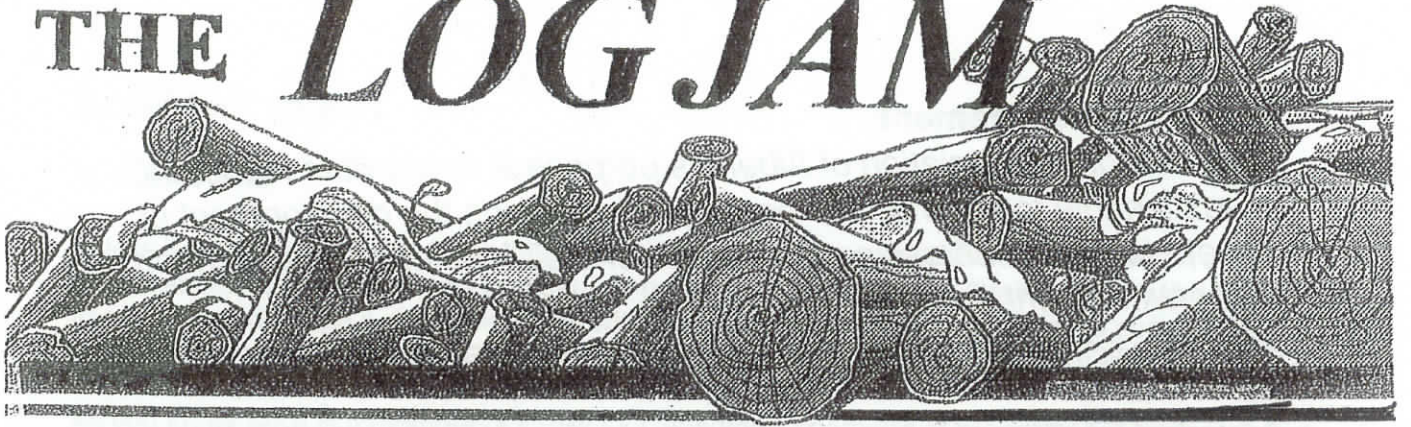


THE LOG JAM



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The managed Forest

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"The Woodlot Association of Alberta's purpose is to promote leadership in sustainable forest management by encouraging the development of Private forest by increasing awareness of their inherent social, economic and environmental values."

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President report

Laval Bergheron

Hello everyone,

This is it, it's September 2nd, « a little late for my report but... » and Frosty has made it's first appearance. Has not happened that early in quite a number of years. Grain buyers will be able to say « frost damage » and look at you with an odd grin! It's been a rather quiet summer as far as weather goes. No big winds, no hail with lots of rain. All good if you are a forest.

As you know WAA is a member of CFWO « Canadian Federation of Woodlot Owners » and that Gordon Kerr is our new representative at the federal level and this is their latest news. The Gov't of Canada has announced a program called LCEF « Low Carbon Environment Fund » This is to encourage tree planting by having none profit organization apply for money to that end. If I got this right none profit organization could get up to 40% of the cost and private woodlot owners up to 25%. This is preliminary and we will keep you informed..

I know I am repeating myself but if you are receiving the « Logjam » please make sure your Membership is up to date. Thank you.

This is the season to get back to work on your woodlot, be safe!

Have a great fall.

Up Coming Events

Board of Directors - Teleconference September 24, 2018
November 26, 2018

All calls at 7pm

Face to Face Meeting on October 19, 2018, in Whitecourt

*Make no absolute promises, for nobody will help
you to perform them
unknown*

Broadback Forest, home to last old-growth trees, threatened with logging, Waswanipi nation says

A Cree First Nation and a conservation group are pressing Quebec to protect one of the last wilderness areas in the province's boreal forest, amid fears that logging is increasingly threatening traditional Indigenous hunting and fishing grounds.

The Waswanipi nation in northern Quebec says the province has failed to deliver on a three-year-old pledge by Premier Philippe Couillard to enter "meaningful discussions" to protect the pristine Broadback Forest. The area is home to old-growth trees, unspoiled rivers and wildlife such as woodland caribou and marten.

"It's the last remaining untouched area, so it's very important for the Waswanipi to protect it," said Ronnie Ottereyes, deputy chief of the Cree First Nation. "When we see everything else – the clear-cuts, all the devastation – it doesn't feel good."

Quebec and the Grand Council of the Crees signed a forestry management deal in 2015 after complaints that logging operations were harming the Cree's ancestral hunting and fishing territory. But the preserved area omitted a zone covering about one third of the Broadback, totaling some 3,500 square kilometres.

Since then, discussions with Quebec have barely edged forward, according to the Waswanipi nation. A new five-year forest management plan by the Quebec government, which took effect this year, has heightened concerns that forestry roads and logging will encroach on the Broadback Forest and river watershed.

Forestry operations have already affected most of the Waswanipi's territory, which is intersected by forestry roads. The Broadback Forest represents the last 10 per cent of intact boreal forest on the nation's traditional territory.

A Cree Nation official says roads are coming within 10 kilometres of the unprotected zone.

"They're at our door. It's a matter of time," says Michel Arès, head of the Forest Authority Department for the Waswanipi Cree. "We're talking about substantial wood harvesting."

The Broadback Forest is a cultural touchstone for the Waswanipi Cree, tying the community of about 1,800 people to its traditions, Mr. Ottereyes says. The Cree still fish, trap, and hunt moose and geese in the virgin forest and waterways.

“It’s important for youth to see that area. Everywhere else they go, they see trees being cut, and development. We identify ourselves within that land and the watershed,” Mr. Ottereyes said.

Forestry companies are abiding by a voluntary moratorium on industrial activities, but the province’s new forest management plan has increased concerns about environmental pressures on the land.

et

“We aren’t blaming the forestry companies – they’re not responsible for planning,” Mr. Arès said. “Management for the territory is in the hands of the government.”

Quebec’s Minister of Sustainable Development, the Environment and the Fight Against Climate Change says the government is in the final stages of designating a formal protection zone around the Broadback river. In a statement, a spokesperson for Minister Isabelle Melançon said a conservation plan is now the subject of consultations. It is not clear whether the plan addresses the Waswanipi Cree’s concerns.

