thinning—are prescribed.
- The department required that all new forest licensees adhere to the *Code of Forest Practice*.

35 Help private landowners understand and use an ecosystem approach to manage their woodlands.

WHAT WE'RE DOING

- A Request for Proposals for a three-year community forest pilot project in western Nova Scotia was issued in spring 2013. In January 2015, the province signed an agreement with Medway Community Forest Cooperative Ltd. to begin managing a community forest in Annapolis County, the first in Eastern Canada. The pilot will be evaluated for economic, environmental, and social benefits to Nova Scotians.
- Through a series of three-week workshops in 2012 and two-week workshops in 2013–14, contractors in both Eastern and Central Regions worked with the Canadian Woodlands Forum to upgrade their skills in forest ecosystem classification and employing partial-harvest techniques in test harvests.
- In 2013, the department republished *Forest Ecosystem Classification for Nova Scotia*. It combines Part I: Vegetation Types, Part II: Soil Types, and Part III: Ecosites (originally published in 2010) as a single, more-streamlined guide. The guide is a result of 10 years of forest ecosystem classification (FEC) project work.
- In 2013, the department published *A Woodland Owner's Guide to Forest Ecosystem Classification in Nova Scotia*. This guidebook provides a brief introduction to FEC and how a trained FEC professional can help landowners make more predictable and sustainable forest management decisions.
- To help private landowners market and sell forest resources, the department launched and provided funding for the Cape Breton Private Land Partnership. This is a one-stop approach that helps landowners and forest-management contractors develop and share best forest management practices. The partnership will also give them access to a database of potential harvest sites and contractors, and technical support from forestry professionals. A similar partnership is under development for the western part of the province.
- The department provided funding to woodlot associations and other organizations to continue engaging small private woodlot owners and forest service providers in sustainable forest management.
- The department has provided approximately \$1 million per year since 2011 for outreach agreements that involve training, certification, and support for initiatives such as the development of woodlot teaching materials, regional forestry workshops, conferences and field days, family woodlot and forest resource guides, forest service provider reference databases, woodlot interpretation sessions with landowners, and Forest Ecosystem Classification training for forest service professionals. Recipients include the following:
 - Nova Scotia Landowners and Forest Fibre Producers Association
 - Federation of Nova Scotia Woodland Owners
 - Nova Scotia Woodlot Owners and Operators Association
 - Mersey Tobeatic Research Institute
 - Nova Forest Alliance
 - Cape Breton Private Lands Partnership
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- The department is providing funding to the Nova Scotia Woodlot Owners and Operators Association for the new Woodland Owner Mentorship Program. Through a series of field days throughout the province, this program will create opportunities for forest landowners to learn from each other, provide places for experienced woodlot owners to share their knowledge, and reinforce the information provided in DNR's existing Woodlot Management Home Study Program.

- The department continues to support the Nova Scotia Woodland Owner of the Year Program, which recognizes landowners for sustainable forest management and helps landowners learn from each other.
- The department updated/created new modules and released three instructional videos for the Woodland Management Home Study Program. Two modules have been translated into French, and work continues on translating additional modules. The Home Study Program is a series of booklets and supplementary videos on topics related to woodland stewardship and sustainable land management. Participation in the program is free and open to anyone with an interest in woodland management. Certificates are available for a fee.
- The department continued involvement with the Otter Ponds Forest demonstration site. Otter Ponds demonstrates the philosophy, science, and practice of uneven-aged management in the Acadian Forest. Management practices are certified to the Forest Stewardship Council's Maritime Standard. Otter Ponds is managed by a unique partnership that includes four non-governmental organizations (Eastern Shore Forest Watch, the Ecology Action Centre, the Mooseland and Area Community Association, the Nova Scotia Woodlot Owners and Operators Association), a forestry company (Northern Pulp Ltd), and the Province of Nova Scotia. The partners jointly manage a 500 hectare (1,200-acre) Crown parcel near Mooseland, within the Halifax Regional Municipality.

