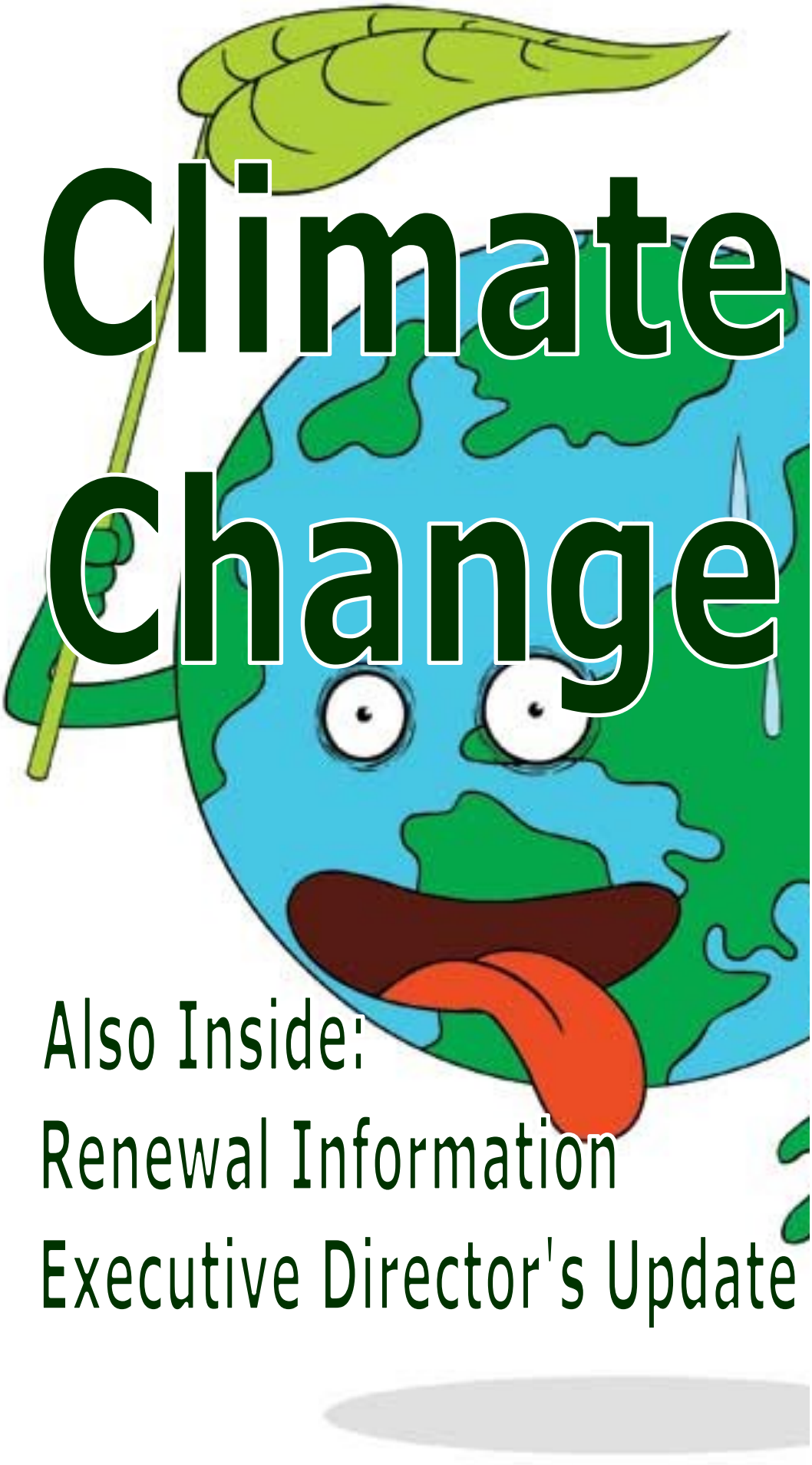
The Professional Forester

Number 223

The official publication of the Ontario Professional Foresters Association

September 2016

Climate Change



Also Inside:

Renewal Information

Executive Director's Update

What's Inside...

every issue

this issue

want to place an ad?

Located under *Classifieds* on the OPFA website and in *The Professional Forester* you can find postings of available employment opportunities. You may also post your resume for potential employers to view on the website.

WEBSITE RATES:

Employment Opportunities	$60
Personal Resume	$60

NEWSLETTER RATES:

For a schedule of rates please contact the OPFA office at opfa@opfa.ca.

www.opfa.ca opfa@opfa.ca

Ontario Professional Foresters Association
5 Wesleyan St., #201
Georgetown, ON L7G 2E2
905-877-3679 or opfa@opfa.ca

EDITOR
Caroline Mach, R.P.F.
newsletter@opfa.ca

EDITORIAL BOARD
Eric Thompson, R.P.F., Chair
Sarah Bros, R.P.F., John Harvey, R.P.F., Caroline Mach, R.P.F., Jim McCready, R.P.F., Lauren Quist, R.P.F., Tony Ritchie, R.P.F. (Ret.), Mike Rosen, R.P.F., Matt Wilkie, R.P.F.

EXECUTIVE DIRECTOR
Fred Pinto, R.P.F.

REGISTRAR
Susan Jarvis, R.P.F.

The Professional Forester is published quarterly by and for members of the Association, as well as those interested in the profession of forestry in Ontario.

Unless specifically stated, views and opinions expressed do not necessarily represent those of the Association, its Council or the employers of members.

Printed in Ontario, Canada

Climate Change From a Government Perspective

Tony Ritchie, R.P.F. (Ret.)
Executive Director, Inspection Support,
Canadian Food Inspection Agency

he last federal budget (Budget 2016) represented a significant shift in the federal government's priorities and focused a portion of the spotlight, at least for the time being, back on the environment. An innovative and clean economy, including a focus on climate change, is one of five priorities listed by the federal government with identified funding for the coming years. What is important, however, is the impetus any federal action has on provincial and territorial activities. In this case, the federal budget has identified some $2B over two years to establish a Low Carbon Economy Fund to support provincial and territorial actions that reduce greenhouse gas emissions.

The lead federal department is Environment and Climate Change Canada. The most direct way to access information is through Climate Change Canada's website (climatechange.gc.ca.). It is a great website with a large focus on getting people engaged through conversation and action. Excellent resources are available for kids, teachers or the general public wishing to learn more about climate change and/or initiate or be part of a conversation on the subject. Of particular interest is the ability for the general public to submit ideas that the federal-provincial-territorial governments can take into account as they roll out their collective strategies. At last count, some 4,000 participants have submitted approximately 3,000 ideas and 8,800 comments. No guarantee anything will come out of it, however, the opportunity to be part a larger national dialogue on the subject has definite merit.

The Ontario Budget 2016 builds on the federal budget (and federal funding) by placing a priority on investing in a low carbon economy. The Ontario five-year climate change action plan contains about eight action areas where the provincial government will advance programming. Of particular interest is the action area aimed at achieving sustainable and productive agriculture and forest lands through increased understanding and maximizing carbon storage. The latter bodes well for protecting grasslands, ensuring long-term soil health and increasing tree planting with a commitment to double the number of trees planted within municipal boundaries. Again, as with the federal plan, it is great to see an enhanced focus on the environment once again. Hopefully, we will get beyond the dialogue stage to seeing more committed action on the ground at provincial levels.

Lastly, from my own perspective, I had the wonderful opportunity to participate as a judge on this year's North American Envirothon, held in Peterborough, Ontario this past July. With a focus on invasive species, school teams from across North America competed for a place as one of the top three teams in demonstrating their understanding of how to manage the impacts of an incursion from an invasive species (Asian carp was the challenge). The quality of the presentations and the level of understanding from the students was absolutely phenomenal, and in fact, quite humbling. They get it – they understand what it means to work collectively across jurisdictions and generational divides. With a Prime Minister willing to reach out to youth and bringing his provincial-territorial colleagues along with him, we may indeed be on the road to something transformational. Let's see where it goes by renewing our engagement as professionals, mentoring where we can those that follow and freely extending helping hands where needed.

Members: New Competency Reporting Requirements Now in Effect

As a regulated profession members (Full, Associate and Non-Resident) need to document the maintenance of their competencies.

You can inform the OPFA that you have, and are, maintaining the necessary information through the use of the Competency Support Report that will be mailed to you with your annual renewal information.

A fillable electronic version of the Competency Support Report is available on the OPFA website. More information on these changes on page 28 of this newsletter.

Urban Forests and Climate Change

Michael Rosen, R.P.F.
Tree Canada

The services provided by urban forests - environmental, economic and health are well documented. As our urban population approaches 85% there is little need to convince most Canadians (and Ontarians) of the importance of urban forests, and the need to ensure their existence in terms of climate change. These changes are likely to have immediate and long term impacts. Storm damage is particularly problematic as it can uproot trees and lead to branch loss which affects tree health and can allow greater insect and disease activity. Floods, droughts, and sea level rises will all lead to greater tree mortality. Long-term impacts include changes in plant phenology (timing of seasonal events, such as flowering and leaf unfolding) and changes in species composition. It's not all negative as some tree species will be better suited to future climates, and increasing levels of carbon dioxide will probably have a generally positive effect on plant growth. Temperature, though, will be the major driver of the species composition of the future urban forest where small increases are likely to result in some species declining or becoming more difficult to establish, only to be replaced over time by other species.

The *urban heat island* is a universal phenomenon affecting cities, typified by the removal of vegetation reducing shading and transpiration coupled with the creation of impermeable surfaces such as concrete and asphalt leading to an unnatural water deficit problem due to the conveying of surface water for stormwater drainage. Heat islands absorb heat during the day and release it overnight. Loss of tree canopy due to climate change will increase the urban heat island effect, leading to additional temperature increases beyond those predicted by climate change alone. This could in turn exacerbate the effects of temperature stress on vulnerable species. These combined effects mean that some native tree species that were well adapted and may have been successful urban trees historically, are less likely to perform well in the future.

The changes to the urban forest will have a number of important implications for management including: increased tree removals, pruning, watering and planting in response to damage, decline, and mortality. Trees that have performed reliably in the past may no longer do so under future climates. Many urban wildlife species that are dependent on specific tree species or tree characteristics (e.g. acorns or cavities) may become less common. Genetic diversity within species will also provide some protection from the effects of climate change. Much of Canada's urban forest planting comes from large U.S.-based growers whose stock comes from southern seed zones. Some of those same growers also use clonal plant materials due to advances in nursery production techniques. While the use of this plant material may provide uniform results (or may not) in present climates, it may lead to uniform decline and failure in future climates. We tend to judge species based on past performance. Species that have been reliable in the past may not be in the future and vice versa. Being able to recognise these changes is critical to being able to adapt to them.

Ironically, when properly situated, healthy urban forests can mitigate the negative effects of climate change through their shading abilities in the summer and windbreak abilities in winter. This in turn can significantly reduce the heating and air conditioning costs (by 15%-25 %!).

Tree Canada is promoting the human health benefits of urban forests with respect to adaptation/mitigation to climate change and is currently involved in reviewing Health Canada's Climate Change and Innovation Bureau's Review Committee *Health Benefits of Urban Forests* synthesis paper.

Tree Canada has also launched the Healing Trees program, promoting the health benefits of urban forests within the context of health care facilities, especially mental health facilities. Tree Canada is currently seeking new funding sources to relaunch the program as there is renewed interest in the general public to appreciate the health benefits of urban forests.

How Will Climate Change Affect Forest Fire Management in Ontario?

David L. Martell
Professor Emeritus
Faculty of Forestry,
University of Toronto
david.martell@utoronto.ca

When I began studying and teaching fire and forest management planning in the 1970s, I and those I collaborated with took for granted, the "need" to suppress all the fires that occurred in the intensive fire protection zone of the province of Ontario, and we did not feel it was necessary to incorporate climate change in fire and forest management planning. How times change!

We know the planet is warming (IPCC, 2014). Atmospheric scientists can predict how the climate will change in the future and forest fire scientists can use such information to predict how fire regimes will be influenced by such changes. Flannigan et al. (2009) for example, is a comprehensive review of climate change and fire from a global perspective and more recently, Wotton et al. (2010) reported on their use of climate change projections to model both human and lightning-caused fire occurrence in Canada by ecoregion. The consensus is (see for example Colombo et al., 1998 and Colombo, 2008) that climate change will result in longer fire seasons with more fires occurring in the forested areas of Ontario. The warmer climate is also expected to increase storm damage and insect and disease mortality. Such changes in the forest fuel complex together with the direct impact of the warmer climate on fire weather are expected to result in an increase in the intensity of the fires that do occur and to result in more area burned, particularly in Northwestern Ontario.

