





CUT TO THE QUICK

DEVASTATED BY INDUSTRIAL LOGGING, ATLANTIC CANADA'S FORESTS SEEK REGROWTH THROUGH MERGER OF SCIENCE AND OLD-FASHIONED KNOW-HOW.

By Darcy Rhyno

As an industry, forestry is at a crossroads. Stereotypes aside, today's loggers are not a bunch of rough-looking guys with chainsaws and machines ruthlessly harvesting every tree they see. Forestry has entered an age of great transformation that simultaneously looks forward to a new age of scientific innovation while harkening back to a time of deep understanding of the forest.

From stump to shelf, high tech has hit the woods. Steve Talbot, executive director of the Forest Products Association of Nova Scotia, points to the use of computers on harvesting machines that track harvest levels and the efficiency of the operators. GPS units show the operators exactly where to cut. Back at the lumber mill, scanners tell saw operators the precise number and size of lumber pieces to cut from each log, thus reducing waste. Any waste that results is used for fuel, sold to pulp and paper mills and even turned into wood pellets at new processing facilities like the one built by the Shaw Group in Lantz, Nova Scotia. "Sawmill technology has come so far to reduce waste," says Talbot, "some mills can take a previously unusable, crooked log and make straight boards using a flexible saw blade system. Optimization is the key word on the lips of many folks in the forest industry."

Others are working on the next generation of products and new approaches to manufacturing. On February 1, the

Forest Products Association of Canada released a study called Transforming Canada's Forest Products Industry. Admitting the industry faces "difficulties," the study calls for private and public investment in research and development, particularly into bio-fuels and bio-products, as well as the retooling of existing plants. According to an FPAC summary, "there is great potential for the forest products industry to integrate the traditional industry with emerging biotechnology to profit over the long term through the integrated production of traditional products with bio-energy and bio-products."

One particular bio-product, something called NanoCrystalline Cellulose, seems most promising. Through their research and development institute, FPInnovations, the forest industry is encouraging companies to join the new Canadian Forest NanoProducts Network, a group of industrial, academic and governmental partners to develop applications of NanoCrystalline Cellulose. NCC is the fundamental building block of cellulose fibres extracted from trees. With almost eight times the tensile strength of stainless steel, as well as unique optical, electrical and magnetic properties, the application possibilities seem endless: reinforced polymers, textiles, paints, coatings, optical devices, pharmaceuticals, bone replacement, tooth repair, building products and aerospace applications.



Talbot's word, "optimization" may indeed describe recent developments in the industry, but it also comes close to encapsulating what ails it. The forest industry in Atlantic Canada in particular has bumped up against the same problem faced by the fishing industry and other resource subsectors – depletion of resources and ecological deterioration. Businesses and jobs are disappearing.

Take Nova Scotia as an example. Even though wood harvesting has nearly doubled, the number of forestry jobs has been cut in half. According to Industry Canada, this is a national trend. Since 2005, both jobs and GDP have declined across the industry, including in wood

product manufacturing and pulp and paper. Simultaneously, the state of Nova Scotia's forests continues to decline. Over 90 per cent of the harvest is by even-age methods, mostly clear-cutting. Only 29 per cent of tested harvesting sites were in compliance with the Nova Scotia Department of Natural Resources Habitat and Watercourses Protection Regulations in 2005. And the regulations are not considered stringent, requiring that only four trees per acre remain standing and 20 metres of forest remain intact along rivers. While replanting is a common practice, natural forests are being replaced with softwood plantations that are more farm than forest. In 2005 alone, 12,585 hectares of natural forest was converted to softwood plantations.

If one trend in this industry is toward the reduction of the raw material to its most basic component and the optimization of the systems to harvest and utilize it, the other is toward the efficient and sustainable use of the forest as a whole. Citing what they see as exploitative and unsustainable forestry practices, groups like the

Photos, starting from top: Gary Schneider, founder and manager of the Macphail Woods Ecological Forestry Project, PEI; the Macphail Woods arboretum, a botanical garden containing living collections of woody plants intended at least partly for scientific study; proceeds from product sales at the Macphail Woods native plant nursery support the Project's restoration and educational efforts.