36 Develop comprehensive risk management strategies to support healthy forests.

WHAT WE'RE DOING

- The department has implemented an Enterprise Risk Management Framework, based on the international standard for risk management ISO 31000:2009(E), *Risk Management – Principles and Guidelines*, and the Canadian Standards Association's CAN/CSA-ISO 31000-10, *Risk Management – Principles and Guidelines*. The risk management framework consists of a four-step process of identifying, analyzing, evaluating, and treating risks.
 - The department completed risk assessments on spruce budworm, silviculture, forest harvest reporting, and forest harvest licensing.
- The department formed a collaborative Spruce Budworm Management Team to begin reviewing future priorities and tasks relating to a potential spruce budworm outbreak. The department reallocated resources to future management technology and development tools for use in managing spruce budworm.
- The department contracted a consulting firm that facilitated multiple workshops with various stakeholders on the subject of spruce budworm management.
- The department computed sustainable harvest levels for all Crown land to incorporate
 - the most recent Crown land acquisitions
 - current forestry practices and knowledge
 - the government's land use decisions
- In 2012, the Province of Nova Scotia conducted a pest risk analysis (PRA) on the brown spruce longhorn beetle (BSLB), using the Risk Analysis Framework developed as part of the National Forest Pest Strategy under the Canadian Council of Forest Ministers (CCFM). The area of interest for this PRA was restricted to Nova Scotia, and the triggers that led to its initiation were the new BSLB finds outside the containment area and the need to re-evaluate BSLB risk management in light of successes, failures, and new science. The analysis, which rates the overall risk of BSLB to the forests of Nova Scotia as low-moderate, was published on the CCFM website in 2014 (ccfm.org/english/coreproducts-forestpests.asp).
- In 2013, the department improved its public safety and response time by enhancing its wildfire detection program. Fourteen fire towers were replaced by fixed-wing airplane services that provide aerial fire detection across much of the province. Because of increased public reporting, improved cellphone communication, and use of aircraft for fire detection, fire towers are not needed as much as in the past.
- The department is purchasing four new helicopters to replace its current aging fleet of five. A request for proposals for the purchase of up to four new machines closed in June 2016, and the department is currently examining the two responses it received. The new helicopters will ensure a modern, right-sized, safe fleet to meet the department's operational roles and requirements.

37 Align Nova Scotia's forest principles and actions with national strategies.

WHAT WE'RE DOING

- As a member of the Canadian Council of Forest Ministers, the department collaborated with other agencies and levels of government to keep up with trends in forest innovation, climate change, sustainable forest management, criteria and indicators, forest pests, and wildland fire management.
- The department continued membership in the Northeastern Forest Fire Protection Compact, a commission to provide the means for its member states and provinces to cope with fires that might be beyond the capabilities of a single member—through information, technology, and resource sharing (mutual aid) activities.
- The department continued membership in the Canadian Interagency Forest Fire Centre, an organization that provides operational forest fire management services to member agencies. Its mandate is to gather, analyze, and disseminate fire management information to ensure a cost effective sharing of resources, and to actively promote, develop, refine, standardize, and provide services to member agencies that will improve forest fire management in Canada.
- The department is exploring the first steps of incorporating carbon sequestration modelling into timber supply analysis, using the Carbon Budget Model—a carbon accounting model for forest ecosystems—developed by the Canadian Forest Service.
- In 2012, the Province of Nova Scotia conducted a pest risk analysis (PRA) on the brown spruce longhorn beetle (BSLB), using the Risk Analysis Framework developed as part of the National Forest Pest Strategy under the Canadian Council of Forest Ministers (CCFM). The area of interest for this PRA was restricted to Nova Scotia, and the triggers that led to its initiation were the new BSLB finds outside the containment area and the need to re-evaluate BSLB risk management in light of successes, failures, and new science. The analysis, which rates the overall risk of BSLB to the forests of Nova Scotia as low-moderate, was published on the CCFM website in 2014 (ccfm.org/english/coreproducts-forestpests.asp).
- Department representatives contributed to and participated in the Climate Change Task Force—a collaborative initiative of the federal, provincial, and territorial (FPT) governments of Canada through the Canadian Council of Forest Ministers. Phase 2, completed in March 2015, addressed climate change adaptation at the forest ecosystem and forest sector levels. Phase 3, initiated in 2015, will focus on furthering inter-jurisdictional conversations on integrating climate change into national sustainable forest management criteria and indicators, enhancing integration of climate change considerations into CCFM Fire and Pest working group outputs, and continuing forestry adaptation networking.

38 Report regularly on the state of Nova Scotia's forests.

WHAT WE'RE DOING

- The department posts maps on a county-by-county basis for areas on western Crown land to be harvested. The maps indicate where harvesting will take place and what harvesting method will be used.
- In 2015–16, the department developed and implemented the Harvest Plan Map Viewer (HPMV), an interactive web-based application that maps all planned harvesting on Crown lands in the province. All licensees are required to post harvest plans on the viewer and allow a minimum of 20 days for public input. The HPMV includes tools that enable the public to submit comments or request pretreatment assessment data for individual harvest plans directly to the licensee. There is also a provision for map-update notification.
- The department annually reports information to the National Forestry Database on the following:
 - forest inventory
 - wood supply
 - forest fires
 - forest insects
 - forest products
 - silviculture
 - revenues
 - pest control product use
- Open data—In February 2016, the province launched a new open data portal that makes government data collections publicly available to individuals, researchers, and entrepreneurs. Maps and data sets related to natural resources were included in the launch. See data.novascotia.ca.
- Work continues on the Status of Forests Report; it has not been released yet.

GOAL 10: RESEARCH AND KNOWLEDGE SHARING

Increase knowledge to help governments and other interested groups make better decisions about forest management.