Ontario's forest fire management program dates back to the late decades of the 19th century when a number of disastrous fires swept through northern communities and killed hundreds of people. That led to the development and implementation of a fire exclusion policy, the primary objective of which was to exclude fire from much of the province's forests. Fire exclusion drove fire management policy in Ontario until the 1970s when growing recognition that fire is a natural ecosystem process that need not be excluded from the forest contributed to policy changes that culminated in the OMNR's 1982 Statement of Policy (OMNR, 1982) which included explicit recognition that one of the objectives of Ontario's fire management program was "to utilize the natural benefits of fire in achieving ministry objectives for land and resource management".

In 2004 the then Ontario Ministry of Natural Resources' new Forest Fire Management Strategy for Ontario re-partitioned the OMNR's earlier Intensive, Extensive and Measured fire protection zones into eight new zones in which the level of protection and fire management effort varied based on social, economic and ecological objectives. More recently, the Aviation Forest Fire and Emergency Services (AFFES) Branch of the Ontario Ministry of Natural Resources and Forestry (OMNRF) adopted a new Wildland Fire Management Strategy that "moves away from the previous zone-based approach to one where each wildland fire is assessed and receives an appropriate response according to the circumstances and condition".

Fire management policy and practice are influenced by many factors including public attitudes towards forest resources, community and infrastructure protection needs and government fiscal realities. It's difficult to predict how the future will unfold, but my opinion concerning what might happen is that the OMNRF will gradually transition from its recent practice of, for the most part, excluding fire from much of the old Intensive fire management zone and observing fires that did not pose a threat to public safety in the old Extensive protection zone, to tailoring the response to each fire that is reported as envisaged in the new 2014 Wildland Fire Management Strategy - and climate change will have a very significant impact on what takes place during that transition phase and beyond.

Fiscal realities and the recognition that fire is a natural ecosystem process reflected in the new strategy will force fire managers to exercise more discretion when deciding how to allocate their fuel management, fire prevention, detection and suppression resources, one result of which will be more smoke and more area burned.

Public safety, infrastructure protection and the protection of industrial fibre supplies will remain paramount, but fire management priorities will vary across the landscape to the extent that fire exclusion will continue to be practiced in some areas, fire will be allowed to play its natural role in many areas and fire management priorities will vary across a very broad spectrum between those two extremes.

More effort will be devoted to FireSmarting communities and carrying out fuel treatments on the landscapes in which they are embedded to reduce threats to those communities and isolated structures such as camps and cottages and remote tourist facilities.

Fire managers that in the past relied primarily on their knowledge and experience augmented by current and forecast fire weather and fire behaviour predictions will be called upon to resolve more complex decision-making problems under much more uncertainty and subject to more risk than was the case when they practiced fire exclusion in the old "zone based" world. My hope is that the fire science and technology and the decision support systems upon which they will increasingly have to rely will be up to the task.

Literature Cited

Colombo, S.J., M.L. Cherry, C. Graham, S. Greifenhagen, R.S. McAlpine, C.S. Papadopol, W.C. Parker, T. Scarr, M.T. Ter-Mikaelian and M.D. Flannigan. 1998. The impacts of climate change on Ontario's forests. S.J. Colombo and L.J. Busse, Editors. Forest Research Information Paper No. 143. Ontario Forest Research Institute (OFRI), Ontario Ministry of Natural Resources, 1235 Queen St. E., Sault Ste. Marie, Ontario. 56 pp.

Colombo, S. J. 2008. Forests and forestry in a changing climate. Climate change research report; CCRR-12. Applied Research and Development, Ontario Forest Research Institute, Ministry of Natural Resources, Sault Ste. Marie, Ontario. www.climateontario.ca/MNR_Publications/276928.pdf

Flannigan, M. D., Krawchuk, M. A., de Groot, W. J., Wotton, B. M., & Gowman, L. M. (2009). Implications of changing climate for global wildland fire. International Journal of Wildland Fire, 18(5), 483-507. doi:10.1071/wf08187.

IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

Ontario Ministry of Natural Resources, 1982. Forest fire management policy: A statement of policy by the Ministry of Natural Resources governing forest fire control and use in Ontario. AFMC #126 – April 1, 1982.

Wotton, B. M., Nock, C. A., & Flannigan, M. D. (2010). Forest fire occurrence and climate change in Canada. International Journal of Wildland Fire, 19(3), 253-271. doi:10.1071/wf09002

Canadian Forest Service Fire Researcher Flies High Over Alberta

Jessica Portelli-Ward, Dr. Joshua Johnston, Stan Phippen R.P.F. (O.N.), and Fiona Ortiz

After a mild winter followed by record-setting warm temperatures in early May, the forests of northern Alberta were tinder dry, creating ideal conditions for wildfires. On May 1, 2016 a small wildfire was discovered southwest of Fort McMurray and despite concerted efforts from firefighting crews, it grew quickly in size and intensity. When first detected it was two hectares in size, but grew to over 2,600 hectares in just two days and to over 10,000 hectares by day four, according to estimates by Alberta Agriculture and Forestry. The fire displayed extreme behaviour and intensity and surpassed the devastating fires that occurred in Slave Lake, Alberta in 2011. The mandatory evacuation of tens of thousands of residents in communities such as Fort McMurray prompted a state of emergency in the area and gained international attention.

Because the quickly spreading fire could not be contained, smoke began to settle and remain low in the atmosphere, creating further problems for fire managers. The thickness of the smoke prevented helicopters and small aircraft from flying near the fire at times to observe and map its behaviour. An aircraft equipped with infrared scanning was needed to see through the smoke to map out the hotspots and fire perimeter. A compounding issue was that it was so early in the season, none of the contract aircraft had yet been hired.

Fortunately, Transport Canada (TC) offered the services of a fixed-winged aircraft that was being used by Environment Canada and Climate Change (ECCC) crews for mapping sea ice conditions and conducting maritime surveillance. The aircraft was fitted with infrared equipment and other sensors that could be adapted for use in mapping the fire. Dr. Joshua Johnston, a forest fire analyst with the Great Lakes Forestry Centre in Sault Ste. Marie, Ontario, was called in to assess the plane's ability to provide fire managers in Alberta with the information they needed and to share his knowledge and expertise in fire behaviour and remote sensing.

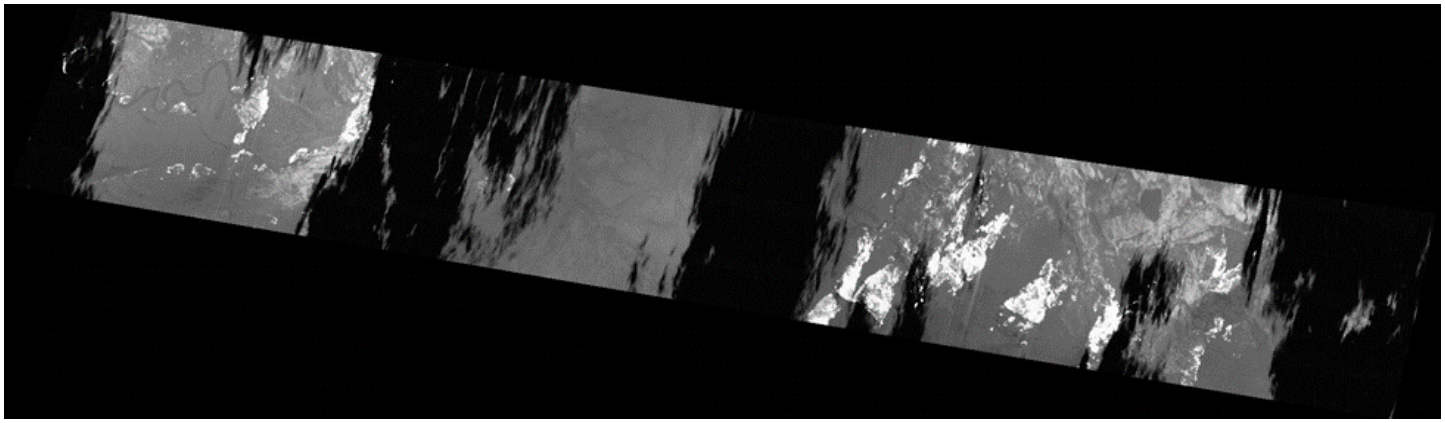
Dr. Joshua Johnston waits to board the fixed wing infrared sensor aircraft in Edmonton, bound for Fort McMurray, Alberta, May 2016. Photo Credit: Bo Lu, Natural Resources Canada, Northern Forestry Centre.

Josh accompanied the crew and worked as a liaison to the fire world, as well as the safety advisor. By flying daily over the fire and utilizing the infrared technology, the crew was able to map hotspots near the community. Josh also gained valuable research data that demonstrated that it was possible to measure flame front rate of spread with this type of aircraft.

In the wake of the devastation that tore through northern Alberta, NRCan is now working with TC as well as ECCC to conduct research to improve their aircraft's functionality for collecting real time fire behaviour intelligence. The collaboration aim is to improve the utility of this system and improve the value of all airborne infrared imagery collected over wildfires.

Smoke cloud shown above Fort McMurray, Alberta, May 2016.
Photo Credit: Bo Lu, Natural Resources Canada, Northern Forestry Centre

Image of a pyro-cumulous cloud (a thunderstorm type cloud formed by an aggressive smoke column during a wildfire). Though the smoke is thick, with infrared technology, scientists can see straight through to the fire.



Infrared scan imagery of the Fort McMurray wildfire. Black areas are clouds while white areas are hot spots from the wildfire. The image was taken during the day and the flame front was actively moving. Dr. Johnston and crew flew the same spot twice a few minutes later and they were able to map the change in the flame front location.

Problematic Pine Beetles: How Climate Change is Contributing to the Spread of Invasive Species

David Nisbet, M.Sc.
Invasive Species Centre

The chaos of climate change is sure to challenge Canada's forest industry for years to come. On the landscape, specific combinations of temperature, sunlight, and moisture combine with geographic and geological factors to create Canada's unique ecozones and forest regions. As the climate changes in an area, this system is thrown off balance. Changes in annual mean temperature and precipitation along with alterations to the frequency and intensity of drought, fire, hurricanes, windstorms, and ice storms are likely to transform forested areas across the country.

One of the more inconspicuous results of climate change may be the increase in establishment and spread of invasive species. This could happen through a number of mechanisms, including the following: novel climate conditions may enable the establishment of a non-native species that could not survive under previous climate conditions, or a pre-existing pest may emerge as a more serious threat, developing into a damaging invasive species under more favourable climate conditions (Hellman et al., 2008). To illustrate this we will draw on examples of two similar invasive species that threaten Ontario: the mountain pine beetle, and the southern pine beetle.

Climate change may result in warmer winter temperatures in some regions of the country. The spread of many forest pests – both native and invasive – is currently limited by winter temperatures. For example, up to 98% of the mountain pine beetle (MPB; *Dendroctonus ponderosae*) population is normally killed when winter temperatures persist at -40°C in Western Canada. However, with recent warmer winters and hot, dry summers, coupled with a history of fire suppression programs and other anthropogenic factors, the MPB population has been growing rapidly. The range of this beetle now extends further north in British Columbia and further north-east in Alberta than ever before. This species, native to British Columbia, is now considered invasive in other regions of the country as it spreads eastward into the boreal forest. The MPB situation in Western Canada has also resulted in an excess supply of low quality and low priced pine timber salvaged from affected forests. The depressed lumber prices resulted in increased softwood lumber tariffs imposed by the United States (U.S.) and have made it difficult for mills in Ontario to compete with lumber supplies from British Columbia. Evidence from British Columbia suggests that should the beetle spread to Ontario and eastern provinces, its impacts on jack pine, red pine, and white pine could significantly alter the wood supply for industries that rely on pine forests.

Figure 1. Pine mortality after southern pine beetle (SPB) attack. Photo by Ronald Billings, Texas Forest Service; obtained from Nowak et al., 2008.

Unlike MPB, the southern pine beetle (SPB; *Dendroctonus frontalis*) is not yet found in Canada. It is a highly destructive pest in southern U.S. pine forests (Figure 1). A 1999-2003 outbreak of SPB in the southeastern U.S. caused an estimated $1 billion economic loss, impacting the south's forestry and wood-based manufacturing industries (Nowak et al., 2008). Over recent years, SPB has been expanding its range up the eastern seaboard, reaching as far north as New York State. In part, this has been attributed to warmer winter and spring temperatures. Global climate change is predicted to increase the risk of SPB infestations, and intensify current damage, by 2 to 7.5 times current observations (Gan, 2004). Similar to MPB, if this destructive pest arrives in Ontario, the wood supply and the forest industry that depends upon it could be severely affected.