The Cree’s cause has gained international attention. Canopy, a non-profit conservation group, has launched a global letter-writing campaign to the Quebec government pressing it to complete the protection area. The group, which works with corporate customers of forest products, including The Globe and Mail, says the Broadback Forest conservation area is key to biodiversity and the fight against climate change.

“The Broadback is the best opportunity for the protection in Quebec’s boreal forest,” said Nicole Rycroft, executive director of Canopy. “There is one last piece missing. The time is now.”

She said forestry companies are also eager to see the issue addressed.

“The lack of clarity has made it more complicated for all parties,” Ms. Rycroft said.

The Waswanipi Cree First Nation is about 800 kilometres by road north of Montreal, with hunting grounds extending hundreds of kilometres farther northwest.

Undiscovered Country

A year in the life of a newly off
the grid woodlot owner

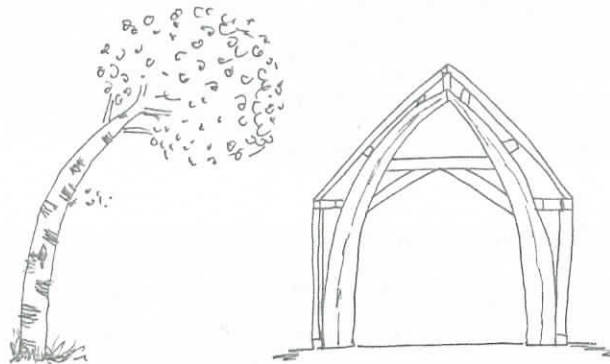
By David McGregor

The woodshed is filling up, the hot tap actually gives hot water, and we can cook indoors.

Part II – Crunch-time not Cruck-time

As our house nears completion we are already seeing a line of curious family and friends forming to see it and spend time with us there. While this is an exciting time, it is evidence that a guest cabin is equally as important as any other kind of storage space. After seeing what stick framing is all about, we are more convinced than ever that timber framing is absolutely the way to go for the next building.

While researching different post and beam frames I came across the traditional English cruck frame. This frame is built around a series of arches that are constructed from naturally curved timbers. They take a tree with the appropriate bend and split it in two. There are then two perfectly matched sides of naturally shaped arch. The rest of the frame is made of straight beams built out from these arches. The result is a cathedral like set of arched ribs that are truly one of a kind.



The cruck frame was a way to make use of otherwise unusable oak and elm timbers. We spent a few days surveying the woods in our area to see what kind of curves and angles our poplar and spruce have to offer. Though I've never walked an oak forest, I suspect that large curved trees might be more common there than in our boreal woods. It is counter-intuitive to wander around looking for the most unusually shaped trees as ideal building materials but it sure makes you see the woods differently, and we realized that mature trees with the correct curve are few and far between, let alone enough to construct 3-4 sets of arches.

Now, as fall shows up, and I look at the partially filled woodshed and the pile of siding yet to be put on the house I realize that it's crunch time, and not cruck time (yet). While the cruck is still on our radar, a more traditional frame is likely to win out.

Next time: The quest for the 8-hour burn.

How tree rings help measure Arizona's 'mega drought'

After a record low winter run-off, some water experts are now calling this Arizona's worst mega-drought in recorded history, even when compared to tree-ring data that goes all the way back to the 1300s.

Twenty-three years is the blink of an eye when it comes to tree-ring chronology, but, according to Charlie Ester with the Salt River Project, that's about as long as the current drought in Arizona has been ongoing.

"As we got into this more and more, it was just so persistent," said Ester. "We began wondering, how does this compare to what may have happened in the distant past?"

Several years ago, SRP teamed up with the University of Arizona Laboratory of Tree Ring Research and took to the northern Arizona forest, where the ponderosa pines gave them a glimpse into the last 700 years and, according to Ester, the last two decades have been the driest ever.

"The current 23-year period has gotten less run-off than any of those other periods. So in other words we are in the worst mega-drought that there is any data to support," said Ester.

Stream gauges have been providing researchers with measured data for the last 100 years or so, by comparing that data to strategically selected tree rings. UA's Dave Meko says they're able to crunch the numbers and get an idea as to what our rivers looked like centuries ago.

"We get them from the mountains where most of the run off is occurring," said Meko. "So it's almost like we're using the trees as substitute rain gauges."

Meko says they can get streamflow accuracy up to 70%, not bad for 700 years of data, but while it's good for looking into the past, it's not a great indicator of what's to come.

"As much as people want to see cycles in moisture, regular, dependable cycles, we don't see them," explained Meko.

That's why utilities like SRP are always looking ahead.

"The last day that our reservoirs are spilling water in a wet year is the first day of the next drought and if you plan that way, you're never going to be surprised by drought," said Ester.

Even in the midst of the worst 23-year drought, SRP reservoir levels are still around 57 percent full and Ester says they're ready even if it lasts another decade.

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Nature conservation on private land is essential but undersupplied – economic tools can help

Healthy ecosystems provide vital services to society at multiple scales ranging from local to global. For instance, bird and insect habitats provide pollination and pest control services to nearby landowners. Wetlands provide a host of benefits for local municipalities, including water storage, water purification and flood mitigation. And agricultural lands, forests and other areas provide carbon sequestration and biodiversity services which benefit people worldwide.

Private land plays an important role in providing ecosystem services, although less than 11% of Canada's total landmass is privately owned. Around 7% of Canada's total land area is under agricultural use, and approximately 11% of Canada's managed forests are privately owned – with private land supplying roughly 10% of Canada's harvested timber.

However, these ecosystem services are increasingly threatened on private land (especially in the case of agricultural land), and some of the environmental harms generated by agriculture are increasing. From 1996-2016, Canada's total farm area declined by around 5.6%. Water quality in Canada has also decreased from 1981-2011, due to an increase in pesticide and nutrient applications. And 13% of Canada's farmland has seen a net decrease in wildlife habitat capacity from 1996-2011.

If left unchecked, agricultural intensification, land conversion for urban expansion, climate change, and soaring demand for food and building materials due to population growth and a burgeoning global middle-class, will increasingly strain the ecosystem services provided by private lands. Public policy is needed to manage these pressures and make informed trade-offs.

The good news is that many landowners are motivated to engage in nature conservation – but they need the right information and support, as well as the appropriate incentives. These incentives could include land acquisition (purchase), payment for ecological service schemes, conservation easements, and tax incentives. Rewarding nature conservation on private land provides policymakers with a golden opportunity to enhance nature's services for the public benefit while ensuring viable livelihoods for private landowners.

