

BC

MAY - JUNE 2013

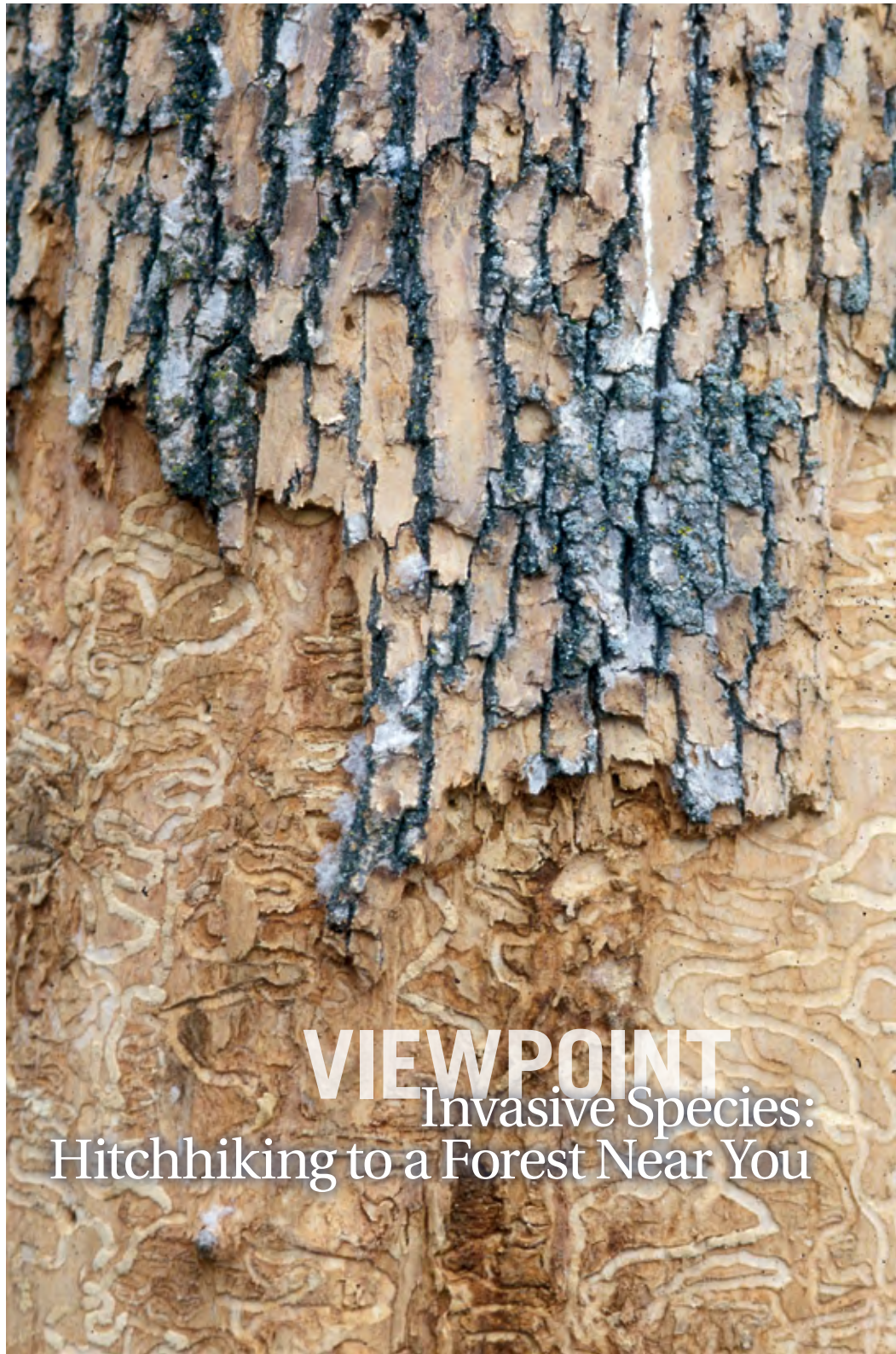
Forest

PROFESSIONAL

**Store displays and
Invasive Insects:
The Scary Connection**

**Using DNA in the Fight
Against Invasives**

**Recap of the 65th
ABCFP Forestry
Conference and AGM**



VIEWPOINT

**Invasive Species:
Hitchhiking to a Forest Near You**



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Photo: Genome BC

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"In the field it has saved us time and simplified field surveys. In the office it has saved us a significant amount of staff time"...