With the risk of invasion from a number of very damaging pests, including MPB and SPB, a classic adage holds true; an ounce of prevention is worth a pound of cure. History shows that awareness and preventative actions can both work. For example, a 2003 detection of Asian long-horned beetle (ALHB; *Anoplophora glabripennis*) in Toronto/Vaughan initiated a rapid eradication response. All infested and high-risk trees were removed from the immediate area to prevent ALHB spread. Monitoring and eradication efforts continue in the region, including a widespread awareness campaign to educate residents in the area. To date, this program has been a success as there have been no ALHB detections in Ontario outside of the Greater Toronto Area.

(Continued on page 9)

Climate Change Adaptation Actions in the Claybelt

Lauren Quist, R.P.F.

Professional foresters in the claybelt from Cochrane to Hearst have benefitted from the extraordinary attention of natural resources scientists studying adaptations to climate change.

In 2011, recognizing the need to develop and test assessments of the vulnerability of natural resources to climate change, the MNRF, led by Jenny Gleeson and Rachelle Lalonde, in partnership with the Ontario Centre for Climate Impacts and Adaptation Resources (OCCIAR) led by Al Douglas, sponsored vulnerability assessments for natural resources in the claybelt. The depth and breadth of this vulnerability assessment project was unique in Ontario, rivalled only by assessments in the Lake Simcoe area and Eastern Ontario. The primary objectives were to:

1. Understand and identify where and how claybelt ecosystems are vulnerable to climate change;
2. Identify, with stakeholders and partners, potential adaptation options to cope with climate change;
3. Provide information and support tools for resource managers to help them integrate climate change into their decision-making; and
4. Develop and test tools and techniques that can be translated and applied to other vulnerability assessments in the province

Ontario's Ecodistrict 3E-1, the claybelt, was selected as the study area for this pilot because:

- land-use planning occurs at the ecodistrict-level of mapping making it an ideal scale;
- in the absence of regional climate models, the ecodistrict-level approach aligns well with downscaled general circulation models (GCMs);
- available information included data from historic and current forest research plots ;
- working relationships among the study team and First Nations, the forest industry, community members, and MNRF district staff were already established; and
- the area's diversity provides an opportunity to explore the effects of climate change on an array of ecological and socio-economic values.

The vulnerability assessments and possible adaptation options were presented to a collaborative workshop with foresters, biologists, First Nations members, and Local Citizens Committee (LCC) representatives. Workshop participants then could suggest additional adaptation options, and ranked the importance of the options.

The pilot project staff published a series of practical, useful reports to help resource managers evaluate the vulnerability of natural assets to climate change and adaptation measures. This was part of OFRI"S Climate Change Research Publication Series, which includes over 40 Reports and numerous Technical Notes. Two of the many reports which arose from the climate change pilot project are:

- Climate Change Research Report CCRR-24: Climate Change Vulnerability Assessment and Adaptation Options for Ontario's Clay Belt – A Case Study,

(Continued on page 10)

The Ontario Centre for Climate Impacts and Adaptation Resources (OCCIAR) www.climateontario.ca is a resource hub for researchers and stakeholders searching for information on climate change impacts and adaptation. The centre conveys the latest research on climate change impacts and adaptation; liaises with partners across Canada to encourage adaptation to climate change, and aids in the development of tools to assist with municipal adaptation. I encourage foresters to check out the website!

(Continued from page 8)

To prepare for potential forest pest invasions, foresters in Ontario can consider: adopting methods, such as equipment cleaning protocols, to prevent the spread of invasive species through forestry operations; silviculture enhancements to promote forest diversity and minimize future impacts; training on invasive species identification and detection; expanding forest inventory to accurately depict the number and distribution of high-risk trees; improving accessibility in remote regions to enable monitoring and response; and re-directing or accelerating harvest strategies in the case of an imminent infestation.

As climate change continues to be a key component in the spread and reach of invasive pests, the need only expands for professional foresters, industry stakeholders, and the public to be diligently aware, educated, and connected to current invasive species tools and resources. The battle against invasive species is ongoing, but through collaboration with organizations such as the Invasive Species Centre, communication with all stakeholders, active prevention, vigilant detection, management and response, all members of the forestry sector can help to slow or stop the spread of these damaging pests.

The Invasive Species Centre is a non-profit organization that connects stakeholders, knowledge and technology to prevent and reduce the spread of invasive species that harm Canada's environment, economy and society. Visit the Invasive Species Centre's family of websites at www.invasivespeciescentre.ca or follow us on Facebook, Twitter (@InvSp) or LinkedIn.

References:

Gan, J., 2004. Risk and damage of southern pine beetle outbreaks under global climate change. Forest Ecology and Management, 191 (1): 61-71.

Hellmann, J.J., Byers, J.E., Bierwagen, B.G., and Dukes, J.S., 2008. Five potential consequences of climate change for invasive species. Conservation biology, 22(3): 534-543.

Nowak, J., Asaro, C., Klepzig, K., and Billings, R. 2008. The southern pine beetle prevention initiative: working for healthier forests. Journal of Forestry, 106(5): 261-267.

(Continued from page 9)

2012. Rachelle Lalonde, Jenny Gleeson, Paul A. Gray, Al Douglas, Colin Blakemore, and Larry Ferguson. MNR-OFRI.

- Climate Change Research Report CCRR-32: An Assessment of the Vulnerability of Forest Vegetation of Ontario's Clay Belt (Ecodistrict 3E-1) to Climate Change. William C. Parker, Stephen J. Colombo, and Mahadev Sharma. MNR-OFRI.

Professional foresters in the claybelt gained a wealth of information on what changes are coming, our level of certainty about future trends, and possible adaptation strategies.

But the efforts focused on the Claybelt didn't stop there. MNRF and OCCIAR staff took advantage of the development of the 2017-2027 Forest Management Plan for the Hearst Forest to encourage use of their research results and adaptation options in resource management. Just before work began on the 2017 Hearst Forest FMP, the MNRF and OCCIAR staff visited the FMP team in Hearst to discuss the options generated by that pilot study. They developed a helpful *Portfolio of Climate Change Adaptation Recommendations* specific to the Hearst Forest. The group then decided which adaptation options were most practical to implement and of most value. At that point, the uncertainty surrounding the usefulness of some options came to the fore. The team decided that a best-bet is tree planting: of different seed zones of the species normally planted (black spruce, white spruce, or jack pine), and/or an increase in the proportion of pine (in expectation of drier conditions).

What species will thrive in the future? Climate change may improve tree growth in the Clay Belt as the climate becomes warmer and wetter. However, the "wetter" prediction for moisture is less certain, especially the farther one is from the influence of James Bay, and the increase may be inadequate to compensate for the increased temperature.

Around this same time, researchers were mining data from the extensive network of tree improvement plots from all over Ontario (and Canada). Researchers have re-measured plots established in the 1970s and 80s, and analyzed the data to look for genetic differences in response to climate change.

As described in OFRI's report CC*RR-19: Assessing assisted migration as a climate change adaptation strategy for Ontario's forests*, "Older existing and newly established provenance trials that expose multiple populations to a broad range in climatic conditions are being used to provide the data needed to assess the range and pattern of genetic variation in growth and adaptive traits of commercially important tree species (e.g., Wang et al. 2006, Thomson and Parker 2008, 2009). These field trials are sometimes supplemented with controlled environment studies for more detailed, rigorous measurement of population responses to environmental factors and their interaction. When combined with GCM projections under selected emissions scenarios, these data can be used to generate population response and population transfer functions to guide assisted migration efforts."

To educate the public as well as the Hearst 2017 FMP team, the FMP team invited Dr. Dennis Joyce, former MNRF Provincial Forest Geneticist, to present the public with his compelling evidence about the biological climate envelope (area of suitable climatic habitat) for local tree species. Drawing on his analysis of a vast database of North American forest inventory plots, tree improvement plots, and climate projections, he demonstrated that the climate of the Hearst Forest will likely become unsuitable for its ubiquitous black spruce in our children's lifetimes. It is hard to imagine, but the evidence is strong. The participants were very interested in Dr. Joyce's findings; not surprising, since residents of Hearst are experiencing climate change and many homeowners optimistically plant trees from warmer hardiness zones. The question was, if assisted migration is tried, then which species or provenance should be tried, given that it has to survive in the current climate? Should the current planting site criteria for black spruce, white spruce, and jack pine be altered?

Bill Parker, one of the OFRI scientists, brought to the team's attention some rather astonishing findings about white spruce. Lu *et al.* 2014 remeasured 20- to-30 year old provenance tests and found that more southerly provenances of white spruce have been ***already*** out-performing local provenances! This allays one challenge with assisted migration, that being the need for planting stock to be cold-hardy enough to survive today's climate.

Lu, P., Parker, W.H., Cherry, M., Colombo, S., Parker, W.C., Man, R. and Roubal, N. 2014. Survival and growth patterns of white spruce range-wide provenances and their implications to climate change adaptation. Ecology and Evolution. 4, 2360–2374.

Hearst Forest Management Inc is now working with Bill Parker to design a trial planting of white spruce from more southerly provenances. To quote Bill Parker's project rationale, "Research has shown that human assisted migration (AM) of tree populations may enhance forest adaptation and productivity under current and projected future climate. Recently published results (Lu *et al.* 2014) from the 410-series white spruce provenance trials, which were established at 15 locations along a climatic gradient in Ontario to test the adaptation and growth of 245 white spruce range-wide populations, have suggested that local white spruce populations at northern Ontario planting sites were generally out-performed by more southerly populations as indicated by tree mortality and height growth; and that regenerating white spruce in northern Ontario using seed from southern Ontario populations can result in appreciable genetic gains in forest productivity without increasing the risk of frost damage. The objectives of this project are to:
1) validate the research findings with new and larger research plots as pilot trials before assisted migration can be operationally adopted in white spruce; and
2) generate data and information to assist the development of species-specific seed zones for white spruce."

Looking at the other claybelt SFLs, The Gordon Cosens Forest (GCF) managers are examining the science with Bill Parker as well, and are open to considering white spruce as well as other possible species or provenances for assisted migration. The GCF is no stranger to innovation in silviculture, having a seed orchard, one of the oldest tree planting programs in northern Ontario, and being the host of some Forest Research Partnership projects. Likewise, the Abitibi River Forest manager First Resource Management Inc is examining the emerging science about the suitability of species or provenances for the future climate.

The claybelt SFLs are part of, and financially support, the Northeast Seed Managers Association, NESMA, a cooperative which includes all Northeast SFLs and MNRF, and which is responsible for managing seed supply and tree improvement in the Northeast. NESMA's Northeast Genetics Specialist, Randy Ford, has recently retired from MNRF; but NESM members face the challenge of determining, with scientists:

- What are the likely deployment zones for boreal forest species?
- Where are the seed sources for the future forest?

NESMA's First Generation orchards, designed with a life expectancy of 25-30 years, have outgrown a manageable height. With funding cutbacks, the next generation orchards were not established. NESMA is now challenged with preserving the genetic gain within the living trees in those orchards - and the invaluable records of decades of genetic work. As well, the need now is to establish new seed orchards; NESMA members and

(Continued on page 11)

Thinking About a Membership Category Change for 2017?

Have you ...

- Changed employment or job responsibilities?
- Returned to professional practice?
- Taken a long-term absence from work?
- Retired from professional forestry?
- Moved out of Ontario?
- Considered Life membership?

All changes in membership categories must be approved by the Registration Committee. Requests for changes will be considered by the Registration Committee at their next scheduled meeting. The Registration Committee meets:

Oct. 13 (requests must be received by Sept. 29)
Dec. 8 (requests must be received by Nov. 24)

If you are considering a change in membership category for next year, please submit the request as soon as possible. This will facilitate a smooth membership renewal.

Requests for a change in membership category can be made by email sent to the OPFA office, with payment of the administrative Change Fee for such requests ($50), in accordance with the OPFA Fee Schedule.

Additional information may be required, depending on the change requested. Please contact the OPFA office for details if you are considering a membership category change.

(Please Note: Provisional members follow the process outlined in their approval letters and are not required to request a membership category change when progressing towards Full or Associate Membership.)

(Continued from page 10)

researchers are now trying to determine what should be in them. Tree improvement now is less about selecting the fastest-growing families from within a species, and more about finding the species and provenance that is best suited to future climate, while being able to establish in the current one. Which species and provenances will do best: Local? Within Ontario? Within Canada? Red spruce and Norway spruce are being looked at. There is even evidence that Virginia pine from the North Carolina mountains may be well suited to the future climate envelope of Northern Ontario. The risk of choosing wrong is wasted dollars and failed regeneration.