39 Expand research and knowledge sharing in these areas:

- **Supporting forest biodiversity**
- **Mitigating and adapting to climate change**
- **Using the carbon cycle in forests to maximize carbon storage, minimize the release of carbon dioxide, and help manage the effects of climate change**
- **Understanding factors affecting long-term forest productivity**
- **Understanding the economic and social values and impact of forest products (such as timber) and ecosystem services (such as oxygen generation and carbon management)**
- **Controlling pests and disease**

WHAT WE'RE DOING

Supporting forest biodiversity

- The department created a Forest Biodiversity Science Advisory Committee to enhance the management of Nova Scotia's Crown-owned woodlands. Members of the committee have experience in biodiversity science, and their independent advice will improve government's capacity to address complex biodiversity conservation and resource-use issues. The committee will focus on helping government identify knowledge gaps that have to be filled for successful implementation of an ecosystem approach to forestry and forest biodiversity conservation.
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- To help private landowners market and sell forest resources, the department launched and provided funding for the Cape Breton Private Land Partnership. This is a one-stop approach that helps landowners and forest-management contractors develop and share best forest management practices. The partnership will also give them access to a database of potential harvest sites and contractors, and technical support from forestry professionals. A similar partnership is under development for the western part of the province.

Mitigating and adapting to climate change

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Using the carbon cycle in forests to maximize carbon storage, minimize the release of carbon dioxide, and help manage the effects of climate change

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Understanding factors affecting long-term forest productivity

- The department required that pre-treatment assessments be conducted on Crown lands and that they be encouraged on private lands. These assessments require collection of many stand-level details, including vegetation and soil type, species, tree diameter, existing regeneration, and data on other values, such as special wildlife landscaping, habitat buffers, and geological considerations. This information helps ensure that appropriate treatments—including selection harvesting and pre-commercial thinning—are prescribed.
- The department is updating the soil series mapping used in the Nutrient Budget Model and other soil productivity analysis.

Understanding the economic and social values and impact of forest products (such as timber) and ecosystem services (such as oxygen generation and carbon management)

- The department announced, in October 2014, that forestry allocations on specific western Crown lands would be based on a percentage of available harvest rather than a fixed volume. This model gives the department important flexibility to better balance economic and conservation goals as changing circumstances may require (if, for example, a forest fire or a natural disaster, such as a hurricane, affects the province). It is supplemented by maps that help stakeholders be more aware of where harvesting is taking place.
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Controlling pests and disease

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- The department formed a collaborative Spruce Budworm Management Team to begin reviewing future priorities and tasks relating to a potential spruce budworm outbreak. The department reallocated resources to future management technology and development tools for use in managing spruce budworm.
- The department contracted a consulting firm that facilitated multiple workshops with various stakeholders on the subject of spruce budworm management.
- The department published *A Field Guide to Pests of the Acadian Forest* in 2014. This guide provides woodland owners, homeowners, forest workers, and naturalists with information concerning some of the most common and widespread forest pests in the province, including native, non-native, and invasive alien species.
- In 2012, the Province of Nova Scotia conducted a pest risk analysis (PRA) on the brown spruce longhorn beetle (BSLB), using the Risk Analysis Framework developed as part of the National Forest Pest Strategy under the Canadian Council of Forest Ministers (CCFM). The area of interest for this PRA was restricted to Nova Scotia, and the triggers that led to its initiation were the new BSLB finds outside the containment area and the need to re-evaluate BSLB risk management in light of successes, failures, and new science. The analysis, which rates the overall risk of BSLB to the forests of Nova Scotia as low-moderate, was published on the CCFM website in 2014 (ccfm.org/english/coreproducts-forestpests.asp).

40 Develop standards and collect, share, and use information about forest resources.

WHAT WE'RE DOING

- In 2015–16, the department developed and implemented the Harvest Plan Map Viewer (HPMV), an interactive web-based application that maps all planned harvesting on Crown lands in the province. All licensees are required to post harvest plans on the viewer and allow a minimum of 20 days for public input. The HPMV includes tools that enable the public to submit comments or request pretreatment assessment data for individual harvest plans directly to the licensee. There is also a provision for map-update notification.
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- The GIS Link Project—This is a collaborative initiative involving staff from DNR and the Internal Services Department (ISD) to improve the management of, and promote the sharing of, location-based information in government. During Phase 1 of the project (completed in August 2014), the team developed a stewardship model for corporate geographic data, developed the target technical architecture for a corporate geographic data warehouse, and implemented the target hosting environment to be used by all government departments. As part of Phase 2 of the project, DNR migrated GIS data related to land and resource management into the corporate data warehouse. To make the data more accessible to government and public users, DNR developed the Provincial Landscape Viewer (released in October 2015) and the Harvest Plan Map Viewer (released in April 2016).
- Open data—In February 2016, the province launched a new open data portal that makes government data collections publicly available to individuals, researchers, and entrepreneurs. Maps and data sets related to natural resources were included in the launch. See data.novascotia.ca.