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ON BACK COVER



Put in Your Two Cents



The **BC Forest Professional** letters' section is intended primarily for feedback on recent articles and for brief statements about current association, professional or forestry issues. The editor reserves the right to edit and condense letters and encourages readers to keep letters to 300 words. Anonymous letters are not accepted. Please refer to our website for guidelines to help make sure your submission gets published in **BC Forest Professional**.

Send letters to:

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Acknowledgement is The First Step

RE: Big Dreams and Hard Realities in BC's Interior By Mauro Calabrese, RPF, RPBio (BC Forest Professional, November-December 2012).

In response to Mauro Calabrese's article, I would agree that there was a perfect storm between mountain pine beetle (MPB), lack of landscape-level objectives and the recent economic downturn that all inhibited the move to a results-based framework. In my own personal experience working in the forest industry, I have sensed that there is need for change to the current state of forest management. Throughout my university career and especially in the upper-level courses it has been stressed that there is a need for more meaningful landscape-level objectives, more consultation with other stakeholders (trappers, guide outfitters, First Nations, etc.) and above all, better professional reliance and accountability.

As future forest professionals we must not only acknowledge the professional reliance and accountability in ourselves but that of our peers as well. We must recognize that regardless of employer, level of responsibility and employment status, we are all a part of the same association. I believe that it is possible to maintain that

competitive environment between licensees while working together to better manage the landscape. I agree that more accurate forest inventory and moving to area-based tenures could greatly improve things. However, there are some issues that need to be addressed first, such as competing licensees wanting the most productive accessible land and the time and cost needed to do an accurate forest inventory. In addition, we must be aware of the current mid-term timber supply concern and the issue of cumulative impacts. I know I speak for every one of my classmates when I say that we are eager to get into the industry and apply what we have learned to help change forest management for the better. In any case, we can also all agree that it is an interesting time to be in forestry.

KYLE ANDERSON

4TH YEAR STUDENT, FOREST ECOLOGY AND MANAGEMENT

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The Importance of Planning

Christine's first column is excerpted from the speech she delivered at the Forestry: The Future Is Growing conference in Prince George on February 21, 2013.

"If you don't know where you are going, any road will get you there."

Lewis Carroll

This is one of my favourite quotes and one I'm sure you've heard before. Our association has made great progress on a number of fronts in recent years. This success has been a result of ensuring that we set clear strategic goals and that the daily activities of the association staff support these goals.

I am pleased to have the opportunity during my term this year to be involved with the development of the new three-year strategic plan. You might be wondering, "who cares about strategic planning? There are so many things going on, why spend our time doing that?" I'd like to share an example from the past year that really showed me first-hand the value of having a quality strategic plan that had clear and relevant goals in place.

One of the goals in our current strategic plan is for the ABCFP to be a leader in professional practice and forest stewardship and to influence government policy. These goals are not easily attainable. They aren't the sort of thing you can accomplish in a single project or in a single year – rather we do our best to identify objectives and actions that we believe will take us towards these goals.

When the issue around the mid-term timber supply began heating up last year, we could readily see how the issue directly aligned with our longer-term goals in the strategic plan and we seized the opportunity to get actively engaged. It was a big resource commitment and the decision to get involved had to be made in a timely way.

Having a strategic plan in place helped us move ahead confidently with a decision to get involved and to make an informed decision together with the CEO. We understood the trade-offs that would have to be made; other work would not get done because we would



be diverting our time and money to work on the mid-term timber issue, but we knew with confidence it was the right decision to make.