Faced with uncertainties around climate change, it is tempting for professional foresters to think we can 'wait and see' about sourcing seed from other species and provenances. However, science is showing that we mustn't assume that the seed sources we may want in the future will still be there when we finally want them – their climate niche is shifting too. This points to the need to find them, bank seed, and establish seed orchards. The importance of preserving seed from wide genetic ranges has been recognized in agriculture, and may be just as important in forestry.

There are potential conflicts between forward-looking regeneration strategies and possibly shorter rotation ages, assisted migration and seed transfers versus the current forest management policies whose objective is to move towards the pre-industrial condition and long rotation ages. There is now a need for provincial policy that acknowledges these conflicts and helps forest managers resolve them.

Just before school started this year, the future professional foresters of Lakehead University visited the Hearst Forest for their field school. They heard about the climate change science, and the decisions facing the Forest's managers. Wherever they end up working, they will have to deal with climate envelopes that are continually shifting. Those of us who are working now are responsible to ensure that the forests they inherit are as well situated for the future as possible, that irreplaceable research assets have been maintained, and that the widest range of genetic material has been preserved. Wish us all luck.

Gene Conservation to Sustain Our Forests, to Sustain Ourselves

Barb Boysen, Forest Gene Conservation Association (FGCA)

The following article was originally printed in the Ontario Woodlot Association's Quarterly Magazine, the S&W Report Vol. 83 and Vol. 84, and was written with a woodlot owner audience in mind.

We live in a forest. Our southern Ontario society was built on the forests' legacy of rich soils, diverse and valuable species, abundant water and a moderate climate. Sustaining those benefits for future generations requires sustainable forest management (SFM). And the foundation of SFM is conservation of **genetic diversity**. More than ever, managers of forests need to be aware of this.

What is genetic diversity? It's made up of many species, many local populations of each species, and many unique trees in each population. All have evolved to be more or less unique in adaptation to local soils and climates; an ongoing process over thousands of years. Not that we notice it happening.

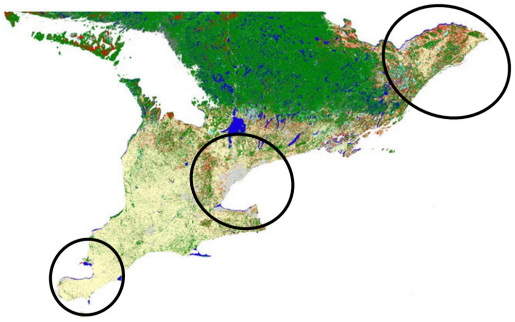
And how is the genetic diversity of our forest? To paraphrase Aldo Leopold "The first rule of intelligent tinkering is to keep all the pieces." But our tinkering has not been intelligent. Our southern Ontario forest pieces, its species, populations and individual trees, have suffered or been lost through many decades of settlement that involved extensive clearing for agriculture and development and global trade that introduced invasive species. Exotic pests have changed species such as chestnut and elm into mere ghosts, where they were once an abundant, even dominant presence on our landscape. Likewise, ash, beech, and butternut are seriously threatened.

The populations of some species such as white pine, white oak and white spruce have been extirpated from many local areas. For example, the remaining natural, southern Ontario populations of white spruce have been seriously eroded to very few and small stands that are far apart. The result is a general loss of vigour in these populations -– a constraint on the potential for white spruce to play a role in climate change adaptation for Ontario's north. More about that later.

In many forests, unknowing or uncaring loggers practised high-grading, taking the best and leaving only the poorer-growing trees. Many elm trees were cut ahead of the Dutch elm disease making it harder for the genetically tolerant trees to cross-pollinate and naturally restore the species. We face a similar challenge with butternut and beech.

But we have not managed our forests to sustain those benefits

How is southern Ontario's Forest Genetic Diversity?



Through many decades of settlement, agriculture, development, global trade and invasive species, we have already lost many pieces:

forests - species - stands – trees – genes ... forest soils!

The erosion of our genetic diversity is a huge challenge to address. Consider also that the very landscape, the foundation of this diversity, has greatly shifted. There are many holes, thousands of acres in size, in the once continuous forest. And within these holes have been major, even permanent losses, of productive forest soils. These holes affect local climate and also act as barriers to the natural flow of pollen and seed. In this way, the potential for natural forest regeneration and migration processes has been greatly reduced.

So, sustainable forest management is now a greater challenge as it requires restoring, not just conserving, our forests. And to do that successfully, basic gene conservation principles need to be better understood and put into practice (see side box).

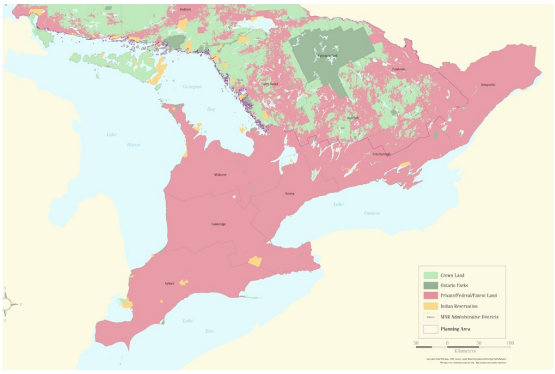
Also consider that this is southern Ontario –- home to millions of people and great economic pressures. And the forests of southern Ontario, in parcels of a few acres to thousands of acres, are largely privately owned by about 160,000 people. They include municipalities, conservation authorities, farmers, private woodlot owners, you and me.

(Continued on page 13)

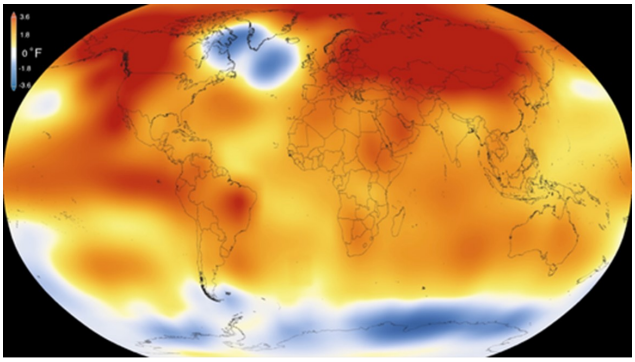
(Continued from page 12)

Many forest owners are great stewards. But in a privately owned landscape, there's a time-scape to consider and the effects of changing ownership. One landowner's decades of great stewardship can quickly be negated -- even by one's heirs. Restoration, if even possible, can take another lifetime of stewardship. *So people are the threat; we are also the solution. It's up to us, the landowners, to take notice and take action.*

Private Land Ownership
~ 160,000 Landowners with a few acres to hundreds of acres



Add to all of this another people-driven effect: "***Climate change is likely to become one of the most significant drivers of biodiversity loss by the end of the century***" *(Millennium Ecosystem Assessment, 2005)*. From 1948 to 2010, four of the ten warmest years were between 2000 and 2010. 2014 was Earth's warmest since 1880 (NASA and National Oceanic and Atmospheric Administration). *But wait for it -- 2015 just beat that record.*



2015 – Warmest Global Year since 1880

So, what can we as forest owners do? Firstly, we need to expand the we –- and engage the awareness and help of everyone from forest industry to conservation groups, schools to universities, and most importantly, **planners to politicians.** Because our biggest challenge is **ignorance**. Forest complexity, vulnerability and services are generally and tragically underestimated by the public, planners and politicians. Too often mature forests are removed in the belief that they can simply be replanted somewhere else. The first problem is we are running out of "somewhere else." The more important problem is that one acre of newly reforested land cannot replace an acre of mature, natural forest; not for many decades and possibly never due to the increasing challenges.

This ignorance results in very poor land-use planning. Ontario's large population is eating away at the remaining forest faster than we can restore forests. Eastern Ontario is unfortunately becoming an example. Where once we celebrated its increasing forest cover, as compared to southwestern Ontario, we now are dismayed by the recent and ongoing removal of windbreaks and forests. In southwestern Ontario municipal councillors argued over whether to allow the forest cover to drop from 5% to 4 %. Mature forests were removed to take advantage of suddenly high agriculture commodity prices that then fell in the same season. *How can this be, when we know better than at any other time in human history the importance of forests to our own survival and prosperity?*

The key messages are:

- Genetically-diverse, locally-adapted forests are a huge buffer against all damaging pressures including climate change. Trees may die, but the species lives on. Species may die, but the forest lives on, and society continues to benefit.
- Strategic gene conservation is needed to sustain and restore genetically diverse, locally adapted forests.
- Private landowners' gene conservation efforts must be recognized and supported by politicians and planners, on behalf of our society, for the benefits they provide to society.

So as you plan harvests, plant trees, tend trees or just learn more about your local forests, consider these basic gene conservation principles. And **communicate -** with other forest owners, your local community, and especially your government representatives. We need to fight the ignorance that threatens us. Your voice is key to sustaining our forests, ourselves.

If not you, who?

Shooting at a moving target – restoring forests in a changing climate

The need to restore forests is greater than ever due to historical erosion and now climate change. But we have to realize that it has never been more difficult to do successfully … due to historical erosion and climate change.

Your involvement, as a local landowner, is essential but government involvement, local to federal, is also critically needed to support the big picture strategies that are beyond the capacity of any one forest owner:

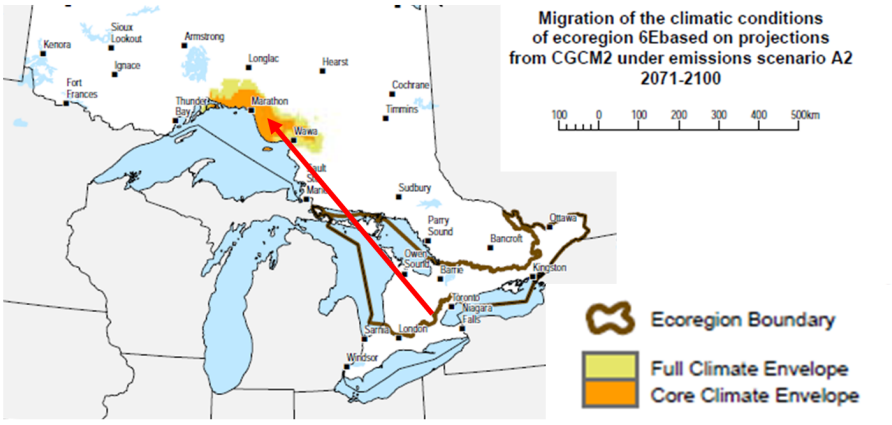
- **A strategy to restore forest site conditions.** Forests protect our soils. The first few decades of a reforestation project are about restoring

(Continued on page 14)

(Continued from page 13)

the site; creating shade and increasing the soil's organic content and moisture holding capacity. The time to reforest drier sites is now. In a future, warmer, drier climate it may be impossible. *What sites and soils are most vulnerable and therefore a priority in your county?*

- **A strategy to connect and protect existing forests**. Forests can thrive in a mutually beneficial balance with many other local land uses, to increase the likelihood that the entire landscape will be adapted to a warming climate and continue to sustain us. Reforestation to achieve this balance is firstly about creating self-perpetuating forests, not ones that will be replaced after a few decades by a different land use. There's an important second aspect to this. Our current forest diversity may not be well adapted to a changed climate and we need to start looking to the forest diversity that exists in warmer climates. But, not only is the climate predicted to be changing faster than natural migration is known to have occurred; but we have also put significant barriers in the way. Consider those large gaps in the southern Ontario forest landscape that make it difficult for pollen and seed to flow. *We have to assist the southwestern Ontario hickories, oaks, cherries, etc. to migrate through and past the Greater Toronto Area to where they will be adapted, an area projected to be in north central Ontario in less than 100 years.*



- **Facilitate research on species adaptation**. We know in general which species are better adapted to planting conditions. Pines, spruce, cedar, oaks, hickories, cherry, and ash can handle more exposed, drier conditions but are they the same ones that will survive a changing climate? White spruce in southern Ontario is at the southern end of its range and we may lose those southern stands to a warming climate. Any spruce planted now in southern Ontario may only have value as a short-term site restoration species. *Where ash was once a contender on that list, it is currently not planted due to the Emerald Ash Borer (EAB). But it has value even as a short-lived nurse crop to help restore the site and ensure other species' survival and growth. Possibly, as predators evolve and adapt to keep the EAB in check, some planted ash will survive to produce seed, and even possibly regain its place in our mature forests.*
- **Assist with collection and banking of high quality seed from Ontario and the USA**. For any species, seed should be collected from many different, healthy mature trees in a good seed year, with the source well documented. This ensures the seed will have a broad genetic base, be of good physiological quality and thus better able to germinate and grow into a healthy seedling. For many species such seed can be banked for many years, to offset poor seed years. For other species (e.g. oak, hickories) that don't store well, having a network of many good stands will help us get the best possible collections more often. And knowing the exact source of any seed is more important than ever, to allow it to be deployed as strategically as possible in a changing climate.
- **Recognize and support private landowners' forest restoration efforts for the benefits they provide to society.**