Considerations for Policymakers

Although the decision about which ecosystem services to prioritize for investment needs to be informed by local processes and priorities, some general considerations can nonetheless guide decision-making and help policymakers improve outcomes. These include:

- **Prioritizing services and places with the potential for the highest impact** – beneficiaries need to prioritize amongst the services that are most important to them and negotiate trade-offs. Depending on the case, this information can be obtained through economic valuation methods or through a variety of non-monetary valuation methods and project prioritization tools.
- **Ensuring collaboration to tackle shared priorities** – each of these incentive tools requires collaboration among stakeholders such as private landowners, industry, ENGOs and governments. There are opportunities to leverage nature's services on private lands and provide shared solutions at multiple scales, including the [Municipal Natural Assets Initiative](#), the Canada-Ontario Lake Erie Action Plan, and the emerging market for carbon offsets in Canada's land use sector.
- **Choosing the right tool for the job** – incentive schemes are not a one-size fits all tool. Land acquisition, conservation easements, payment for ecosystem services, and tax incentives occupy different 'niches', and in many cases are meant to address distinct (but related) conservation challenges. Moreover, in some cases, extension programs, technology development, or negative incentives (taxes and penalties) may be more appropriate than incentive payments.
- **Implementing projects and programs as experiments, and learning by doing** – a critical mass of incentive schemes for nature conservation should be implemented as field experiments – or quasi-experiments – which clearly specify what would have happened in the absence of the project or program (ideally, through a control group).
- **Ensuring that a little trust goes a long way** – landowners wish to be recognized and rewarded for their stewardship, but in some cases they are apprehensive about government involvement (since it raises the prospect of future regulations of their land use). Cultivating a sense of trust among landowners through active discussion and outreach can go a long way towards making landowners receptive to incentive schemes.

Securing ecosystem services on private land is going to be difficult - but with the right support and incentives to landowners, we can ensure that ecosystem services on private land bring the greatest benefit to landowners and society, now and in the future.

Editorial

Jurgen

Global warming is here there is no doubt about it, when one looks at the the increase in temperature since 1948 as shown on the map of Canada of long-term temperature change, (*pg. 9 June Log Jam*) over the past 70 years. There is one thing that I have noticed in my woodlot over the past few years which is that the shrubs and the deciduous trees are becoming more numerous and larger. Even on my lawn there are hundreds of aspen new seedlings, is this because of warming or more carbon ? But for me the question is still there, which is - is the exhaust from my truck causing the global warming.

Up to this point in time I have been a fence sitter not knowing which side to get off on. The thing that I find is that global warming has become an industry everyone is trying to cash in on it. This makes me somewhat nervous for do all those who suddenly have become disciple know that carbon is the true cause of global warming. Or is it the sense of money, being politically correct, opportunity to be on T/V while demonstrating to save the world.

Off-course the identified cause has been the burning of coal and oil/gas which release carbon thus causing the world to warm - up, this is probably true - but is it the only cause?

Hold - it just a minute as only yesterday on the radio news they said that the livestock industry produces an equal amount of green house gases as does the fossil fuel industry. So whom do we hold to account, now you know why I am still on the fence. For the plot ever seems to thicken as we must consider the fossil fuel industry, the agricultural industry, and don't forget that we may still be coming out of the last ice-age which was only 10,000 years ago and there is still a lot of ice to melt from it on the poles.

The bright spot that I see as a fence-sitter is that T/V news watching will become much more entertaining. That is when the granola demonstrators from California and the Lower Mainland switch their campaign to the livestock industry. I envision one of the granola group telling a dusty wind bitten cowboy to sell all his cows, or the owner of poultry kill his 20,000 chickens. It gets even better they must shut down the dairy industry. Then convince the people of B.C. that they saved the planet by killing the largest industry they "had". and to enjoy their cereal with soya milk that the American will gladly sell them as they don't really need it cause they will continue to drink real cows milk, use butter, bacon, eggs and red meat.

Oh well they say that Tofu Burgers and a Grasshopper Tortilla are not so bad !!

New research calculates capacity of North American forests to sequester carbon

Researchers have calculated the capacity of North American forests to sequester carbon in a detailed analysis that for the first time integrates the effects of two key factors: the natural process of forest growth and regeneration, and climate changes that are likely to alter the growth process over the next 60 years.

The result is a compelling picture that's of great value, because forests play a critical role in mitigating the effects of climate change. Trees absorb carbon dioxide from the atmosphere as they grow, storing the carbon in their wood.

"There's a lot of hope that our forests will soak up the carbon dioxide we're producing, but the capacity of our forests is limited," said lead researcher Kai Zhu, an assistant professor of environmental studies at the University of California, Santa Cruz.

Zhu's team found that North American forests have reached 78 percent of their capacity to sequester carbon and will gain only 22 percent capacity—at most—over the next 60 years. That's a cautionary finding that has implications for forest managers, climate scientists, and policy makers.

Unlike previous attempts to quantify forests' capacity to sequester carbon, which relied on simulation models or satellite data, Zhu's findings are based on exhaustive, ground-based measurements of forests across the continental United States and Canada.

He analyzed data from 140,000 plots in the U.S. Forest Inventory and Analysis program and the Canada Permanent Sample Plots program to document the historical growth of forests and project their growth into the future. But he knew he couldn't produce an accurate forecast without also accounting for climate change.

"To do a good job predicting the future, we have to consider both factors—natural recovery and climate change that modifies growth—because both are important biologically," he said.

Zhu's predictions are based on a complex growth model that incorporates contemporary data from 2000-2016 and "hindcast" observations from 1990-1999. He then used the model to predict forest conditions under climate change scenarios in the 2020s, 2050s, and 2080s, before quantifying the extent to which current forest biomass approaches future biomass potential.

"We found that climate change effectively modifies the forest recovery trajectory, but the bigger factor is that overall forest growth is limited," said Zhu.

A best-case scenario

Zhu's findings represent the "best-case scenario," because they reflect idealized assumptions based on past forest performance and climate-change projections from the Intergovernmental Panel on Climate Change.

"The assumption was that existing forests will happily grow without future disturbances, but in reality, there will likely be disturbances," explained Zhu.