GOAL 11: SHARED STEWARDSHIP

Involve many in the shared stewardship of Nova Scotia's forests.

41 Involve interested groups and individuals in developing policies about Nova Scotia's forests.

WHAT WE'RE DOING

Policies (ministerial or ADM directive):

- In July 2013, the department released a discussion paper, *Revisions to Forests Act Regulations Affecting Forest and Wood Biomass Users*.
- To achieve Nova Scotia's clearcutting reduction goal, it was important to have a common definition of what constitutes a clearcut. To develop the clearcut definition, a science team was formed to review technical and research information and to review policies and practices in other jurisdictions in Canada and some parts of the United States.
- The department is developing a Crown Land Forest Resource Management Policy. Replacing the 1986 Forestry Policy, the new policy will reflect the department's knowledge-based approach to landscape-scale planning, using ecosystem-based management. In addition to internal policy discussions (DNR, NSE), staff have been carrying out external stakeholder consultations, including with the Mi'kmaq. The policy, while binding on Crown land, will provide examples to guide private landowners.
- A committee of experts from academia and NGOs was convened to review *Interim Guidelines for Environmentally Sensitive Areas under the Western Crown Lands Conceptual Plan* and provide recommendations. Based on advice from the committee and from the Mi'kmaq Rights Initiative, the term "biodiversity-rich landscapes" (BRLs) is being used instead of "ecologically sensitive areas," and the guidelines will be finalized and released on the department website.
- In 2015–16, the department developed and implemented the Harvest Plan Map Viewer (HPMV), an interactive web-based application that maps all planned harvesting on Crown lands in the province. All licensees are required to post harvest plans on the viewer and allow a minimum of 20 days for public input. The HPMV includes tools that enable the public to submit comments or request pretreatment assessment data for individual harvest plans directly to the licensee. There is also a provision for map-update notification.

Activities and practices that support policy development:

- The department is negotiating a three-year Forest Operating Agreement with the Mi'kmaq of Nova Scotia. Under the agreement, the Mi'kmaq will be responsible for managing the forests on approximately 20 000 hectares of Crown lands in central and western Nova Scotia. The goal is for the project to be economically viable in the long run, while providing training opportunities for Mi'kmaq forest workers, supporting traditional Mi'kmaq resource uses, and developing a Mi'kmaq-centric forest management model.

- The department worked with third-party groups, such as the Association of Sustainable Forestry, to modify delivery and enhance silviculture for woodland owners. Following stakeholder feedback, credit values for registered buyers were also adjusted in 2012 to influence the type and amount of silviculture activity performed.
- In 2015, the department established Stakeholder Interaction Committees with respect to forest management on Crown lands in both the eastern and western ends of the province. The department also plans on establishing a central committee. The mandate of these committees will be to provide a platform for dialogue, feedback, and advice on planning for all Crown land in each of those regions. This will give a direct voice to affected stakeholders and provide a way to share information and build common understandings around the complexities of forest management.
- In December 2012, the province bought 225 000 hectares (555,000 acres) of land from Bowater Mersey and announced that starting in January 2013, DNR would undertake a detailed land use and resource management planning process for all the Crown land in western Nova Scotia (about 600 000 hectares, or 1.5 million acres). Between January 2013 and January 2014, DNR and a cross-government team gathered land and resource data, completed a public and stakeholder consultation, and developed a conceptual plan for the management and use of Crown land and resources in western Nova Scotia.
- A Request for Proposals for a three-year community forest pilot project in western Nova Scotia was issued in spring 2013. In January 2015, the province signed an agreement with Medway Community Forest Cooperative Ltd to begin managing a community forest in Annapolis County, the first in Eastern Canada. The pilot will be evaluated for economic, environmental, and social benefits to Nova Scotians.
- The department participated on the steering committee for the creation of a forest summit. The first Forest Summit—established by the Nova Scotia Woodlot Owners and Operators (NSWOOA)—was held in May 2015. It brought together key stakeholders from across the forest sector, including environmental groups, private woodlot owners, pulp mill owners, industry representatives, senior government decision makers, policy makers, and entrepreneurs. The session laid the foundation for the Forestry Lab (see 41.12.1).
 - The department contributes funding to the NSWOOA to support a unique project called the Forestry Lab to address challenges in Nova Scotia's forest sector. The Forestry Lab focuses on business model innovation that aligns the industry with existing and potential competitive advantages of operating in Nova Scotia, the long-term productive capacity of our forests, and the values of our communities. The lab will be a dedicated incubator for new business ideas, particularly in the areas of new technologies, harvesting capacity, and supply from private woodlots.
 - The department also participated on the steering committee for the second Forest Summit. The summit, held in April 2016, again brought together key stakeholders from across the forest sector. It provided an opportunity for participants to learn more about the work and accomplishments of the Forestry Lab experiments, which included prototypes in the form of business start-ups, service delivery models, and policy reforms.