Back to your effort as a local landowner. Assume you have strategically selected a site, you have the financial support and technical expertise to begin, and the resources to keep it well tended in the first five years (at least). Now how do you follow the gene conservation principle **'Plant seedlings that are adapted to your site'?**

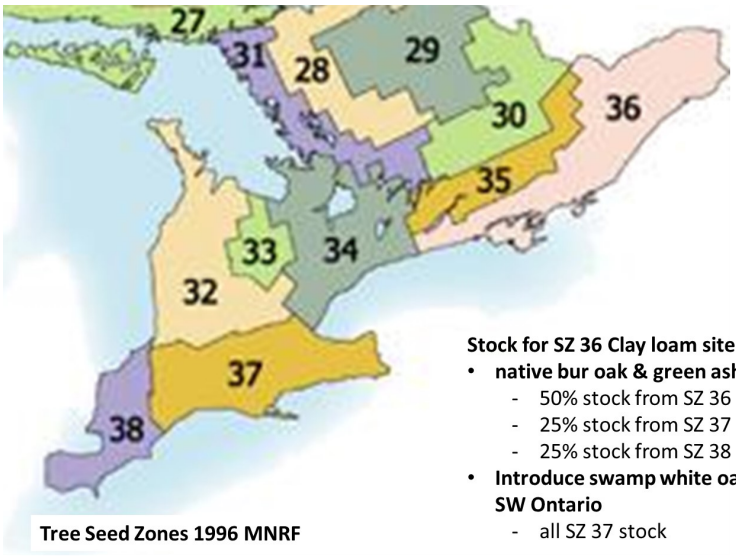
In the last 10 years we have seen the effects of infrequent yet normal cold winters as well as winter thaws. There have been early, hot springs yet late killing frosts, followed by summer drought and scorch. After thirty years of unchecked climate change (unfortunately the world continues to maintain its climate changing ways) we may see the locally-sourced seedlings suffering more from weather extremes, insects and diseases, with higher mortality and less growth. In 30 more years will they be fit enough to flower and produce viable seed? There are so many unknowns both about what our local forest species will be faced with but also about what they can withstand. Not to say there won't be any winners; consider how black walnut is often found growing well beyond its natural range; and there is early evidence that white pine can also be moved more widely than some species.

Any seedlings you plant will have to become established in the current climate. But since most trees can live for seven and hopefully many more decades, the trees they grow into will experience a changed climate, as well the unknown effects on the site and the forest community.

The answer is diversity. One strategy to achieve diversity is to plant a mix of locally adapted species of high quality seed, seed that is from many parent trees, with the hope that some if not all trees will be prove to be adapted to the changed climate. Another strategy is called **assisted migration**, which many jurisdictions around the world are starting to plan for or are actually undertaking. **Assisted migration** involves moving trees well ahead of natural migration processes and timing. It involves strategic introduction of warmer sources of local seed and, in some cases, new species, which grow in similar forest communities. For example, tulip tree, a southwestern Ontario species, could be introduced to eastern Ontario because it grows with southern populations of eastern Ontario species such as sugar maple, red oak and black cherry. The idea is to bring material here that is adapted to the warmer climate we anticipate will be the reality decades from now. Any efforts should be documented and followed up with even basic monitoring and reporting of results so others can benefit.

(Continued on page 15)

(Continued from page 14)



Tree Seed Zones 1996 MNRF

Stock for SZ 36 Clay loam site

- **native bur oak & green ash**
  - 50% stock from SZ 36
  - 25% stock from SZ 37
  - 25% stock from SZ 38
- **Introduce swamp white oak from SW Ontario**
  - all SZ 37 stock

Since 2009, the FGCA, Forests Ontario and local landowners have been working on assisted migration trials (http://fgca.net/conserve/trees-in-trouble/threats/climate-change/). Assisted migration is not without its detractors, but doing nothing also has consequences. And even if all our planting efforts used this strategy it will have a limited effect. Consider that current southern Ontario planting programs affect fewer than 3,000 hectares per year. To have a greater effect on the landscape, the size and layout of the trials are designed with the potential to become high quality seed production areas to support future local forest restoration efforts. If we wait decades to bring seed, with the genetic potential to adapt to a warmer climate, into our landscape, those southern sources may be too maladapted to their own changed climate to produce seed.

The FGCA trials are being used to educate local forest managers and landowners about basic forest gene conservation principles, such as seed source, site adaptation and site restoration, which must be addressed whether or not the climate is changing. Our local partners are showing leadership beyond expectation, and include Phil Host, Oxford County, Simcoe County, Cataraqui Conservation Authority (CA), Plantagenet Township and the South Nation CA and most recently the St Clair River CA. The challenges and unknowns are many, but our hope is great that we can learn and devise approaches to better sustain our forests and ourselves in this changing climate.

The first step in assisted migration starts with understanding your local forests – their species, the climate and then the conditions of your planting site. The next step is learning from experts how that climate is expected to change and what local species might be better adapted to those sites.

In 20 years we may see:

- Generally warmer climate with hot and cold extremes; dry sites dryer
- Local species still thriving, some displaying some stress due to heat, drought
- Flower and seed crop failures more common
- Invasive species having a greater effect

When planting use:

- Local native species (http://fgca.net/conserve/in-your-forest/native-species-learn/)
- Southern species that are adapted to your site conditions and local forest types.
- **Mix Seed Sources – 50% from local seed zone and 25 % each from 1 and 2 zones warmer** (= about +10 and + 20 days growing season length)
- Watch for frost and winter kill on southern sources.

1 year old red oak from 6 different climates grown together show they have 6 different growth potentials. (MNRF)

Niagara source planted with **Brockville source?**

Toronto source planted with **Ottawa source?**

Ottawa source planted with **Algonquin Park** source?

For the longer term we should consider a **stepped approach**. This is the idea that we are shooting at this moving target of a changing climate, and the world has not yet chosen to slow it down. As climate change projections are adjusted over the next few years, we may decide to increase the pace of introduction of seed from warmer climates.

In 40 years (2056!) we may see:

- A warmer climate, longer growing season, with more extreme temperatures
- Dry sites may be too dry for forests and be in transition to open woodlands and grasslands
- Uncertain moisture regimes with more extreme events but less soil moisture to support forests
- Some local species e.g. maple, white spruce and hemlock failing; others, e.g. pines and oaks thriving, resulting in forest dominance changes
- Early flowering species with crop failures – soft maples and elms
- More frequent droughts and weather events leading to poor seed crops
- Southern species and sources growing better than local?

(Continued on page 16)

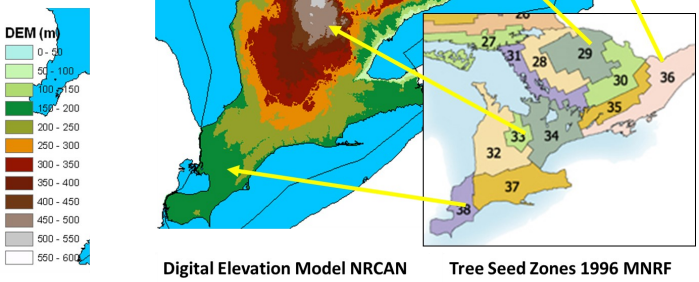
(Continued from page 15)

When planting use:

- Local native species (http://fgca.net/conserve/in-your-forest/native-species-learn/) and southern species that are adapted to the local sites and grow with the native species.
- **Mix Seed Sources – 25% from local seed zone, 50 % from a zone warmer and 25% from 2 zones warmer** (= about +10 and + 20 days growing season length)
- Watch for frost and winter kill on southern sources.

So how do you determine what sources to start to introduce? Start with the zone your planting site is in and then go …south? And how far south? And not necessarily south. It helps to understand how seed zones were derived. Our southern Ontario climate is greatly affected by elevation and our Great Lakes, which both skew the general effect of latitude. So Seed Zone 33 is south of 31 but not warmer. Similarly, more southern sources in the northern USA aren't necessarily warmer sources due to elevation effects. We also have to consider the state of the

Our Climate - affected by **elevation, latitude, Great lakes**

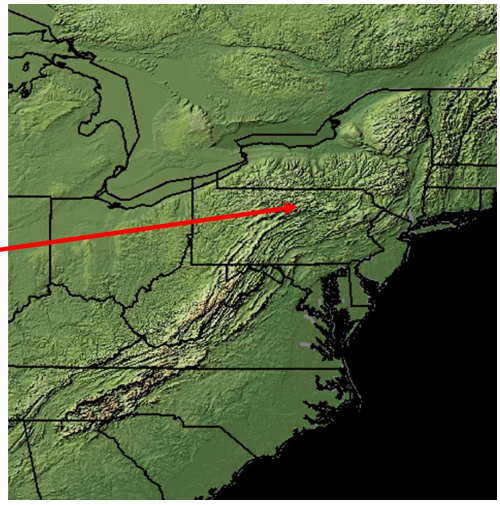


Digital Elevation Model NRCAN — Tree Seed Zones 1996 MNRF

forests we will need seed from. Are they conserving their forests and species? Can we get high quality seed from them? Northern Ontario forest managers will be asking the same questions as they look to southern Ontario forests as sources of seed.

Since 2007 Forests Ontario, FGCA and many local planting agents have been building the infrastructure, networks and expertise to strategically

More southern sources in the USA are not necessarily warmer sources. Consider elevation effects and be strategic.



reforest southern Ontario's landscape. Funding sources include the

(Continued on page 17)

Gene Conservation Principles:

Whether you have half an acre or 600 acres, value and sustain your forest by **consciously practising gene conservation.** Keep in mind these principles, and hope your neighbours do too:

When Managing Your Forest

- **Conserve all forest cover and native species** – appreciate how your forest is unique and valuable in many ways.
- **If you do harvest, have a plan and seek professional guidance to:**
  - **Conserve healthy trees of all ages** - The mature seed producers that have proven they can withstand decades of pressures; the semi-mature trees that have invested a few decades already; and the young trees that will replace them all eventually. *Consider that it can cost over $2,000 an acre just to plant 1,500 trees, and value your thousands of naturally regenerated seedlings accordingly.*
  - **Conserve older trees until they regenerate** - again, allow those proven performers to pass on their genes before you harvest. Observe if they are in fact regenerating?
  - **Understand and manage each species' regeneration needs** - Monitor seed crops of species you want to promote and try to time any thinning or site preparation to meet those species' needs. Consider if you might need to plant to augment the natural regeneration.
  - **Remove heavily diseased trees - strategically**. Consider the structure of your forest - the ages and density and species diversity. Removing too many trees of any species too fast changes the conditions of the forest, which may not benefit the remaining trees, and could allow invasive exotics like buckthorn to take hold or take over.
  - **Reduce the effects of invasive alien species** - learn to identify buckthorn, dog-strangling vine, etc., and consider what removal or control methods are best. Eradication is difficult and expensive not to say impossible - consider making an effort to promote the growth of native species to help them compete better.

When Restoring Forests

If you have open areas that were once forest, consider restoring them. Contact Forests Ontario www.forestsontario.ca for access to subsidies. Your existing forest can provide seed for new forests in your area.

- **Watch for good flower and seed crops** - learn how crops vary by species and timing and frequency using the new manual *Seeds of Ontario Trees & Shrubs* (www.fgca.net) and report crops to Forests Ontario.
- **Collect quality seed in good seed years** - Allow Certified Seed Collectors (www.fgca.net) to collect seed from your forest, or collect it yourself, first learning how to tell when seed is viable and mature and how to collect and sell.
- **Document the location of the seed source** so it can be used strategically in climates it will be adapted to.
- **Plant seedlings that are adapted to your site** - this means to the climate. Always ask growers where their seed came from. It also means matching the species to the site and forest community conditions.
- **Tend your plantings** - planting doesn't end with cleaning the shovel. Seedlings are often planted in challenging, un-forest-like conditions. Compacted soils, heavy plant competition, rodents, deer, extreme temperatures and winds all threaten a seedling's survival and growth. Don't waste your good effort planting adapted species and seed sources by not tending. Your tending efforts in the first few years can make the difference between failure and decades of good growth.