Such disturbances could include disease outbreaks, and wildfire and wind effects, as well as human-caused effects such as the loss of forests to development. Every time disturbances occur, it will reduce forest biomass, so the actual forest capacity is likely to be lower than the best-case scenario from this analysis.

"This is the first time wall-to-wall, ground-based data across North America was used," said Zhu. "We haven't had detailed knowledge about this carbon sink until now, so this is a starting point to think about the future."

The findings point to the need to protect North American forests and reduce deforestation elsewhere, said Zhu. "Reducing deforestation in the tropics is much easier than expanding forests in North America," he added. "That option is very limited."

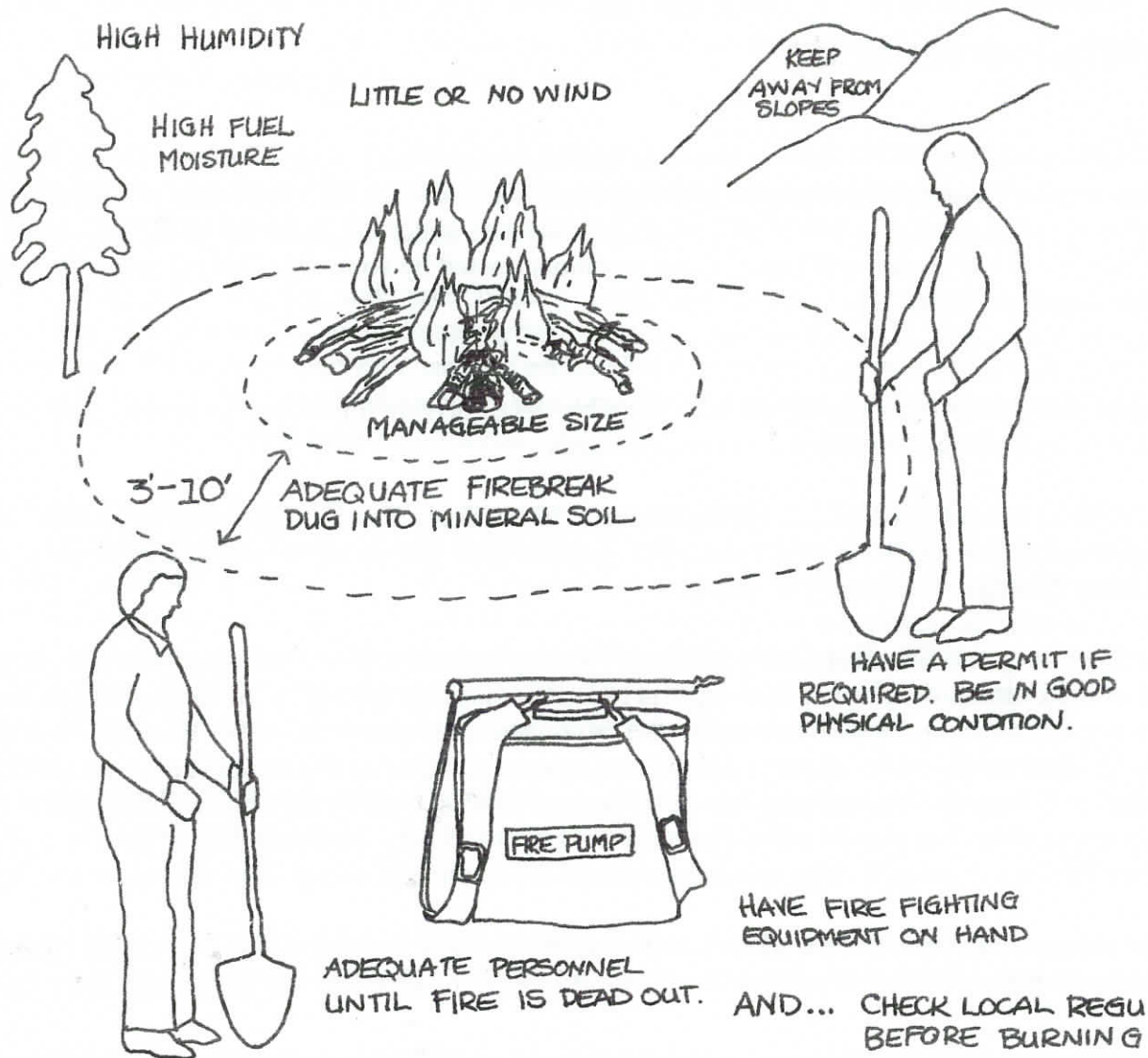
Forest recovery over the centuries

For Zhu, the past offered clues to the future. The backdrop of his work is based on the dramatic recovery of North American forests since the early 20th century following the removal of huge swaths to make way for agriculture, especially in the Northeastern United States. Better soils in the Midwest led to the abandonment of much of that cleared land, setting the stage for the recovery of forests.

"Forests in the Northeast have recovered in a pretty dramatic way: During the 18th and 19th centuries, more than half the forestland was cleared, but during the 20th century, forests returned. Today about 80 percent of the Northeast is forested," he said, also noting the high value of the big trees of the Pacific Northwest.

Today, however, North American forests are getting close to the saturation point as older trees plateau; future growth is primarily limited to the pine forests of the East and Southeast. "The future potential is pretty limited," said Zhu. "If mitigation depends on forests, this has implications for conservation that we have to think about."

FOR SAFE BURNING



Fighting a Fire

If wildfire strikes, the thing *not* to do is panic. The first thing to do is call those numbers you've posted by the phone. Then follow these procedures suggested by the California Department of Forestry, an organization with plenty of experience:

- Step 1. Size up the fire and decide on the best attack. Note the fire's speed and intensity and weather conditions. What direction is it moving and are there natural or man-made barriers ahead of it?
- Step 2. A. If possible, stop the main spread of fire at its head by digging or raking a firebreak, or fighting it directly with dirt and/or water if it's small enough. Then work on the flanks and the rear, completely encircling it with a fireline dug to mineral soil. Recognize that direct attack is very dangerous! Or...

B. If the fire head is too narrow to handle directly, attack the flanks rear and work rapidly toward head. Extinguish spot fires away from main fire.