42 Provide support to owners of small private woodlots, particularly through their organizations.

WHAT WE'RE DOING

- To help private landowners market and sell forest resources, the department launched and provided funding for the Cape Breton Private Land Partnership. This is a one-stop approach that helps landowners and forest-management contractors develop and share best forest management practices. The partnership will also give them access to a database of potential harvest sites and contractors, and technical support from forestry professionals. A similar partnership is under development for the western part of the province.
- The department provided funding to woodlot associations and other organizations to continue engaging small private woodlot owners and forest service providers in sustainable forest management.
- The department has provided approximately \$1 million per year since 2011 for outreach agreements that involve training, certification, and support for initiatives such as the development of woodlot teaching materials, regional forestry workshops, conferences and field days, family woodlot and forest resource guides, forest service provider reference databases, woodlot interpretation sessions with landowners, and Forest Ecosystem Classification training for forest service professionals. Recipients include the following:
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model innovation that aligns the industry with existing and potential competitive advantages of operating in Nova Scotia, the long-term productive capacity of our forests, and the values of our communities. The lab will be a dedicated incubator for new business ideas, particularly in the areas of new technologies, harvesting capacity, and supply from private woodlots.

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43 Focus education and outreach programs on shared stewardship.

WHAT WE'RE DOING

- In 2013, the department published *A Woodland Owner's Guide to Forest Ecosystem Classification in Nova Scotia*. This guidebook provides a brief introduction to FEC and how a trained FEC professional can help landowners make more predictable and sustainable forest management decisions.
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Scotia Woodlot Owners and Operators Association), a forestry company (Northern Pulp Ltd), and the Province of Nova Scotia. The partners jointly manage a 500 hectare (1,200-acre) Crown parcel near Mooseland, within the Halifax Regional Municipality.

44 Explore ways to establish and operate working community forests on Crown land.

WHAT WE'RE DOING

- A Request for Proposals for a three-year community forest pilot project in western Nova Scotia was issued in spring 2013. In January 2015, the province signed an agreement with Medway Community Forest Cooperative Ltd to begin managing a community forest in Annapolis County, the first in Eastern Canada. The pilot will be evaluated for economic, environmental, and social benefits to Nova Scotians.
- The department is negotiating a three-year Forest Operating Agreement with the Mi'kmaq of Nova Scotia. Under the agreement, the Mi'kmaq will be responsible for managing the forests on approximately 20 000 hectares of Crown lands in central and western Nova Scotia. The goal is for the project to be economically viable in the long run, while providing training opportunities for Mi'kmaw forest workers, supporting traditional Mi'kmaw resource uses, and developing a Mi'kmaq-centric forest management model.

GOAL 12: SUSTAINABLE RESOURCE DEVELOPMENT

Support the sustainable development of the province's forest resources in order to attract investment, create high-value jobs, and grow the economy.

45 Encourage innovative ways to increase the value of harvested timber by turning it into higher-end products.

WHAT WE'RE DOING

- Nova Scotia's Forest Sector Innovation initiative, administered by the department, provides around \$1 million per year to the forest sector in non-repayable, cost-shared contributions to build competitiveness through innovation, increase productivity within the forest industry sector, and promote the development of new products and processes to enhance sustainable forest management practices. Through this initiative, the department worked with FPInnovations on seven projects to identify future options for the industry and to find new ways to improve productivity in the forest sector. Six of these projects have been completed as of October 2015. The projects include the following:
 - Thermo Mechanical Pulp Bio (TMP-Bio) Refinery
 - development of engineered wood products
 - reducing wood chip volume at the source
 - improving yield at hardwood sawmills
 - productivity for logging equipment
 - round wood biomass drying trials
 - tire pressure monitoring systems (currently on hold)
- The Atlantic Forest Sector Innovation Initiative, co-administered by Atlantic provincial jurisdictions in partnership with federal agencies, is an investment in forest sector innovation and competitiveness for the period 2014–17. The initiative identifies innovation and policy issues and priorities that are shared among Atlantic provinces to coordinate new investment and technology development, promoting partnerships among knowledge providers and industry and regional jurisdictions.
- The Innovacorp Demonstration Centre in Brooklyn, NS, is an industrial demonstration facility where cutting-edge bioresource innovators and researchers can test their products before bringing them to full market scale. The demonstration centre offers access to raw materials, such as wood fibre, a port, a wharf, and steam from the nearby biomass-fueled Brooklyn Power plant.
- The department has provided in-kind support to Cellufuel Inc., a Nova Scotia-based start-up focused on the production of synthetic renewable fuels from the forestry resource. Deploying a next-generation innovative technology at the Innovacorp Demonstration Centre, Cellufuel transforms otherwise low-value wood residues into renewable fuels for the downstream liquid fuels market.
- In July 2015, the Department of Natural Resources, Innovacorp, and private sector partners entered into a memorandum of understanding for foundation of a set of specific forest sector-focused deliverables

known collectively as the “Innovation Hub.” The multi-year Innovation Hub project will be administered by Innovacorp, which will arrange funding from private sector partners and the Atlantic Canada Opportunities Agency. The key deliverables for Year 1 include an assessment of the current state of provincial fibre supply and cost, and identifying and qualifying target markets for biorefinery products.