Foresters' Biodiversity Challenge for the General Public

Megan Finlay,
OPFA Student Member

The sun shone in Laurier Woods Conservation Area for the 3rd Annual Louise de Kiriline Lawrence Nature Festival, even though the forecast called for rain and thundershowers. The festival is named after a world renowned naturalist and midwife/nurse that served people in the rural areas around North Bay. The festival is located in a 240 acre protected area that was assembled by land donations and purchases by local people.

Many people stopped by the Biodiversity Challenge booth organized by members of the Ontario Professional Foresters Association to test their knowledge and learn about what foresters do to conserve biodiversity in the forest. Foresters do more than just harvest trees. Foresters work to integrate the wants of landowners and needs of wildlife. Where current wants cannot be integrated the landowners are informed of the trade-offs so that they, the landowners, can select activities that match their values. All participants in the Biodiversity Challenge were interested in learning about the different things that you can find in the forest and the complexity of ecosystems. Prizes were drawn and distributed to participants.

Participants were able to wander along the trails and participate in different activities. Children were able to make wooden crafts and crack open "fossils" to find hidden animal figurines. The "fossil" rocks were made of flour, coffee grounds and salt. The festival and the other booths throughout Laurier Woods took a lot of effort from a wide variety of volunteers and I would like to say thank you to all of them for running a wonderful event.

(Continued from page 16)

Ministry of Natural Resources and Forestry's (MNRF) 50 Million Tree Program. We have been promoting the importance of high quality seed of known source. And that won't change. We will just start to advise you to plant it in a different place. It's still about buying the right tree and putting it in the right place.

Our success helping you restore forests will depend on our success finding high quality seed to grow seedlings adapted to your sites – the high quality ammo needed to shoot at this challenging, moving target. **All of it depends on conserving the genetic diversity of existing forests.**

You can contact Barb if you have questions at fgcaontario@gmail.com.

Executive Director Updates

Fred Pinto, R.P.F.
Executive Director

limate Change and Professional Foresters

The theme of this newsletter is climate change. So, here are a few thoughts that may be relevant to professional foresters. We know that the communities we live in and clients we serve need to integrate ecological principals into the design and management of energy and transportation infrastructure and in the siting, intensity and management of vegetation to create resilient livable communities for people and other living things. Professional foresters have the skills to integrate the biological adaptations of vegetation in the development and maintenance of human infrastructure.

There is evidence from Ontario and around the world that the financial and human costs are a lot higher when simplistic technological solutions are used. For example, the ice storm that occurred during Christmas 2013 had a larger and longer impact on the disruption of electricity transmission in southern Ontario communities that had not considered the biological adaptations of trees along transmission corridors. According to our members, communities that had used the services of professional foresters to develop power-line clearing prescriptions had less of an impact and recovered faster. Unfortunately, this lesson has not been learned and you can expect:

a) Simple clearing strategies to prevail in utility corridor management.
b) More intense tree removal that will result in unintended but known consequences such as the spread of invasive species and increased expenditures for home owners and communities.

Another Ontario example is the removal of trees over critical portions of the southern Ontario landscape. This has made certain portions of major highways treacherous for drivers during the winter months. Simple physical or natural barriers along the highway corridor to stop blowing snow do not work. What is needed is a landscape analysis of tree cover and strategies that create incentives for landowners around certain areas that will restore and maintain tree cover that will reduce blowing snow.

So what can be done? Professional foresters must recognize that we must speak and act to show that we can protect people and their property. This is the challenge of today.

Annual Renewal of Your Membership

Soon you will be getting a letter in the mail that will inform you how to renew your membership. There are a few changes to the renewal process this year. There are some additional questions, and you need to retain records related to your competency reporting requirements if you are a Full, Associate or Non-resident Member. Why is this required? All provincially licenced professionals in Ontario have to maintain their competency and must have evidence to prove it. The OPFA has to have explicit evidence that you:

a) Have a Personal Practice Focus and a Learning Plan and that they are saved in your files;
b) Possess the necessary continuing education hours; and
c) That you have completed the Competency Support Report and have retained it in your files.

This may sound complicated and bureaucratic. In practice it is not. Look at the example found in *Practice Guidance – Competency Support*. Use the template provided via the following web link to fill in and document your information. https://secure.opfa.ca/sites/default/files/legislation/guidelines/Practice%20Guidance%20-%20Competency%20Support%20-%20Approved%202016%2006%2024.pdf

Managing OPFA Costs and Revenue or How We Do Not Want to Pick Your Pocket

In previous messages I informed you that the OPFA was looking to purchase and use association management software. This would help the OPFA reduce its liability associated with data breaches and help manage communications, membership data, and financial transactions more efficiently. However, the more we delved into the costs and management of association management software the more concerned we became with some of the known limitations. Not the least was the concern that there were many unknown implementation costs. We now plan to define each major business activity that can be helped with information technology and search for separate software to deal with each chief function. For example, we may keep using Mail Chimp for e-mail communication. We hope that this will allow the OPFA to match its different information technology needs at a lower cost and be better poised to incorporate new technology as it becomes available.

Everyone working for the OPFA is aware of the need to monitor expenses and seek ways to reduce them. We have been successful so far. The longer term strategy is to increase revenue through increasing the number of members and diversifying the Association's revenue streams. We now obtain additional revenue from increased advertising and making sure that advertiser and exhibitor needs are being met. We have tripled the number of Student and Provisional members in the past three years. These membership categories do not contribute much to the Association's revenue but will if these new members are successful in becoming Full or Associate Members.

Opportunity for Employers and New Forestry Graduates in Northern Ontario

The Northern Ontario Internship Program managed by the Northern Ontario Heritage Fund provides financial help to private, not for profit, and public organizations to help recruit and retain graduates needed in the north. Several forestry organizations have already been successful and have received grants that enable them to employ new foresters. This is a terrific way to reduce the cost of training new employees and help to develop the highly trained professional forester skill set needed in the north. If your organization is interested you can find more information at: http://nohfc.ca/sites/default/files/program_files/nohfc_programs_internship_eng.pdf

Facebook and Twitter Campaigns

This summer we ran profiles of Student and Provisional Members who volunteered to tell us what they were working on in the summer. The most followed story was the travels of Sam Nsiah, a Provisional Member, who drove from his home in Parry Sound to Red Lake to start a job with the MNRF.

(Continued on page 19)

(Continued from page 18)

Website Updates

1) Many of the presentations delivered at the 2016 OPFA Conference have now been posted on the Association's website. You can find them at: https://secure.opfa.ca/members/member-services/annual-conferences
2) In the June, 2016 *The Professional Forester* newsletter I informed you that non-OPFA qualifications from the member database open to the public will be removed in the new fiscal year (i.e. https://secure.opfa.ca/membership-directory). Members that are consultants can still list their own qualifications on the OPFA's consultant webpage: https://secure.opfa.ca/consultants-list Members that list on the consultant page are responsible for updating their own information.
3) Some Provisional Members are having a difficult time obtaining professional forester experience and mentors. At the same time some employers have challenges recruiting professional foresters. A forester match-making app to link the two parties does not exist. So we will try and use the current membership registry to help the various parties become aware of each other's needs and opportunities. We are now working to create a webpage where Provisional Members can self-identify the professional forester experience they are seeking. This will allow organizations and employers to match their needs with those of our members. It will also allow members to become aware of the mentorship needs of Provisional Members.

Fill Forester Fred's Tree Trunk

Our Executive Director, Fred Pinto, R.P.F., volunteers with the Forestry in the Classroom program managed by Trees Ontario. He stops by schools to speak to students that request a visit by a forester. To help connect the students to forests and forestry he is collecting teaching aids that the children can touch, question and use. If you have something that you think will interest school-aged children send the item to the OPFA office. The item should be small enough to fit into a medium sized suitcase – the Tree Trunk. For example, do you have a small stereo scope and a couple of stereo photos, samples of skulls of different forest dwelling animals, samples of wood from different species of trees or samples of different and innovative wood products?

Forest Information for the Public

Need to explain how and why vegetation is managed in forestry? A new website that explains how forestry is practiced has launched. The website focuses on New Brunswick, but has information relevant to forestry in Ontario as well. The information on the website will be useful to foresters that need to respond to questions that people have about forestry practices.

Visit: http://forestinfo.ca/

Registrar's Update

Susan Jarvis, R.P.F.
Registrar

ignificant progress has been made in registration projects over the past few months. Provisional Members will benefit most from these changes. Please share this news with forestry colleagues, or others who may be interested in OPFA membership in the future.

Bridge Training Registration Now Open (Courses start Oct. 3)
The Canadian Institute of Forestry (CIF) is taking registrations for their Bridge Training Program for Foresters modules for competencies in:

- Standard 1 – Tree and Stand Dynamics
- Standard 2 – Forest to Landscape
- Standard 5 – Leadership Skills
- Standard 7 – Professionalism and Ethics

Bridge Training module courses start **Oct. 3, 2016.**

The CIF is the third-party supplier of this training, and is responsible for module registration, setting of participant fees, training delivery and participant evaluations. Information on CIF training modules is available at: **courses.cif-ifc.org**. See the poster for CIF Bridge Training on page 27 of this newsletter. All questions regarding CIF's Bridge Training modules should be directed to the CIF through their website.

Bridge Training modules for Standard 3 (Forest Management), Standard 4 (Forest Economics), Standard 6 (Information Acquisition) and training for "Ontario Forest Policy and Legislative Framework" will be available this fall. **Module particulars and enrolment information will be sent to all members** as soon as these training modules are finalized.

Bridge Training Program for Foresters module development was conducted by third-party suppliers under contract to the OPFA, with funding from the Province of Ontario. Module content has been reviewed by the Canadian Forestry Accreditation Board to ensure that it satisfies the competency requirements of the 2008 Certification Standards for Professional Forestry in Canada.

The majority of the training modules will be accessible via the internet. Only certain competencies will require field training and participation in-person (due to the subject matter – see module outlines).

Review of OPFA Registration Processes
An internal Review of OPFA Registration Processes was completed in August, and was discussed by OPFA Council in September. In addition to identifying what the OPFA is doing well, the review also identified certain issues and potential improvements to these processes. The results are expected (a) to inform OPFA strategic priorities, and (b) to identify if any efficiencies can be realized, particularly those that will streamline the registration process for applicants. Members and applicants will be updated as any changes to registration processes are implemented.

Review - University of Toronto, Master of Forest Conservation (pre-2014)
The OPFA has many applicants and Provisional Members who graduated from the MFC program, prior to its CFAB accreditation in Dec. 2014. The graduates from "unaccredited" years must undergo the Credential Assessment Process (CAP) to demonstrate the required forestry competencies.

In July, to help these applicants, the OPFA submitted program and course information from multiple years for a partial CAP assessment. This review will allow applicants to submit evidence for **only** those competencies not already satisfied through academic courses, which will reduce the documentation required for CAP. Program assessment results, when received, will be shared with OPFA Provisional Members.

Sincere thanks are extended to Anne Koven, R.P.F.(Hon) and current and former staff of the University of Toronto, Faculty of Forestry, for their assistance in compiling the course information for CAP review.

Review Competencies for Foresters
This national project was started in Fall 2014 to review the competencies required for professional foresters in Canada. Revised Certification Standards (competencies) will provide more flexibility for qualified applicants to become Registered Professional Foresters.

The national project working group, through consultation with forest practitioners, academics, employers and other stakeholders across Canada, has drafted a revised set of competencies. A major change to the Standards is the recognition of varied areas of forestry practice including: (a) Forest Management, (b) Natural Resources and Ecosystem Management, (c) Urban Forestry, (d) Forest Operations, and (e) Ecological Restoration and Management.

As Chair of the working group, I will be discussing the draft revised Standards with my national counterparts in the Canadian Federation of Professional Foresters Associations (CFPFA) and Association of University Forestry Schools of Canada (AUFSC) in September. Further refinement of the revised Standards is expected as potential assessment and implementation issues are considered and proactively addressed.

(Continued on page 21)

Upcoming Registration Dates

Sept. 29, 2016	Deadline for application materials for Registration Committee Meeting Oct. 13, 2016.
Nov. 24, 2016	Deadline for application materials for Registration Committee Meeting Dec. 10, 2016.
Dec. 1, 2016	Credential Assessment Process portfolio materials to Registrar, for Jan. 1, 2017 national CAP assessment.
Jan. 27, 2017	Deadline for application materials for Registration Committee Meeting Feb. 10, 2017.
March 3, 2017	Credential Assessment Process portfolio materials to Registrar, for April 1, 2017 national CAP assessment.