While I don't have a crystal ball about the future, I do know timing is everything, and I believe putting concentrated effort into setting clear goals for our future will continue to help us seize similar opportunities that present themselves to us in the moment.

With the upcoming provincial election, I believe the association could see exciting opportunities emerge. Regardless of who the elected party is, there will be new government goals and direction – and with that, opportunity for the association to continue to be a partner pursuing solutions to both the opportunities and the challenges we see in forest management.

There just could be an opportunity for influential changes to be made with policy – if we are willing to step into that space. It is my goal that we are prepared when the time comes.

I look forward to working together with you, and on your behalf, this year. I thank you again for the opportunity. 🐾



CEO's Report

By Sharon L. Glover, MBA

Ensuring BC's Forests are in Good Hands

After quite a few down years, forest markets are finally looking up. The price of lumber is going up, US housing starts are increasing and BC wood exports to Asia are at an all-time high. This new positive outlook means that more people are needed to care for BC's forests. What hasn't changed is the fact that the forest sector—like most sectors—is facing a looming shortage of qualified people as the baby boomer generation retires. The ABCFP is doing its part to make certain there are qualified people available to ensure BC's forests are in good hands.

NRPs – The New Professionals in the Forest

The Natural Resource Professional—or NRP—is the ABCFP's newest designation. This designation was designed to attract people who do a small amount of forestry work and give them a professional home. NRPs become Associate Members of the ABCFP and have to follow the Code of Ethics as well as a limited scope of practice.

The work captured in the NRP scope of practice was being done—but the people carrying out the work had no avenue to join the ABCFP. It makes sense to bring all these people into the association as part of the forestry team. By doing so, we can register and regulate them similar to the way we do with RPFs and RFTs and are thus able to fulfill our mandate to the public by ensuring only qualified members of the ABCFP practise forestry in BC.

While the NRP designation is still in the pilot stage, graduates from UBC's Natural Resource Conservation with a major in Science and Management; Thompson Rivers University's Natural Resource Science program; or UNBC's Outdoor Recreation and Conservation, or Wildlife and Fisheries programs have a whole new career path and employment opportunities in front of them. Assuming that the pilot program goes well, we will be looking at expanding the NRP designation to past graduates of the same programs.

Attracting Future Forest Professionals

While we have long worked with high schools to encourage students in Grades 10-12 to consider careers in forestry, we are now starting to recognize that we need to attract students at a younger age. Not only are we reaching out to students in Grades 8 and 9 but we have just started work on materials for elementary school children.

Late last year, the ABCFP completely redesigned the student section of the website (www.abcfp.ca/students) to make it more student-focused. Now when students of various ages and teachers go to this section,

they can find the videos and materials they need. We even have a section for members who have been invited to present to a classroom. As the year progresses, we'll be adding new materials to the student section.

We have also worked with an elementary school teacher to find age-appropriate materials that teachers or members can use to teach children about forestry and careers in forestry. These materials will be ready and available on the student section for the start of the new school year in September.

Talking Trees with Young People

Staff at the ABCFP will continue to explore different ways of attracting young people to forestry careers. One of our ongoing efforts is with Aboriginal communities. For several years, the ABCFP has been meeting with Aboriginal groups across BC to encourage their youth to consider careers in forestry. We recently updated and reprinted our extremely popular Aboriginal Faces of Forestry booklet (you can see an electronic version on the website). We will be providing this booklet free of charge to all post-secondary schools with forestry programs as well as organizations such as the First Nations Forestry Council. If you know of any organization that might benefit from this booklet, please let us know.

Finally, we will be looking at the Forest Products Association of Canada's Greenest Workforce campaign to see how we can incorporate it into our recruitment work.

How Can You Help?