- In 2012, the Government of Nova Scotia worked with Pacific West Commercial Corporation and Port Hawkesbury Paper Inc. to secure agreements to reopen the former NewPage Port Hawkesbury paper mill and to have it sustainable for years to come.
- The department hired a consultant to conduct an inventory of assets and develop a business plan focused on potential innovative uses of Strathlorne tree nursery’s facility and grounds.

46

Revise the way forest resources on provincial Crown land are allocated and managed in order to improve the economic, environmental, and social benefits to Nova Scotians.

WHAT WE'RE DOING

- The department announced, in October 2014, that forestry allocations on specific western Crown lands would be based on a percentage of available harvest rather than a fixed volume. This model gives the department important flexibility to better balance economic and conservation goals as changing circumstances may require (if, for example, a forest fire or a natural disaster, such as a hurricane, affects the province). It is supplemented by maps that help stakeholders be more aware of where harvesting is taking place.
- In August 2012, the department released and officially made the *Code of Forest Practice* mandatory on Crown lands. DNR required all new forest licences to adhere to the code and made access to provincial funding contingent on following the tools developed to apply the code, such as Pre-treatment Assessments and Forest Management Guides.
- A Request for Proposals for a three-year community forest pilot project in western Nova Scotia was issued in spring 2013. In January 2015, the province signed an agreement with Medway Community Forest Cooperative Ltd to begin managing a community forest in Annapolis County, the first in Eastern Canada. The pilot will be evaluated for economic, environmental, and social benefits to Nova Scotians.
- In spring 2015, the department initiated a pilot project in collaboration with Port Hawkesbury Paper LLP (PHP) to develop and implement a landscape management framework on Crown lands under PHP licence. Important ecological goods and services are supported across landscapes, not within forest stands or landowner properties alone. This framework is designed to enable site-scale forestry activities to be planned with a greater understanding of how larger-scale values are affected across landscapes. Planning with better knowledge of accumulated values and impacts will enable decision making that will both help conserve biodiversity and maintain a sustainable forest industry.
- As part of the department's innovative approach to fibre allocations, the department has engaged a group of forest businesses to come together to manage the western Crown lands. The consortium was incorporated in 2015 as WestFor, which will jointly hold one western Crown harvesting licence. A Forest Utilization License Agreement (FULA) negotiation began with WestFor in July 2015 and is expected to be completed by December 2016.
- The department is developing a Crown Land Forest Resource Management Policy. Replacing the 1986 Forestry Policy, the new policy will reflect the department's knowledge-based approach to landscape-scale planning, using ecosystem-based management. In addition to internal policy discussions (DNR, NSE), staff have been carrying out external stakeholder consultations, including with the Mi'kmaq. The policy, while binding on Crown land, will provide examples to guide private landowners.
- The department is negotiating a three-year Forest Operating Agreement with the Mi'kmaq of Nova Scotia. Under the agreement, the Mi'kmaq will be responsible for managing the forests on approximately 20 000 hectares of Crown lands in central and western Nova Scotia. The goal is for the project to be economically viable in the long run, while providing training opportunities for Mi'kmaq forest workers, supporting traditional Mi'kmaq resource uses, and developing a Mi'kmaq-centric forest management model.
- The province revised the Crown Lands Act in 2012 to allow for long-term Forest Utilization License Agreements (FULA). The province repealed the Stora Forest Industries Limited Agreement Act and replaced it with a FULA with Port Hawkesbury Paper.

- Since the release of the Parks and Protected Areas system plan in 2013, approximately 7800 hectares have been formally designated into the parks system.
- As of December 2015, the province has protected 12.26 per cent of its landmass, and work is continuing with Nova Scotia Environment to achieve legal protection of 13 per cent of the Nova Scotia landmass.