- Step 3. When the fire is surrounded by otherwise contained, widen and in lines at the critical points, taking steps to prevent burning material rolling across the line. This can be making it into a ditch. Extinguish burning snags.
- Step 4. Take mop-up action. This means go through the burned over area patting out smoldering stumps, roots and particularly near the lines. Many come back to life when ashes are blown across the line or burned under roots.
- Step 5. Patrol the fire until it is dead out

Revisiting tenure: Managing competitive forests to supply a competitive industry

May 31, 2018 - Canada has 397 million hectares (ha) of forested land. Approximately 190 million (48 per cent) is considered to be suitable for long-term sustainable management for the production of timber, while 165 million ha (87 per cent) of that forest is publicly owned and managed under the authority of the provincial governments. Another 20 million ha (10 per cent) are private woodlots owned by some 450,000 rural families across Canada, with the average size 40 ha.

The balance, five million ha (3 per cent) is in large blocks of private forest land owned by a mix of private investors, forest products companies and pension funds.

The Allowable Annual Cut (AAC) is approximately 230 million m³ (165 million m³ of conifer and 65 million m³ of hardwood). This article, for the most part, excludes B.C. The structure and supply chain of the industry in B.C. has been different, due largely to tree size.

From the beginning, the Canadian forest products industry has been driven by export markets. Napoleon's 1805 blockade of the Baltic countries sparked exports to Britain. During the 1880s the sawmilling industry responded to market opportunities in the U.S. to support the rapid growth of towns and cities there. In 1911 the U.S. government lifted tariffs on the import of paper and opened the door to the establishment of a robust pulp and paper industry in Canada. The industry has been through several significant structural changes in products and the supply chain since those early days. The pulp and paper industry used roundwood almost exclusively until 1960, when the use of sawmill chips started to replace the traditional use of four- and eight-foot logs.

But in the provinces from Alberta eastward to Newfoundland and Labrador, it was not until 1985 that most of the wood harvested was delivered as sawlogs to sawmills instead of as pulpwood to the pulp and paper mills.

This transformation from the exclusive use of roundwood by pulp and paper mills to increasing use of sawmill residues brought benefits to the pulp and paper industry and the sale of chips brought a new revenue stream to the sawmills and enabled the growth of the lumber industry. The increasing use of sawmill residues by the pulp and paper industry resulted in a significant improvement in the utilization of harvested logs. Beehive burners disappeared.

Between 2000 and the present there has been a change in the demand for forest products in the global marketplace. The demand for paper products, particularly newsprint has declined, and demand for lumber has increased.

Fifty-eight of Canada's 141 pulp and paper mills have closed since 2000. Companies vacated many large forest management licences previously managed to provide wood for those mills. New forest products industries have been sought to undertake management of these lands and to support the economies of the forest-dependent resource communities. Two positive factors are:

- a new and growing market for wood-based bio-products including wood pellets for energy generation, primarily to replace coal and oil, and
- the manufacture of timber panels and engineered wood beams such as Cross Laminated Timber (CLT), Laminated Veneer Lumber (LVL) and a variety of wood-based panels.

The significance of these changes is the increasing dominance of the solid wood sector. The changes in the proportions of P&P and solid wood products are shown in Figure 2.

All sectors of our forest products industry declined during the recent recession (2006-2011). Specific high-impact factors were: the collapse of the American housing industry and the explosion of internet communications. The harvest levels fell from over 200 million m³ in 2005 to 116 million m³ in 2009.

Tree size is largely irrelevant to the pulp and paper industry. Logs large and small go into the chipper. But the size and quality of logs is important for manufacturing lumber and wood-based panels. Tree size is also the single most influential factor in determining harvest costs and production of lumber. (Figure 3.) The vast majority of logs are now delivered to sawmills. We should start to direct our forest management and silviculture to produce large diameter sawlogs — not small diameter pulpwood.

Silvicultural practices that control stand density to promote diameter growth and log quality are needed to grow timber for the solid wood industry. However, the time required to benefit from the results of silvicultural treatments to improve tree size and quality is longer than the term of the tenure contract for most provincial licences signed with forest companies. In both volume and area agreements, some companies can look back on many decades of management and operations on their licence area, but few can look ahead with confidence to the future 50 years or more of wood supply from the same area. There are two reasons for this: markets change/companies rise and fall; and governments change the terms of the agreements.

But the forest-dependent communities remain. Therefore — except for the post-harvest regeneration of their cut-over forest lands — the licencees have had no incentive to invest in silvicultural treatments to improve tree size and quality.

It has long been recognized by foresters that on any large area of managed forest there will be areas that have a combination of productive soils, good topography and access. These are referred to as “Prime Sites” and should

be the focus for silvicultural treatments to improve tree growth, size and quality. In Canada, there are two basic forms of tenure on provincial forest lands: volume agreements and area agreements. (Figure 1.)

Volume agreements: The provincial forest manager is responsible for the long-term forest management plan and allocation of areas for annual harvesting operations. Post-harvest regeneration may be the responsibility of the provincial manager or the company that harvested the timber. There is little to no incentive to promote growth or enhance tree quality.

Area agreements: These agreements are traditionally signed with a single forest products company. The company is responsible for the preparation of a long-term forest management plan, subject to approval by the province. The company is also responsible for all forest operations including post-harvest regeneration. While the licence may be for at least 25 years and renewable there is little evidence that companies managing area agreements have seen any incentive for long-term investment in silvicultural treatments to improve tree growth and quality.

At a conference in Quebec City several years ago Michel Vincent, economist with the Quebec Forest Industry Council, emphasized the difference between “profitable” and “competitive”.

Profitable is an accounting term. It reflects the short-term accounting difference between revenues and costs; it is easily measured.

Competitive is a term used by economists. It encompasses the long-term relationships between suppliers and customers and reflects the combination of raw materials, labour, international trade, capital and the ability to maintain modern productive mills; it is difficult to measure. Competitiveness results in long-term profitability.

It was agreed that a competitive forest is the foundation of a competitive industry. Resource-dependent communities also depend on the quality of the forest.

We believe that provincial forest management policy should focus on developing and maintaining our managed forests to provide a competitive forest to support a competitive industry and prosperous communities. What are the characteristics of a competitive forest that will provide a combination of long-term and renewable economic social and environmental benefits?

1. A healthy, productive, resilient and biodiverse forest.
2. A focus on improving timber size and quality appropriate to the needs of the industry and the marketplace for its products into the future.
3. Management that ensures the conservation and maintenance of wildlife and habitats, water quality and of other values such as landscape aesthetics and forest recreation.
4. A focus on the provision of long-term involvement and economic benefits to the forest-dependent communities, including First Nations.