(Continued from page 20)

OPFA Council approval is required, along with approval by the other provinces that use the 2008 Certification Standards, before the changed Standards would be implemented.

Annual Renewal

See the article on page 22 of this newsletter for more information and key dates for annual renewal of your membership. Practicing members (Full, Associate, Non-resident) are reminded that the mandatory annual Competency Support Report (CSR) now replaces the previous Competency Recording Questionnaire (CRQ). New components to the reporting are outlined on page 28 of this newsletter.

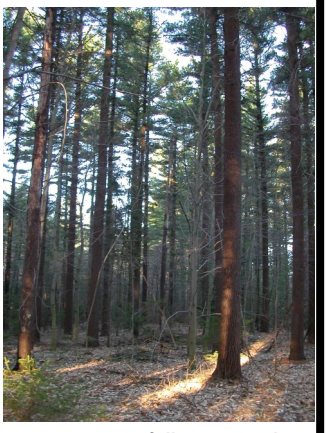
You can avoid late fees by ensuring that your membership fees (if applicable) are received by the OPFA by Dec. 1, 2016, and your Competency Support Program reporting (if applicable) for Dec. 1, 2015 to Nov. 30, 2016 is completed by Jan. 15, 2017.

Two Billion Trees and Counting: The Legacy of Edmund Zavitz

Author: John Bacher
Published by Dundurn Press, ISBN: 9781459701113
264 pages, trade paper, 6x9. 40 illustrations, notes, bibliography, index.
$26.99.

Norfolk Wasteland Prior to 1912.
Photo by E.J. Zavitz.

Edmund Zavitz (1875-1968) rescued Ontario from the ravages of increasingly more powerful natural disasters caused by floods, erosion, and deadly fires. Numerous barren wastelands were taking over many hectares of once productive and flourishing farmlands and townsites. Sites like the Oak Ridges Moraine were well on their way to becoming a dust bowl. And all because of extensive deforestation.



Norfolk Forest Today.
Photo by Dolf Wynia.

From an early age, Zavitz became aware of the impending environmental dangers the province was facing. Encouraged by his family, he would become one of the first professional foresters in Ontario, Chief Forester of Ontario, Deputy Minister of Forests, and Director of Reforestation.

Zavitz's first pilot reforestation project, on his grandfather's farm in 1905, marked the beginning of his visionary practices. Throughout many uphill battles, Zavitz educated the general voting public and politicians about the need to protect Ontario forests. By the mid-1940s, conservation authorities, provincial nurseries, forestry stations, and bylaws protecting trees were in place. Land was being restored. Just a month before Zavitz's death, the symbolic one billionth tree was planted by Premier Robarts, and some two billion more followed. As a result of Zavitz's early work, the Niagara Escarpment, largely a wasteland in his time, acquired the foundation for becoming a UNESCO World Biosphere Reserve. Other examples abound. Recognition of the ongoing need to plant trees to protect our future continues through the legacy of Edmund Zavitz, Ontario's Father of Reforestation.

Ready For Your Annual Membership Renewal?

Fred Pinto, R.P.F.
Executive Director

embership renewal went over quite smoothly last year. A large number of members paid their fees and updated their competency reports before the due dates. We are trying to help you do the same again this year.

OPFA annual membership renewal involves:
1. Reviewing and updating your personal information;
2. Payment of annual membership fees for Dec. 1, 2016 to Nov. 30, 2017 (if applicable);
3. Annual competency support report for Dec. 1, 2015 to Nov. 30, 2016 (if applicable). Note that the report contains additional questions this year; and
4. Associate Members confirm that they have reviewed their Scope of Practice, and are continuing to work only within it.

Not all annual renewal activities apply to all membership categories. The chart below summarizes what activities are required for each membership category:

MEMBERSHIP CATEGORY: / ANNUAL RENEWAL TASK: ☑required	Student	Provisional	Full	Associate	Non-Resident	Inactive	Life	Honourary
1. Update Personal Information	☑	☑	☑	☑	☑	☑	☑	☑
2. Pay Membership Fees (by Dec. 1)	no	☑	☑	☑	☑	☑	no	no
3. Competency Reporting (by Jan. 15)	no	no	☑	☑	☑	no	no	no
4. Report working only within Scope (by Jan. 15)	no	no	no	☑	no	no	no	no

We will be sending each member a letter in the mail at the beginning of October. The letter will itemize what renewal actions you will need to undertake and the dates when they must be completed. Any required forms will be included with the letter (and will also be available online). **PLEASE make sure your mailing address in your member record is correct.**

In accordance with the OPFA Fee Schedule, **late payment fees and late competency reporting fees will be applied if a member fails to meet the due dates for payment or reporting as stated in our By-laws.**

Key Dates:

Oct. 2016: Members will receive an Annual Renewal letter outlining needed action(s)

Dec. 1, 2016: All 2016-2017 **membership fee payments are due** (if applicable)

Dec. 2, 2016: Late payment fee ($50.00) is charged

Jan. 5, 2017: 60-day Notice of Pending Suspension sent to any member with outstanding payments.

Jan. 15, 2017: **Annual Competency Support Report is due** for the period Dec. 1, 2015 to Nov. 30, 2016 (if applicable to your membership category). **Note that the form has changed this year.**

Jan. 16, 2017: Late competency reporting fee ($50.00) is charged.

Feb. 15, 2017: 60-day Notice of Pending Suspension sent to any member with outstanding competency reporting obligations.

(Continued on page 23)

(Continued from page 22)

Payments:

As approved on September 13, 2016, annual membership fees for some membership categories have changed from last year. Go to https://secure.opfa.ca/registration/fees and/or pages 24-25 of this newsletter for the current Fee Schedule.

Payments may be made by credit card online or by phoning Priscilla Doyle at the OPFA office (905-877-3679) or by cheque or money order (mail to: OPFA, 5 Wesleyan St., #201, Box 91523, Georgetown, ON L7G 2E2 – please allow one week for delivery).

To make payments to the OPFA online, sign in as a member, and go to: https://secure.opfa.ca/registration/membership-renewal-annual and click the OPFA Online Payments section. This payment screen allows payments for set amounts (i.e. membership dues, application fees, exam fees, late fees) and has been updated to allow for variable payments entered by the member (i.e. CIF fees, outstanding fees, and any optional amount).

After your credit card information is entered, you will receive an acknowledgement that the payment was processed successfully. **If you do not get an acknowledgement, the payment was not completed.** Please re-try your payment online, or call Priscilla Doyle at the OPFA office (905-877-3679) to make the payment.

Changes to the 2016 OPFA Fee Schedule

Fred Pinto, R.P.F.
Executive Director

On September 13, 2016 Council approved the 2016 Fee Schedule shown on the following page. The Fee Schedule takes effect on December 1st, 2016. Here is a summary of the changes from the previous 2014 Fee Schedule:

1) The **Membership Fee for Provisional Members:**

(a) Will stay at $25 for the first fiscal year of membership, or part thereof. For example, for the part of a fiscal year when a person is first approved for Provisional Membership, he/she will pay only $25. This recognizes that new Provisional Members may have limited financial resources as they start their journey to become professional foresters.

(b) In the second and subsequent years of Provisional Membership, the membership fee will be $100 per year. Council reviewed the fees charged for similar membership categories by other professional forestry associations, and found the OPFA's Provisional Member fees of $25 to be the lowest in Canada. The fee increase was kept low in recognition that Provisional Members may also have other registration costs during this period (e.g. costs of assessment or training to meet competency requirements for Full or Associate Membership).

2) **Associate Membership Fees** will increase to $620 as previously approved by Council in the Fee Schedule effective May, 1, 2014.

3) The **Monthly Payment Option** has been revoked and is replaced by a new four payment plan (Dec. 1, Feb. 1, April 1, June 1). The reason for this change is to streamline collection of membership fees that are due Dec. 1 of each fiscal year according to the by-laws. This provides members with the option to pay fees over six months ($40 admin. fee applies). The Split Payment (two payments) Option (Dec. 1, April 1) continues to be offered.

4) The **Late Payment Fee** has been reduced from $70 to $50, the same amount as the Late Reporting Fee. Our goal is not to fine members through financial penalties, but to recover a small portion of the subsequent administrative costs when members fail to meet their payment or competency reporting obligations on time.

5) The **Re-admission Fee** for past members wishing to reapply for membership has been reduced from $620 to $500.

6) Cheques written from accounts that **Do Not have Sufficient Funds** will be charged $10 plus the bank charges the OPFA has to pay. The $10 is to cover the Association's administrative costs.

ONTARIO PROFESSIONAL FORESTERS ASSOCIATION

FEE SCHEDULE

Effective December 1st, 2016

This Fee Schedule was approved by Council, pursuant to the OPFA by-laws, on September 13, 2016.

Fee (HST is not charged)	Amount
Annual Membership Fee (by membership category):	
Full (1)	$ 620.00
Associate (1)	$ 620.00
Provisional (first fiscal year of membership or any part thereof)	$ 25.00
Provisional (subsequent years)	$ 100.00
Non-resident	$ 250.00
Inactive	$ 250.00
Student	Free
Life: one-time payment of $650 + ($310 x (65 minus age in yrs))	Varied
Life: after one-time payment	Free
Temporary Permit (per 3-month period) (2)	$ 200.00
(1) Fees for newly registered Full and Associate members will be pro-rated by months remaining in fiscal year.	
(2) Non-resident members may receive two Temporary Permits free of charge.	
Registration Fees:	
Application Fee	$ 200.00
Application Fee: Student members within 6 months of graduation	$ 100.00
Application Fee for Student membership	Free
Credential Assessment (if applicable)	$ 500.00
Exam Fee (per exam written)(if applicable)	$ 75.00
Re-admission Fee	$ 500.00
Category Change Fee (3)	$ 50.00
(3) Category Change Fees are not charged for Provisional Members requesting consideration for Full or Associate	
Administrative Fees (if applicable):	
Split (2) Payment Plan, paid Dec1 & April 1	$ 20.00
Four (4) Payment Plan, paid Dec 1, Feb 1, April 1 & June 1	$ 40.00
Late Payment Fee	$ 50.00
Late Reporting Fee	$ 50.00
Replacement of Seal	$ 75.00
NSF payment charge	$ 10+bank charges

Bridge Training Program for Foresters - An Update

The purpose of the Bridge Training Program for Foresters (BTPF) is to provide training in the competencies required for professional foresters in Canada. Training and assessment opportunities are needed by foreign-trained individuals, and other individuals who have received education in other disciplines in Canada, so that they can demonstrate competency, and become registered to practise professional forestry in Ontario and Canada. Development of Bridge Training modules is funded by the Province of Ontario. This article provides an update on the progress of the development of these training modules.

The consortium of the Canadian Institute of Forestry, the University of Toronto and the Haliburton Forest were contracted to develop training modules for Standards 1, 2, 5 and 7 of the Certification Standards for Professional Forestry in Canada. These modules have been reviewed by the Canadian Forestry Accreditation Board, and they have confirmed that the training meets the requirements of the Certification Standards. The CIF poster in this newsletter provides a general overview of the training modules and the website (courses.cif-ifc.org) to access more details about the CIF courses and registration. Registration has started, and the first courses begin in early October.

The consortium of the Faculty of Natural Resource Management at Lakehead University and Confederation College is developing training modules for Standards 3, 4 and 6, and a module on Ontario Forest Policy and Legislation. Lakehead University is working with the OPFA and Canadian Forestry Accreditation Board to ensure that the training modules being developed satisfy the requirements of the Certification Standards. These training modules are expected to be available this fall.

The table below summarizes the training modules now available for the Bridge Training Program for Foresters.

Bridge Training Program for Foresters

CANADIAN INSTITUTE OF FORESTRY

Competency	Modules Required to meet 2008 Certification Standards	Competency	Modules Required to meet 2008 Certification Standards
Standard 1: Tree and Stand Dynamics		**Standard 5: Leadership Skills**	
Competency 1.1	Module 1.1 and 1.4	Competency 5.1	Module 5.1
Competency 1.2	Module 1.2 and 1.4	Competency 5.2	Module 5.2
Competency 1.3	Module 1.3	Competency 5.3	Module 5.3
Competency 1.4	Module 1.4 (field course)	**Standard 7: Professionalism and Ethics**	
Standard 2: Forest to Landscape		Competency 7.1 to 7.4	Module 7.1
Competency 2.1	Module 2.1	Except for field Modules 1.4 and 2.5, all modules are offered online, over a set 8 week period (subject to minimum enrolment). For more information, and registration: **courses.cif-ifc.org**	
Competency 2.2	Modules 2.2 and 2.5		
Competency 2.3	Module 2.3		
Competency 2.4	Module 2.4		
Competency 2.5	Module 2.5 (field course)		

Canadian Institute of Forestry
Institut forestier du Canada

Bridge Training Program for Foresters

Online courses designed to improve access to training tools for professional foresters

Tree and Stand Dynamics

Forest to Landscape

Leadership Skills

Professionalism and Ethics

The online modules are designed to help Internationally Trained Foresters and domestically trained foresters from non-accredited post-secondary institutions acquire the skills they need to practise professional forestry.