47 Support the promotion and marketing of forest resources and resource development.

WHAT WE'RE DOING

- To help private landowners market and sell forest resources, the department launched and provided funding for the Cape Breton Private Land Partnership. This is a one-stop approach that helps landowners and forest-management contractors develop and share best forest management practices. The partnership will also give them access to a database of potential harvest sites and contractors, and technical support from forestry professionals. A similar partnership is under development for the western part of the province.
- Nova Scotia's Forest Sector Innovation initiative, administered by the department, provides around \$1 million per year to the forest sector in non-repayable, cost-shared contributions to build competitiveness through innovation, increase productivity within the forest industry sector, and promote the development of new products and processes to enhance sustainable forest management practices. Through this initiative, the department worked with FPIInnovations on seven projects to identify future options for the industry and to find new ways to improve productivity in the forest sector. Six of these projects have been completed as of October 2015 and one is on hold.
- The Atlantic Forest Sector Innovation Initiative, co-administered by Atlantic provincial jurisdictions in partnership with federal agencies, is an investment in forest sector innovation and competitiveness for the period 2014–17. The initiative identifies innovation and policy issues and priorities that are shared among Atlantic provinces to coordinate new investment and technology development, promoting partnerships among knowledge providers and industry and regional jurisdictions.
- The Innovacorp Demonstration Centre in Brooklyn, NS, is an industrial demonstration facility where cutting-edge bioresource innovators and researchers can test their products before bringing them to full market scale. The demonstration centre offers access to raw materials, such as wood fibre, a port, a wharf, and steam from the nearby biomass-fueled Brooklyn Power plant. The department has provided in-kind support to Cellufuel Inc., a Nova Scotia-based start-up focused on the production of synthetic renewable fuels from the forestry resource. Deploying a next-generation innovative technology at the Innovacorp Demonstration Centre, Cellufuel transforms otherwise low-value wood residues into renewable fuels for the downstream liquid fuels market.
- In July 2015, the Department of Natural Resources, Innovacorp, and private sector partners entered into a memorandum of understanding for foundation of a set of specific forest sector-focused deliverables known collectively as the "Innovation Hub." The multi-year Innovation Hub project will be administered by Innovacorp, which will arrange funding from private sector partners and the Atlantic Canada Opportunities Agency. The key deliverables for Year 1 include an assessment of the current state of provincial fibre supply and cost, and identifying and qualifying target markets for biorefinery products.
- In 2013, the department became a founding sponsor of Atlantic Wood WORKS!, a regional program of the Maritime Lumber Bureau (MLB). As part of the national industry-led project of the Canadian Wood Council, its goal is to support innovation and provide leadership on the use of wood and wood products.
 - In early 2016, the department hosted an information session on Atlantic Wood WORKS! that included staff from the departments of Transportation and Infrastructure Renewal, Internal Services, Municipal Affairs, Community Services, and Labor and Advanced Education. The session brought awareness to the Atlantic Wood WORKS! program and outlined opportunities and benefits to using wood in construction.

- The department participated on the steering committee for the creation of a forest summit. The first Forest Summit—established by the Nova Scotia Woodlot Owners and Operators (NSWOOA)—was held in May 2015. It brought together key stakeholders from across the forest sector, including environmental groups, private woodlot owners, pulp mill owners, industry representatives, senior government decision makers, policy makers, and entrepreneurs. The session laid the foundation for the Forestry Lab (see 47.7.1).
 - The department contributes funding to the NSWOOA to support a unique project called the Forestry Lab to address challenges in Nova Scotia’s forest sector. The Forestry Lab focuses on business model innovation that aligns the industry with existing and potential competitive advantages of operating in Nova Scotia, the long-term productive capacity of our forests, and the values of our communities. The lab will be a dedicated incubator for new business ideas, particularly in the areas of new technologies, harvesting capacity, and supply from private woodlots.
 - The department also participated on the steering committee for the second Forest Summit. The summit, held in April 2016, again brought together key stakeholders from across the forest sector. It provided an opportunity for participants to learn more about the work and accomplishments of the Forestry Lab experiments, which included prototypes in the form of business start-ups, service delivery models, and policy reforms.
- In April 2014, the Premier of Nova Scotia appointed an associate deputy minister to the Department of Natural Resources to help government make the innovative changes needed in the forest industry as the province maximizes economic opportunities.

GOAL 13: GOOD GOVERNANCE

Provide clear and effective laws and policies to ensure that forestry is economically, environmentally, and socially sustainable.

48 Reduce clearcutting and establish a harvest tracking system.

WHAT WE'RE DOING

- In 2011, the Natural Resources Strategy committed to reduce clearcutting to no more than 50 per cent of all harvests by 2016 and to set that target in regulation. As part of landscape-scale ecosystem-based management, the Department of Natural Resources is moving away from a system that determines the amount of clearcutting based on its percentage of harvested land. Instead, the province has developed tools that help ensure that all harvest treatments, including clearcutting, are aligned with the science-based requirements of Nova Scotia's lands. Science-based harvesting decisions take into account the long-term health of the landscape and better ensure that harvesting decisions are made to reflect the nature and needs of the land instead of strictly for economic or aesthetic reasons. The province will require the use of these tools on Crown land and will recommend their use for private landowners.
- The amount of province-wide forested land harvested using clearcut methods was reported in the 2011 Strategy as 96 per cent of the total. Numbers for clearcuts province-wide are difficult to confirm since only statistics for Crown lands can be confirmed; numbers for private lands are estimates. Estimates (using a consistent formula) for province-wide forested land clearcuts, which are reported annually to the National Forest Database, show: 82 per cent clearcut in 2012, 85 per cent in 2013, 83 per cent in 2014, and 83 per cent in 2015. The actual amount of Crown land harvested by clearcut was 56 per cent in 2012, 64 per cent in 2013, 71 per cent in 2014, and 67 per cent in 2015.
- The department implemented two technologies to address the commitment to track harvesting: by focusing on using Landsat imagery and other satellite technologies to capture large-scale forest changes and by hiring the Canadian Woodlands Forum to educate, train, and install 40 FPDat units in the lead harvesting machines of contractors in the province. The FPDat device helps operators monitor their location in the harvest area and tracks their production while sending the data through satellite to a website hosted by FPIInnovations. Staff can then track harvesting activity by type and amount of area without having to rely on industry or contractors themselves to report their harvesting activity.
- The Crown Land Production and Sales system, a computerized program that enables licensee reporting and tracking of every truckload of wood harvested from Crown lands, was fully implemented in March 2016.
- A harvest management group formed in late 2014 developed a standardized approach for the monitoring of operations on Crown lands that will be implemented across all regions by the end of 2016.
- The department established a technical definition of a clearcut after extensive consultation with forest industry groups, environmental non-governmental organizations (ENGOS), silviculture contractors, forestry contractors and operators, and woodlot owner groups.