There are several ways in which a competitive forest may be established and managed.

Tenure and governance are key aspects of this. The form of tenure should be a secure, long-term area agreement signed with a forest licence holder rooted in the communities and companies surrounded by and dependent on the forest they manage.

The form of management responsibility will depend on the location of the forest, the types of communities and forest industries involved and the nature of the forest itself — flexibility is required. Ideally, the forest management licence holder will be a company with a board of directors that includes representatives from local communities, First Nations, forest industry and other forest-based enterprises. In several provinces there is a move towards such arrangements. The objective is the provision of secure tenure to provide the incentive to support long-term planning, the identification of prime sites and investment in silvicultural treatments to promote the improvement of tree growth, size and quality.

There is increasing pressure from urban society and special interests to set forest land aside in protected status and “protect” it from management and harvesting. There is also increasing public demand for companies to have “social licence” in order to produce social and economic benefits from the management of our natural resources. In some provinces a proposal to replace volume agreements (managed by a government agency) with area agreements (managed by a forest products company) has been criticised as the “privatization” of public forests. Perhaps if forest tenure agreements were signed with forest management organizations — that includes municipalities, First Nations communities as well as forest companies and other forest-based enterprises — the establishment of a new type of area agreement might be met with greater acceptance by the general public and support from forest-dependent communities.

Wood you like a drink? Japan team invents 'wood alcohol'

Discerning drinkers may soon be able to branch out after Japanese researchers said Tuesday they have invented a way of producing an alcoholic drink made from wood.

The researchers at Japan's Forestry and Forest Products Research Institute say the bark-based beverages have woody qualities similar to alcohol which is aged in wood barrels. They hope to have their "wood alcohol" on shelves within three years.

The method involves pulverising wood into a creamy paste and then adding yeast and an enzyme to start the fermentation process.

By avoiding using heat, researchers say they are able to preserve the specific flavour of each tree's wood.

So far, they have produced tipples from cedar, birch and cherry.

Four kilogrammes (8.8-pounds) of cedar wood gave them 3.8 litres (eight pints) of liquid, with an alcohol content of around 15 percent, similar to that of Japan's much-loved sake.

Researchers experimented with both brewed and distilled versions of the new beverage, but "we think distilled alcohol appears better", researcher Kengo Magara told AFP.

Wood fermentation is already used to produce biofuel but the product contains toxins and is flavourless, making it far from a suitable cocktail component.

"But our method can make it drinkable, and with a wood flavour, because it does not require high heat or sulphuric acid to decompose the wood," Magara said.

The institute has a broad mandate for scientific study related to Japan's extensive woods and forests, but Magara acknowledged "wood alcohol" might not be the most obvious application for their research resources.

"We thought it would be interesting to think that alcohol could be made from something around here like trees," Magara said.

"It's a dream-inspired project."

The government institute aims to commercialise the venture with a private-sector partner and to have the lumber liquor on shelves within three years.

Managing forests delivers job, healthy environment

EGANVILLE – If Canadians do not actively manage our pristine forests, they are not only missing out on economic development but an opportunity to protect and preserve the environment for future generations.

That was the message that Derek Nighbor, CEO of Forest Products Association of Canada, delivered to the Renfrew County chapter of the Ontario Woodlot Association during their annual general meeting last Saturday at the Eganville arena. The former Liberal candidate pointed out there is a misconception that harvesting of forests is bad for the environment.

“The understanding of the role forestry can play not only in delivering good jobs but the environmental benefits like renewing habitat for wildlife, to preserve watersheds and to ensure the managing of pests,” said Nighbor. “This is a call to action. We really need to be managing our forests more carefully and those groups that want us to stop managing the forests make that recommendation at their peril.”

Harvesting is not wrecking the havoc that some groups would have you believe. Canada has 347,069,000 hectares of forests, of which 24 million are protected. In 2015, about 779,577 hectares were harvested representing 0.5 per cent. In comparison, 17,631,825 hectares, or five per cent, were damaged by insects. Last year, one million acres were lost in British Columbia to fire, said Nighbor, while the mountain pine beetle has claimed 65 per cent of the pine trees in that province. In New Brunswick, emerald ash bore continues to plague some forests.

There are benefits in the emerging bio-economy but Nighbor explained that the forestry industry faces other challenges including the softwood lumber dispute with the U.S., and the lack of rail service and trucking to get products to market. He added that the industry is willing to work to mitigate climate change although many will sometimes disagree on the solutions.

“The one thing I have been saying to the Liberals in Ottawa and in Toronto is that the people who oppose a carbon tax aren’t climate changer deniers,” said Nighbor. “We are reminding governments in Ottawa and Ontario that we are all about ecosystems and the entire forest.”

While there is need for interventions to support species at risk, Nighbor said there has been a comprehensive approach taking into consideration how policies will affect other species, the ability to fight fires, and mitigate carbon and risks to climate change. He added that Canadian foresters provide third-party assurance that their forests are managed under the standards of sustainable forest management. In fact, 37 per cent of Canada’s forests are certified, a number that far exceeds Russia, at 11 per cent, and the U.S., at nine per cent.

"We can be proud in Canada of how we do that," said Nighbor. "As we are competing in global markets I will stack our record up against Russia or Brazil in terms of how careful with the environment."

In 2015, more than 574 million seedlings were planted in Canadian forests. The forestry industry contributes \$23.1 billion to Canada's gross domestic product employing 211,075 people in 2016.

"We have a working forest in Canada," said Nighbor. "These are forests that not only provide good jobs, they provide environmental benefits, trails for snowmobiling and recreation. There are huge benefits and side benefits"

City trees suffer from not getting enough sleep

Streetlights and other city circumstances lead to poor health and prevent urban trees from being all that they can be.

From the "Trees, They're Just Like Us!" department, my favorite forester has weighed in on an issue I have long suspected: Urban trees, like much of the natural world, have a hard time when the lights are left on all night.

"They also have to sleep at night," Peter Wohlleben told the audience at the Hay Festival of Literature in Wales. "Research shows that trees near street lights die earlier. Like burning a lamp in your bedroom at night, it is not good for you."