We get dozens of requests for speakers and career fair participation every year. We always put a call out to local members to participate but sometimes we just can't get any volunteers. Please consider volunteering to talk to a classroom or participate in a career fair. Most of the time students are very excited just to hear about your job and the fact you get to spend time outdoors. We can provide you with handouts, brochures and other materials to make sure your presentation is excellent. 🐿️

The Switch to PST/GST

On April 1, 2013, BC moved to a 7% Provincial Sales Tax (PST) and the 12% Harmonized Sales Tax (HST) was replaced with a 7% Goods and Services Tax (GST).

For members, this means that all the ABCFP fees and dues that were previously subject to 12% HST, are now subject to 5% GST. This will provide a savings of 7%.

While members will enjoy cost savings, the ABCFP will see an increase in operating costs of approximately \$30,000 annually due to the loss of the 12% Input Tax Credit that the HST provided. It should also be noted that there was no inflationary fee increase for 2013 to help the ABCFP absorb this extra operating cost.

Application Fee Waived for NRPs

Do you know students who are graduating from one of the following programs: UBC's Natural Resource Conservation with a major in Science and Management; Thompson Rivers University's Natural Resource Science; or UNBC's Outdoor Recreation and Conservation or Wildlife and Fisheries? If so, let them know that if they sign up now to receive more information on the Natural Resource Professional designation from the ABCFP, we'll waive the \$125 application fee when they apply this spring. All they have to do is send an e-mail to Amanda Brittain, director of communications, at abrittain@abcfp.ca for more information.

Annual Report Now Available

The ABCFP's 2012 Annual Report (http://www.abcfp.ca/publications_forms/annual_reports.asp) was distributed at the AGM in Prince George on February 21st and has now been posted on the website. Be sure to read the annual report to learn about some of the work the ABCFP has completed over the past year. You will also find our award winners and a list of volunteers.

The annual report also contains the condensed financial statements while the full financial statements are available on the website (http://www.abcfp.ca/publications_forms/publications/documents/ABCFP_Full_Financials_2012.pdf).

Westland TV Now Available

The Westland television collection has now been digitized and is available to everyone on the UBC Digital Library (<http://digitalcollections.library.ubc.ca/cdm/landingpage/collection/westland>). You can search the collection for a specific program or use the 'browse all' button on the top left corner of the page.

Climate Change Survey Results Released

Many thanks to everyone who took the time to complete the survey commissioned by the ABCFP's climate change task force. We had an outstanding 27% of the membership participate! The ABCFP's climate change task force will use the results of this survey to focus their efforts and to develop recommendations to the CEO.

Threats to forests in a changing climate:

- 83% identified disturbance or mortality due to insects and disease as a threat to BC forests.
- 59% pointed to mortality due to wildfires.
- 50% noted an increase in invasive species.
- 43% have observed regeneration failures.

Barriers that forest professionals face in minimizing the impacts of climate change in forestry decisions include:

- 45% indicated that a lack of guidance, standards or best practices.
- 43% pointed to a lack of strategic vision or policy to support innovation or diversification of practices.
- 33% lack the authority to make adaptation recommendations or decisions.
- 32% lack the personal knowledge, expertise or ability.

Asked whether they have the appropriate level of training to make balanced, scientifically sound adaptation decisions in accordance with their current scope of practice:

- 60% indicated they do not.
- 58% responded that they do have access to professional development opportunities needed to keep current on climate change and adaptation.

Regarding the use of adaptation practices currently undertaken:

- 10-23% indicated that they employ research, experimentation, vulnerability assessments, monitoring, operational planning or strategic planning.
- 46% did not select any of those options.

Asked about employer awareness of potential climate change impacts on forests:

- 17% are very aware
- 43% are aware
- 17% are neutral
- 5% are not aware

Further to this:

- 29% of employers have a climate change adaptation strategy or action plan in place.
- 37% do not
- 34% of respondents were not sure

The full report is now on the Surveys and Polls page of the website. 🐼

By Doris Sun

Combating the Common Enemy: The Fight Against Invasives

COMMON TANSY. CANADA THISTLE. OXEYE DAISY. FEW WORDS INSTILL AS MUCH frustration into the minds of BC forest professionals as these often do. As some of the top invasive plant offenders in a list that spans numerous others, these species infiltrate landscapes, proliferate swiftly and are unintentionally transported to neighbouring jurisdictions, leaving an ecological path of destruction along the way.