49 Review and redesign silviculture programs.

WHAT WE'RE DOING

- The department worked with third-party groups, such as the Association of Sustainable Forestry, to modify delivery and enhance silviculture for woodland owners. Following stakeholder feedback, credit values for registered buyers were also adjusted in 2012 to influence the type and amount of silviculture activity performed.
- The department required that pre-treatment assessments be conducted on Crown lands and that they be encouraged on private lands. These assessments require collection of many stand-level details, including vegetation and soil type, species, tree diameter, existing regeneration, and data on other values, such as special wildlife landscaping, habitat buffers, and geological considerations. This information helps ensure that appropriate treatments—including selection harvesting and pre-commercial thinning—are prescribed.
- In 2015, the department completed a risk assessment that analyzed the planning and delivery of the Silviculture Monitoring Program.

50 Limit herbicide use.

WHAT WE'RE DOING

- Herbicide use has not been eligible for public funding within existing silviculture programs since December 2010.
 - As we move forward with implementation of the tools and systems that support ecosystem-based management at the landscape scale, we will continue to assess the effectiveness of various forestry practices, including herbicide use.

51 Clarify the use of forest biomass for energy.

WHAT WE'RE DOING

- In November 2015, the Department of Energy released *Our Electricity Future: Nova Scotia's Electricity Plan*. The 25-year plan reflects the findings of a year-long Electricity System Review, which heard from more than 1,300 Nova Scotians and technical experts. It includes targets for electricity generation from renewable sources such as wind, hydro, and biomass. See the plan at energy.novascotia.ca/electricity.
- In July 2013, the department released a discussion paper, *Revisions to Forests Act Regulations Affecting Forest and Wood Biomass Users*, which outlines regulatory amendments that could be considered to ensure that all users of forest biomass are subject to the same rules.
- In April, 2016 the government amended the Renewable Electricity Regulations to allow for more flexibility in managing the electricity system and to reduce the use of primary forest biomass for generating electricity. The amended regulations ended a legal requirement to operate the Nova Scotia Power biomass plant in Port Hawkesbury as a must-run facility.

52 Establish the rules for whole-tree harvesting, and incorporate this into the Code of Forest Practice.

WHAT WE'RE DOING

- In July 2013, the department released a discussion paper, *Establishing Rules for Whole-Tree Harvesting in Nova Scotia*. It contains proposed recommendations and discussion about whole-tree harvesting rules in Nova Scotia.
- A nutrient budget model for Nova Scotia is in development. Through the provincial forest ecosystem classification system and the nutrient budget model, the department has the means to classify sites based on ecological conditions and to assess site-specific nutrient status based on scientific principles and best available information.
- The department is developing a Crown Land Forest Resource Management Policy. Replacing the 1986 Forestry Policy, the new policy will reflect the department's knowledge-based approach to landscape-scale planning, using ecosystem-based management. In addition to internal policy discussions (DNR, NSE), staff have been carrying out external stakeholder consultations, including with the Mi'kmaq. The policy, while binding on Crown land, will provide examples to guide private landowners.

53 Evaluate the effects of implementing an annual allowable cut (AAC)—the amount of wood permitted to be harvested—to ensure the sustainability and productivity of Nova Scotia’s forests.

WHAT WE’RE DOING

- The Policy Framework for the Future of Nova Scotia’s Forestry called for an analysis of options regarding a province-wide annual allowable cut (AAC). In consideration of the high percentage of private land and the rights of small woodlot owners, the department has no plans to implement a province-wide AAC.
- To better ensure the sustainability of harvests, the province is moving toward an ecosystem-based management approach that provides a holistic way of managing resources, with emphasis on the natural environment. As part of this approach, timber objectives set targets for harvesting on Crown land and ensure a long-term sustainable wood supply.