And if anyone knows trees – and embraces anthropomorphising them – it's Wohlleben. The German forester and best-selling author doesn't shy away from talking about trees as if they were people. "I use a very human language," he says. "Scientific language removes all the emotion, and people don't understand it anymore. When I say, 'Trees suckle their children,' everyone knows immediately what I mean."

A paper published last year in the Journal of Ecology said there was evidence that artificial light affected the timing of "spring budburst", leaf colouring and abscission (the shedding of dead leaves). This study concluded that changes in trees' annual rhythm of producing leaves and blossom attributed to artificial light "may have significant effects on [their] health, survival and reproduction".

Wohlleben states the obvious when he says that councils should turn off streetlights at night to help urban trees be healthier and live longer, as well as to save electricity. (The other benefits of reducing light pollution are legion (<https://www.treehugger.com/conservation/5-types-light-pollution-and-their-impact.html>), including the opportunity for us skygazing humans to enjoy the age-old pleasure of pondering the heavens (<https://www.treehugger.com/conservation/losing-nighttime-sky-light-pollution.html>) ... and seeing actual stars while we do so.)

Other challenges faced by city trees include the fact that they are like orphans, Wohlleben says, striving to grow but doing so without the support system of their neighbors – a recurring theme for Wohlleben who has shown how trees in the forest are social beings (<https://www.treehugger.com/natural-sciences/trees-forest-are-social-beings.html>).

“Urban trees are the street kids of the forest,” he says, adding that their roots struggle in the harder soil under sidewalks. If that weren't enough, they are also warmed at night by radiated heat from streets and buildings, unlike forests which cool down. They are deprived of the shared forest microorganisms that help them collect nutrients and water, and that they can be poorly attended to by city workers.

Meanwhile, these silently stalwart organisms of the streets do so much for us in return. As Mat McDermott wrote here earlier while singing the praises of trees (<https://www.treehugger.com/natural-sciences/beat-the-heat-5-amazing-benefits-urban-trees.html>):

- *The net cooling effect of a single, young healthy tree is equivalent to 10 room-sized air conditioners, running for 20 hours a day. 10 air conditioners, a single tree!!*
- *A tree planted today on the west side of your house will result in a 3% energy savings in the five years time, 12% savings in fifteen years.*
- *A single stand of trees reduces particulate pollution 9-13%, with the amount of dust reaching the ground beneath those trees 27-42%, versus in an open area.*
- *If you have trees on your property near your home it accounts for 10-23% of your home value.*
- *In urban areas, assuming the cost of planting and maintaining a tree for three years at \$250-600, it will return \$90,000 in direct benefits over its lifetime (apart from beautification, etc.).*

KERR FAMILY WOODLOT - RENEWAL AND RISK REDUCTION

By Gordon Kerr

The Kerr Family woodlot has been managed since it was purchased in 1950. Prior to purchase it was in the process of being logged for mine props and small dimension lumber. As might be expected timber was felled by axe, skidded by a team of horses and logs not used for props were being processed by a steam tractor driven portable sawmill. This was a high grading operation taking only the best and largest Lodgepole Pine. Not the process which should have been used as it left the remaining trees widely spaced resulting very limby stems.

When I first observed the property in 1960 it consisted of widely spaced small pine and an under-story largely made up of hazel. I was not impressed with this abused forest. My father-in-law had purchased the property while in early in the logging. He wanted a place to grow timber. He didn't get what he expected.

As the 1960's, 70's and 80's moved along the trees grew rapidly and in time shaded out most of the hazel. The origin of the forest was from a late 1800's fire resulting in about 90% Lodgepole pine, a few scattered White Spruce and perhaps 20 of the 160 acres in aspen. By 1985 the stand was approaching 100 years old. Thinking that there wasn't much practical to be done with the woodlot as I found it, now seemed of greater attraction with increased numbers of deer elk and moose. Nesting Great Grey Owls and other birds were a source of enjoyment. Following a rough plan to develop greater diversification we decided to undertake some manipulation through harvest and trail development.

Fence lines were cleared and logs salvaged sold to a local farm sawmill. Old trails were reopened and some pickup truck usable travel roads developed. A survey was conducted to determine stand age and distribution. Most of this work was undertaken by family members. Fencings to exclude grazing was the largest expense but the limited log sales paid for that.

Over the following 5 to 6 years small clearcut logging was under taken with 7 cut plots amounting to about 12 acres. Prices over time varies progressively, from \$5 to \$15 and at the peak as high as \$95 per ton on

the stump. Logging, skidding and haul costs covered by the British Columbia purchaser. The latter values were more than encouraging and made us expect the same forever.

The housing market bubble bust in the USA also beat up log prices in Canada. Added to that was the flood on the market of Pine Beetle killed pine from British Columbia and later increased pine allocations to counter beetle spread from Alberta. The "give away costs" of public timber made logging uneconomical on private farm woodlots. We tried to wait out the over-supply of pine timber. As timber prices went to Hell in a handbasket even large-scale lumber companies shut down or at least cut back to minimal working hours while demand was so low even though cheap public timber from areas harvested to control Pine Beetles private sales were hardly more than break even. No timber price recovery was foreseeable through 2015 or 2016. We explored markets as our forest was continuing to age and we were experiencing loss from old age. Blowdown was increasing and with Pine beetles only 40 miles away at Canmore; we concluded in late 2016 that extensive logging had to be undertaken in the winter 2016-17 regardless of price. It was take it or lose it.

Our trees were old and many past mature, (130 to 150 years old) no longer growing, as well as suffering increasing direct losses. We were lucky to have avoided a Pine Bark Beetle outbreak as for a number of years. How long can one continue to ignore the wrath of Mother Nature. Our earlier plans to harvest small areas every 10 to 15 years had proven economically unfeasible. Even larger clearcut harvests than we had done would have left the remaining pine at increasingly high risk of major loss.

A decision was reached to take the pine or lose it. Additionally, over the past twenty or more years the natural succession to White Spruce had developed an increasing understory of 0.3 to 3-meter saplings while the small number of older ones had commenced to produce a considerable amount of seed. On a post-chinook wind with crusted snow spruce seed had drifted over a half of a mile from fence-line to fence-line. Natural succession was moving on and in the process of changing a pine forest to a White spruce forest. We decided to go with the flow, and in a way start our forest over. As a result, we had all pine of commercial value harvested and sold to a nearby commercial sawmill. A few larger White Spruce which were isolated, and thus susceptible to blowdown, were also

taken. All other spruce and smaller saplings as well as all aspen were retained as a cover-crop for spruce and as wildlife habitat. All slash was piled for burning in future.