Fundy Canadian Model Forestry Network and the Falls Brook Centre in New Brunswick and the Macphail Woods Project in PEI have established the next generation of model Acadian forests. The Falls Brook Centre calls itself “the Canadian focal point” for the International Analog Forestry Network. Based on a combination of traditional forestry approaches and processes found within nature, the goal of analog forestry is to design forestry methods that mimic or are analogous to natural processes.

The Fundy Model Forest is a 420,000-hectare swath of Acadian forest in south-eastern New Brunswick, made up of about 3,500 private woodlots. Various projects and programs address issues like woodlot management, watershed planning, water quality and biodiversity near communities that have suffered mill closures. The overall goal of the program is to help communities stabilize and diversify their local economies.

Gary Schneider, founder and Manager of the Macphail Woods Ecological

Forestry Project on 2,000 acres of crown land east of Charlottetown PEI, describes the Acadian Forest as a “condition” more than an inventory of specific trees and shrubs. Over two dozen species are native to the Acadian forest that once covered the now largely agricultural province. Employed by the Environmental Coalition of Prince Edward Island, Schneider manages 26 distinct pieces of land under a 10-year renewable lease with the Province. For each, he’s developed a detailed management plan.

Schneider’s efforts demonstrate that PEI’s Acadian forests can be restored, and much more quickly than people thought possible. The original Macphail property was dominated by scrubby woods and dotted with gravel pits. Sometimes working one tree at a time, Schneider nursed the forest back to health by bringing in rotting wood, compost and even soil to the worst areas. Insects, animals and birds have returned. Seedlings he planted 15 years ago are now thriving. “I’ve got red oak over 20-foot

high,” says a proud Schneider. Speaking of early sceptics, he says, “Now I don’t have to say much. I just take them there.”

An enthusiastic Schneider says, “I love cutting trees. I burn wood. I like to build wooden houses. I think wood’s a great product.” But he adds, “If you look at all the benefits that a forest gives you, the wood that comes out of there is secondary.”

Jim Drescher would agree. “The forest itself is the primary product,” he says. Drescher runs Windhorse Farm near New Germany, Nova Scotia. “The by-products from the forest include lumber, paper, firewood, mushrooms, birdsongs, pure water.” Working mostly with horses, Drescher is continuing forestry techniques practiced on the site since 1840. “This forestry experiment at Windhorse Farm, and we call it an experiment because it’s only been going on for 170 years, is the longest standing experiment in sustainable forestry in Canada.” He says a friend once told him, “Jim, you’re on the leading edge of something very old.”

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As forests rebound, insects, animals and birds return. Here, starting from the top, are pictured: purple and american goldfinch; chipmunk; and a red-backed salamander.

Settled in 1840 by the Conrad Wentzell family, trees have been harvested every year since. In that time the volume of standing timber hasn't changed. "We harvest about 50,000 board feet a year. We purchase another 100,000." On site, Windhorse Farm makes and sells flooring, decking, 12 species of specialty hardwood and "tonewood" for making musical instruments. All the wood is certified by the Forest Stewardship Council as sustainably harvested.

Drescher says it's time to move away from large harvesters and feller-bunchers to horses, tractor-winch systems and small scale, high tech skidders. "This kind of forestry," Drescher claims of the techniques he uses and teaches to others, "employs seven times as many people as the industrial model." As an example, he explains how a particular 100-acre lot on his land has yielded 8-million board feet over a 170-year period, and 2-million remain standing. Over the same time

period, four clear-cuts would only have yielded about 6-million. Plus, the quality of the lumber and the forest would have declined over time. Drescher says, "Industrial forestry is clearly a dead end because right now we're harvesting three times as much as we're growing." When asked about nano technology, Drescher added, "I think it's fantastic. Technology offers tremendous benefits to society... potentially. (But), you still come back to - how are you going to protect the forest?"

In a report on clear-cutting methods, Paul Brison of the Nova Scotia Woodlot Owners and Operators Association says: "there are many options available, options practiced by woodlot owners for generations, including natural regeneration of seedlings, selection harvesting and crop tree management, that can restore ecologically healthy forests, while promoting economically valuable stands of trees. It shouldn't be so hard to do the right thing." 



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