Registration is now open! Courses to begin October 3, 2016

courses.cif-ifc.org

The bridge training program will be collaboratively administrated by The Canadian Institute of Forestry, The University of Toronto Faculty of Forestry, and Halliburton Forest.

Canadian Institute of Forestry
Institut forestier du Canada

Haliburton Forest & WILD LIFE RESERVE LTD

Ontario Bridge Training Program for foresters

Funded by:

Ontario

Ontario Professional Foresters Association

Competency Support News

Competency Support – An Update

Bob Elliott, R.P.F. and Ben Kuttner, R.P.F.,
On behalf of the OPFA Competency Support Committee

The OPFA Council released a newly approved Practice Guidance - Competency Support on June 24, 2016. It replaces the original Competency Support Guide. The contents of the new practice guidance document include the same competency support requirements as the previous guide, along with some additions and improvements. Links to blank competency support forms resident on the OPFA website are provided, along with links to examples of completed Personal Practice Focus and Learning Plan documents. The blank forms and the examples are intended to help members complete their annual competency maintenance and reporting requirements by providing templates and examples to work from.

The OPFA Council has approved the development of a voluntary Peer Review process as a component of the Competency Support Program. A Peer Review is a collegial, non-confrontational process in which one member can look over another member's Competency Support documents and confidentially make suggestions to improve the member's competency maintenance, the member's continuing education, and his/her documentation. The purpose of Peer Review is to strengthen OPFA members' competency maintenance programs to help assure the public that the management of their forests is in good hands.

The new Practice Guidance document contains a description of this voluntary Peer Review process. OPFA members are encouraged to read up on the Peer Review process and consider trying it in 2017. The Competency Support Committee is developing specific training material to assist OPFA members with the process. A narrated MS PowerPoint presentation is being developed by the Committee this fall. It will be available on the OPFA website starting in January, 2017. Peer Review will be part of the conversation during any OPFA Fall Seminars this year and at the annual OPFA Conference in Guelph in May, 2017.

Competency Reporting Change 2016

Susan Jarvis, R.P.F.

Only Full, Associate and Non-resident Members must complete Competency Support Program reporting every year (except that those in their first fiscal year of OPFA membership are not required to report). Other OPFA Members are not required to report.

The form for annual competency reporting changed with the approval of Practice Guidance – Competency Support in June 2016. Soon the OPFA website online reporting will be updated to reflect the new **Competency Support Report (CSR)** form.

The Competency Support Report continues to ask about your Personal Practice Focus (PPF), Learning Plan (LP), and Continuing Education hours. The new CSR form also asks:

Record Retention
Confirm current and previous versions of PPF and LP are saved.

Professionalism and Ethics

- confirm review of OPFA Code of Ethics and OPFA Acts of Misconduct in the past year; and
- confirm review of the OPFA Standards of Practice, and familiarization with Practice Guidance and Practice Bulletins.

Date of last Peer Review
This question is optional, since Peer Review is voluntary.

Please review the OPFA Code of Ethics, Acts of Misconduct, Standards of Practice and Practice Guidance, before submitting your annual competency report. These documents can all be found on the OPFA website at Regulation and Enforcement.

Log into the OPFA website at Members/ Competency Support Program for information on member competency reporting obligations. The OPFA website has PDF/MS Word /MS Excel versions of the forms, and now also contains some **sample** completed forms. The variety of sample completed forms will be expanded over the next year to provide suggestions for members working in various areas of forestry practice.

Plan ahead to meet your 2015-2016 fiscal year Competency Support reporting before the Jan. 15, 2017 deadline.
… and remember, document review time can count towards your Continuing Education hours.

Kenneth Armson, R.P.F. (Ret.) Officer of the Order of Canada

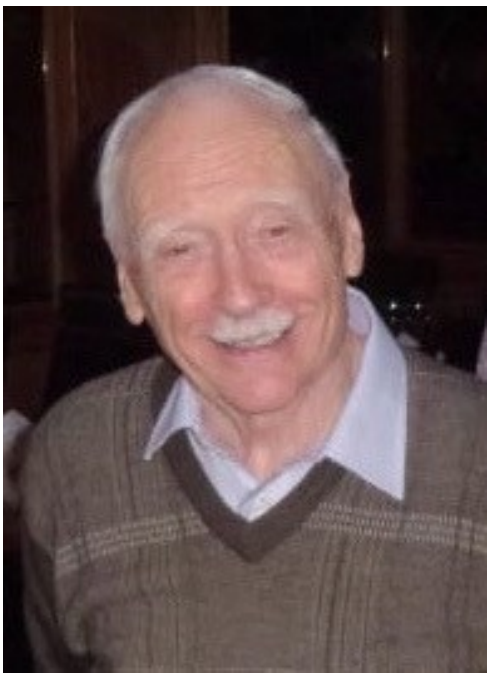
Ken Armson R.P.F. (Ret.) has been a pre-eminent advocate for forest management across Canada for 55 years. He has played and continues to play a major role in forestry in Canada. The OPFA has been honoured to have him as a long time member and now we are honoured again as he has been made a 2016 Officer of the Order of Canada.

Ken was one of the first members of the OPFA and was the Association's President from 1967-69. Ken was offered the first Honourary Membership with the OPFA when this award was introduced. However, Ken refused, as he did not want to give up his regular membership.

Ken has won many awards over the years and actively participated in the progress that has enabled Ontario and Canada to establish forest sustainability. After working at the Faculty of Forestry at U of T, he became the Executive Coordinator of the Forestry Resources Group in the Ontario Ministry of Natural Resources and in 1981 was appointed Ontario's Chief Forester. He made his vision of ensuring that the forest industries and governments worked together to ensure that harvested areas regenerated and thrived on Crown land, a reality.

Ken has authored many important reports, such as the 1976 Forest Management in Ontario report, that is more commonly called 'The Armson Report'. This report led to many changes in Ontario's forestry program. He was a key witness in Ontario's Environmental Assessment Hearings on Timber Management. He is the founder of the Forest History Society of Ontario and remains very active in forestry matters in Ontario and Canada.

His membership of the Order of Canada is a reward for his national career in forest education, successful advocacy and in leading operational and administrative improvements in forest management.



Members – Is Your Personal Information Correct?

This is a friendly reminder to ensure that your personal information is up to date.
Have you moved?
Is your email address valid?
Is your employer information correct (required, if applicable)?
What is your nearest centre?
Do you want to be listed on the Consultant Listing (practising members only)?

If any information is out of date, please log into the OPFA website, and update your member information. If you experience problems, or don't have internet access, the OPFA can make changes for you, phone 905-877-3679.

Business Cards

Your Business Card Here!

Advertise your company or services here.

Members	$25 per single issue $80 per year (four issues)
Non Members	$40 per single issue $140 per year (four issues)

If you would like to be included in the Business Card section please email opfa@opfa.ca.

Benefits of Membership in the OPFA

The benefits of membership in the OPFA include:

- the right to practice professional forestry in Ontario and, as an approved Full Member, the additional right to use the Registered Professional Forester (R.P.F.) designation;
- access to the Members Register (list of OPFA members) on the website;
- access to continuing education opportunities on the website;
- receiving quarterly issues of *The Professional Forester* newsletter;
- career opportunities as posted on the website;
- Annual Conference;
- leadership development opportunities through volunteering with the OPFA;
- discount on auto rental; and
- preferred rates on group Error and Omissions Insurance offered by HUB Insurance Brokers International (see their ad in this issue for contact information). This coverage insures a person or company against claims made by third parties for actual or alleged errors, omissions, breach of duty, and similar claims resulting from the negligent performance or non-performance of professional services. Professional Liability Insurance helps relieve you of the financial burden of defending yourself in a malpractice lawsuit. If you are providing a professional service or rendering a professional opinion, this coverage is highly recommended. At no additional cost, the policy provides retroactive coverage for alleged negligence in the past, and also provides coverage in the future once you retire, sell, or wind down your practice.

The OPFA is currently looking into expanding its benefits package. For more information on the above benefits contact the OPFA office at opfa@opfa.ca or 905-877-3679.

Member News

New Members

Associate
Brandon Williamson

Full
Mark Balogh
Ernie Demuth
Michael Fry
Andrew Schafer
Laurie Thompson
Ron Wu-Winter
Aklilu Yietagesu

Provisional
Corinne Arthur
Dimitrii Boyko
Dean Caron
Adam Gorgolewski
Hajnal Kovacs
Sydney Mitchell
Garrett Pechinger
Jeff Sharp
Juliana Vantellingen
Daniel Yeboah

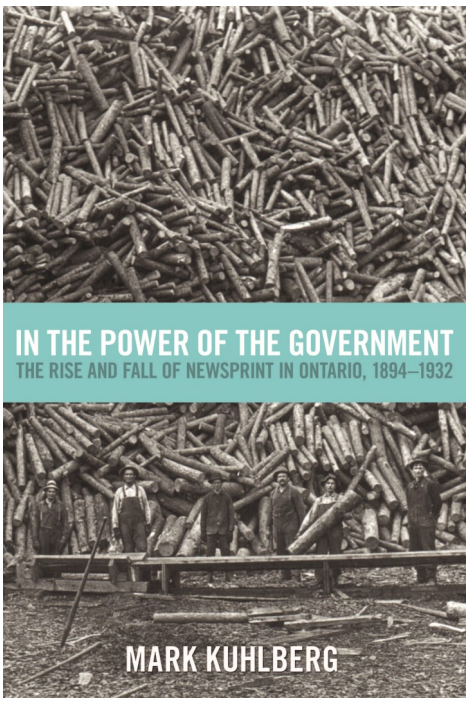
Student
Michele Paskaris
Thomas Schiks
Joseph Scott
Han Xiao

Life

Carl Corbett

∞∞∞

The Professional Forester is now delivered electronically except for those who have requested a paper copy. A copy is also available on the website (www.opfa.ca). To make sure that you receive all important member information, **please check that your email address and other personal information is accurate on the website. Thank you.**



In the Power of the Government: The Rise and Fall of Newsprint in Ontario, 1894-1932 chronicles the rise and fall of Ontario's pulp and paper industry between 1894 and 1932. In doing so, it demonstrates that our previous understanding of how relations developed between the mill owners and the provincial government was incorrect. It has long been argued that the politicians at Queen's Park – and all provincial capitals – fell all over themselves in trying to help the paper makers establish and grow their operations. I make it clear, however, that this was hardly the case. The provincial government had many reasons to offer the pulp and paper industry a cool reception and relatively little support as it established itself in Ontario. These included the drive to colonize the province's northern reaches, the politicians' existing loyalty to the lumbermen and the pulpwood exporters, and the dangers inherent in being associated with "big business" during an era when "titans of industry" were hardly beloved by the general public. Most importantly, the politicians saw the province's pulpwood and water powers first and foremost as commodities to be used for political gain; doling them out according to patronage considerations was the goal, and a remarkable tale of corrupt dealings was the result! For these reasons, this book offers a remarkably new perspective on the dynamics that shaped relations between industry and government in Ontario's forests.

Call 1-800-565-9523 and ask for this book for $21.39 from the University of Toronto Press. This is a 40% discount from the retail price of $35.95.

The Professional Forester
Publications Mail Agreement Number
40026838

Undeliverable copies can be sent to:
5 Wesleyan St., #201, Box 91523
Georgetown, ON L7G 2E2

Coming Events

EVENT	DATE	LOCATION	DETAILS
IUFRO Extension and Knowledge Exchange Conference	September 25-29	Kenora, ON	www.cif-ifc.org
Canadian Urban Forest Conference	September 26-29	Laval, Quebec	www.laval.ca
Annual Forest Health Review	October 25	Orillia, ON	
Ontario Invasive Plant Council Conference and AGM	October 25-26	North York, ON	www.ontarioinvasiveplants.ca
OPFA Annual Meeting and Conference	**May 16-18, 2017**	**Guelph, ON**	**www.opfa.ca**

If you know about an event that should be listed here, please send the information to the Editor at newsletter@opfa.ca.

Submissions

Submissions are welcome, please send them to:
Caroline Mach, R.P.F., Editor
newsletter@opfa.ca

Deadline for the next issue:
December 1, 2016