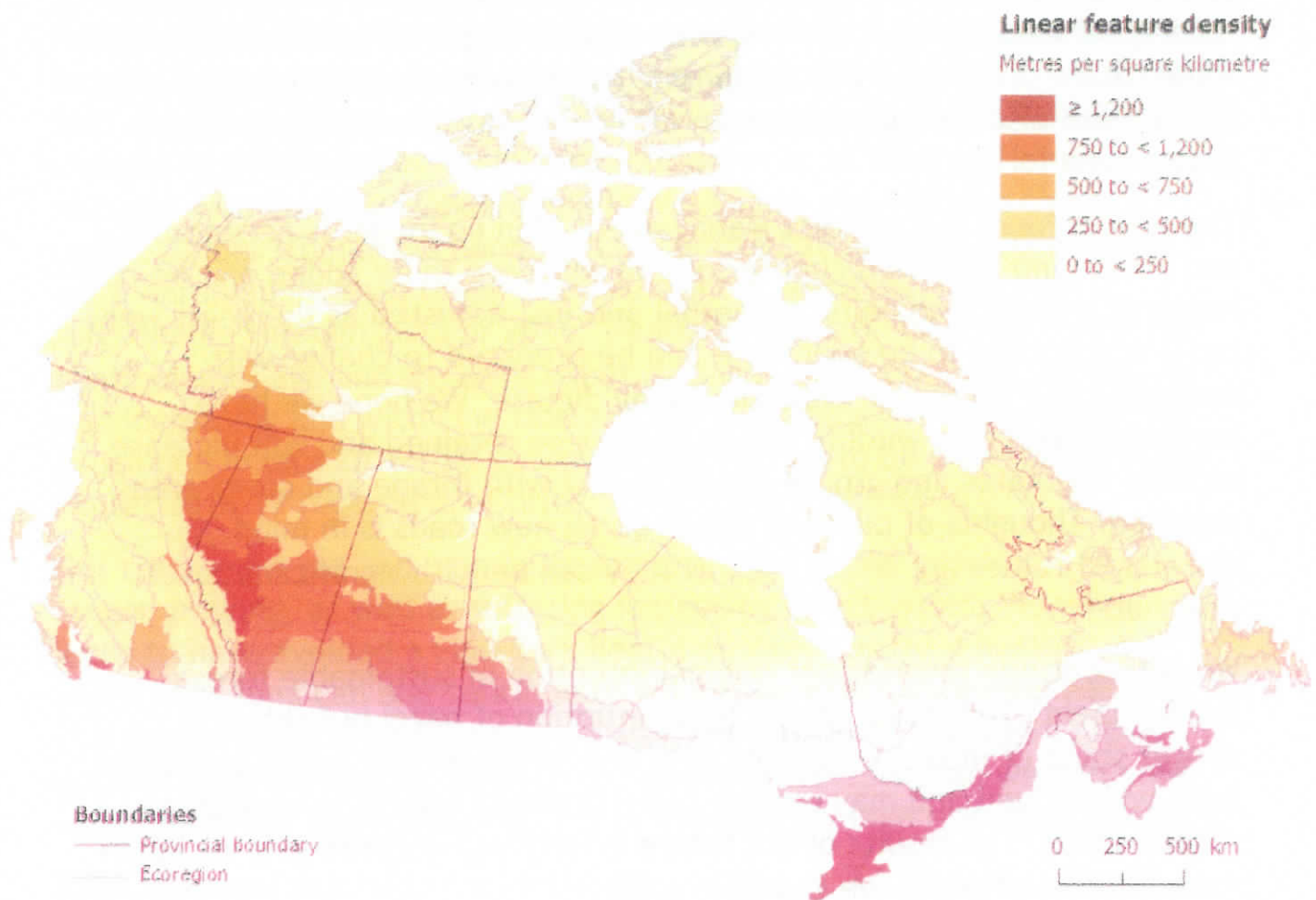
Harvest was undertaken while the ground was not fully frozen; surface thawed; and by track vehicles resulting a substantial amount of shallow surface soil disturbance but seemingly little compaction. We are hoping for a good seed set to assist in spruce regeneration. A need for at least some future seeding and/or replanting can be expected. Some light grazing will also be organized in an effort to reduce competition from grasses and forbs.

The now defunct old Woodlot Management Plan no longer is acceptable and a new and improved chapter or two will have to be added on. We had hopes of the old plan being perpetual and just adjusted as the years went by. It is now time to be adaptable and be prepared to change with economic and ecological conditions may dictate. We hope we have harvested such that wildlife values have been retained and will increase rapidly. Ungulates and grouse should love it with forage and cover areas retained. Thoughts of planting clover on all new roads is in mind. Watershed values are intact such as they can be with significant cover removal.

We will continue towards our original intention of sustainable forest management. There should not be an eruption of hazel but rather a denser stand of mixed Lodgepole pine and White spruce. Aspen stands we hope will do well and may require some firewood efforts to encourage regeneration. The results of our future efforts will determine if we again have a forest of which we can take pride.

The neighbours on both sides of us have followed our move in harvesting the old pine. Economically it makes sense but I wish we had harvested first so more ungulate cover/habitat was right next door for a few years. Oh well, we all shared each other's thinking and we all got a better price as a result.

Linear feature density by ecoregion, 2011



Notes: Linear feature density refers to the density of roads, rail lines, electrical transmission lines and outlines (e.g., from seismic lines and firebreaks), measured in metres of linear features per square kilometre. Other infrastructure such as pipelines are not included. Data are aggregated into 194 ecoregions of Canada ([Ecological Land Classification 2017](#)).

Sources: Statistics Canada, Environment, Energy and Transportation Statistics Division, 2018, special tabulation of Natural Resources Canada, 2012, *CanVec*, Earth Science Sector, Mapping Information Branch, Centre for Topographic Information, <http://www.geograds.gc.ca> (accessed October 9, 2017); Statistics Canada, 2013, "Measuring ecosystem goods and services in Canada," *Human Activity and the Environment*, Catalogue no. 16-201-X.