This issue of **BC Forest Professional** magazine takes an in-depth look at various invasive species currently affecting the forestry sector. Starting with an at-a-glance directory of the top offending species in the province, we provide a simple reference tool that will assist in identifying and locating the most pervasive plant offenders. This issue's Viewpoints authors provide different, but complementary, insights into the topic, for example, illustrating the ease in which species can spread through the common act of transporting firewood. Others provide best management tips that encourage proper identification and containment; offer insights into collaborative inter-ministry initiatives; highlight the challenges in keeping foreign invasive species out in today's increasingly borderless global economy and finally, explore the application of DNA technology in locating and potentially eradicating harmful species.

Other features of this issue are divergent in scope and include a re-cap of this year's AGM and conference, **Forestry: The Future Is Growing**, which took place in Prince George on February 20-22. It also features the interesting results of a long-term study that examined the effects of using fire as a fuel management tool. I hope you find this issue as engaging to read as it was to put together. 🐾

The Principles of Forest Stewardship¹ and Invasive Species

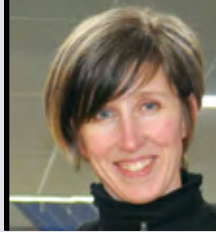
Invasive species are organisms that have been introduced to an ecosystem (often by humans) and are outside of their natural range of distribution. In many cases, these new species reproduce rapidly without any natural controls and result in ecosystem degradation or displacement of native species. Disturbed sites often create an opportunity for invasive species to become established. This risk can be further compounded by lack of information, which can lead to unintended actions, such as the introduction of organisms to a site via contaminated equipment. It is often the 'incidental' aspect of invasive species introduction that may lead to operators being less mindful of the hazards posed. This can be exacerbated if the species is not recognized until several years later.

White Pine Blister Rust was accidentally introduced to North America from France in 1910 on pine seedlings intended for reforestation purposes. The disease spread rapidly, killing many five-needle pines and initiating a chain of consequences that has affected species ranging from grizzly bears to Clark's Nutcracker, and of course humans.

While we recognize that disturbance is always going to be a part of human interaction with forest ecosystems, forest professionals are compelled to identify how plans, prescriptions and operations can mitigate the risk of spread. This awareness speaks to our recognition of forest stewardship principles like **Ecological Integrity** - *the wholeness of ecosystems, as well as the capacity to retain that wholeness over time, in response to change or disturbance*. It also speaks to **Spatial Strategies** - *where an appropriate range of spatial scales are used to monitor, assess and plan forest management activities*, since the risk posed by invasive species populations may increase as our human footprint grows.

Take some time and apply the 'lens' of the forest stewardship principles to your next activity; can you visualize a better outcome, where adjustments to your plans may reduce the spread and harm of invasive species?

¹ The main document can be seen at http://abcfp.ca/publications_forms/publications/committee_reports.asp



The Insects That Tried to Steal Christmas

While the children were nestled all snug in their beds, the sounds of insects chewing through wood danced in their heads...

THIS MAY NOT BE THE CLASSIC CHRISTMAS TALE we all remember but it certainly rang true this past holiday season with several interceptions by authorities of invasive insects associated with imported Christmas ornaments.

There is increasing public awareness of the threats posed by invasive species, whether it is zebra mussels that threaten to clog water ways, invasive plants taking over range lands or emerald ash borer that is eliminating ash from eastern landscapes. However, we don't often think about how these species are introduced into our environments. While some pathways are clear, for example, boats being transported from infested lakes carrying zebra mussels on their hulls or in bilge water; more often it is not clear how organisms are introduced into their new environments. It is the responsibility of the Canadian Food Inspection Agency (CFIA) to detect, eradicate and regulate invasive species in Canada. They monitor incoming shipments for commodities that are considered high risk of transporting invasive species (e.g. nursery stock and a variety of wood products). Many of these commodities are regulated and are inspected upon entry. However, when shipments are labeled "Christmas ornaments" one can imagine this does not raise a red flag and expect the products are granted entry into the country untreated and uninspected. This was the case in three examples from the 2012 holiday season.

BC Liquor Distribution Branch hired a designer to provide Christmas displays for its stores. The display bases were small diameter logs with bark attached and came from China. An employee in a Victoria store noticed a live insect associated with the display and notified management. In total, 759 cartons had been distributed to 195 liquor stores across the province; all were subsequently quarantined by CFIA and destroyed. To date, one species of exotic woodborer (*Callidiellum villosulum*) was found and additional larvae are being reared out for



Top: Larvae-infested birch sticks.

Below: Shipment of birch sticks from China.



identification. While the media picked up on this story, the questions focused on recouping the costs associated with the destruction of the product and not the more important question of why are we importing these types of wood products from China when we are a province with substantial timber resources.

The second example of an invasive insect was also discovered by chance. During a regular inspection of a nursery distribution centre, CFIA inspectors noticed some boxes labeled as "white birch sticks." This piqued their curiosity and upon opening the boxes, inspectors found them full of unprocessed birch branches that were heavily infested with insect larvae. These branches were to be part of seasonal planters destined for sale in the retail markets all across Canada. In total over 32,650 birch branches from China were seized across nine provinces. BC and Alberta-destined product was detained and destroyed

in BC, but planters assembled in Ontario had been distributed to a major retailer in the remaining provinces and had to be recalled and destroyed. Some product was sold from the retailer and was never recovered. This is particularly troubling as most of these planters will end up in residential gardens, backyards, and compost piles where adult insects will emerge in spring to an urban forest of potential host material. Was there not a local supply of branches that could have been sourced for these types of decorations?

The last example of an invasive insect is white pine boughs from North Carolina that were shipped to BC in two containers filled with 286,920 decorative Christmas wreaths. At least 15 species of insects, of which 10 are not native to BC, were found among the wreaths. Again, these wreaths were destined to be displayed on people's doors and outside areas where insects can easily migrate to native gardens and forests.

These three examples are not unique in their occurrences and BC has countless new introductions each year. How many of these introductions will establish themselves in their new habitats? Only time will tell.

Where does this leave the forest professional? Hopefully with a few important key messages. The products we purchase have the potential to result in the introduction of invasive species that could eliminate native tree species from our ecosystems. Whether you are buying a wooden bird house, Christmas wreath or seasonal planter, become an informed consumer, know where products come from and buy locally where possible. We need to work with industry associations (like floriculture associations) and CFIA to raise awareness of the risks associated with importing greenery and decorative wood material and look to develop these industries locally.

Also, knowing how easy it can be for

The BC Inter-Ministry Invasive Species Working Group: Who We Are and What We Do

THE INTER-MINISTRY INVASIVE SPECIES WORKING GROUP (IMISWG) provides policy direction and coordination and collaborative delivery of provincial invasive species programs. It brings together provincial ministries and agencies, each with unique mandates, program goals and technical expertise to address emerging invasive species issues and ensure coordinated, collaborative and cost-effective delivery of invasive species programs across government. The Ministries of Forests, Lands and Natural Resource Operations (FLNRO); Environment; Transportation and Infrastructure; Energy, Mines and Natural Gas; Agriculture; and Community, Sport and Cultural Development are core members of the working group. The Oil and Gas Commission and Ministries of Health; Education; Aboriginal Rights and Reconciliation; and Justice provide additional support and participation as required.

Before 2000, the major focus of invasive species control and management in BC was directed at invasive plants. The IMISWG was formed in 2005 in partial response to increasing public and stakeholder demands for improved invasive plant coordination and management across all jurisdictions. As the working group evolved and identified strategic priorities, policies and gaps, it readily became apparent that both invasive plant and invasive animal species threats required concerted attention across government.

Today the mandate of the IMISWG covers all terrestrial and aquatic invasive species including plants, animals (for example, fish, mollusks, crustaceans and other invertebrates), fungi and microbes that are not native to the province, or are outside of their natural distribution and threaten to degrade the environment or negatively impact BC residents or the economy. Three overarching goals guide the IMISWG and member ministries' invasive species programs:

- Goal 1: To prevent the establishment of new invasive species infestations in BC.
- Goal 2: To reduce the socio-economic and environmental impacts of existing invasive species.
- Goal 3: To provide the framework and capacity for ongoing management of invasive species.

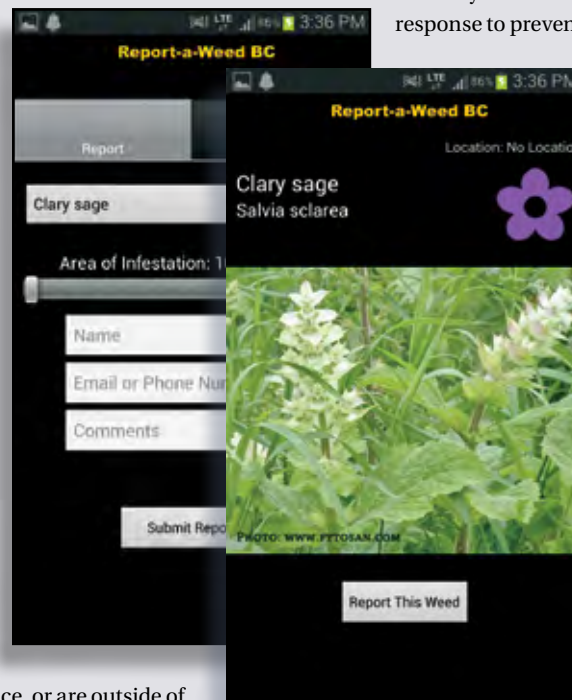
The IMISWG collaborates extensively with local and federal governments, the Invasive Species Council of British Columbia, First Nations, regional invasive species/plant committees, stewardship groups, neighbouring jurisdictions in Canada and the United States and other international partners.

The IMISWG has piloted new approaches to on-the-ground management of invasive species and developed innovative models for

community involvement. It initiated a review of the current invasive species regulatory framework and is identifying opportunities for streamlining and harmonization. The working group oversees the development and enhancement of biological control agents for invasive plants and supports development and application of new treatment methods. Additionally, the IMISWG is expanding and strengthening critical information bases and decision support tools that incorporate economic and environmental parameters and human health risks.

Early detection of new invasive species and rapid response to prevent establishment and further spread is a

priority for BC. Early detection and rapid response (EDRR) has proven to be the most cost-effective means of controlling the expansion of invasive species in North America. BC EDRR activities are guided by the Invasive Species Early Detection and Rapid Response Plan for BC [IMISWG 2013 (draft)] which identifies provincial leadership and key partner roles and provides tools for effective responses to new invasive species incursions. The provincial government, through the IMISWG, leads implementation of the BC EDRR Plan. To address invasive plants, FLNRO has established a provincial EDRR program and coordinator position. The IMISWG has developed criteria, established a risk assessment procedure, reviewed the current regulatory framework and created a "BC Proposed Prohibited Noxious Weeds List" to support EDRR delivery. The proposed prohibited list identifies



The Report-A-Weed BC smart phone app allows you to search for a plant by name or flower colour and report it to an Invasive Plant Specialist. The application downloads to your phone so it can be used regardless of cell coverage.

invasive plant species that pose a significant risk to BC's environment, economy and/or human health and are either not present in BC or are present but extremely limited in extent. These are the plant species the IMISWG will consider under the BC EDRR Plan.

It is well recognized that successful detection, eradication of new and containment of established invasive plants can only be achieved with the cooperation and participation of key land managers and stakeholders throughout BC and adjacent jurisdictions and



Photo: Fraser Valley Regional District

Are BC Forest Lands Under Alien Attack?

WHEN WE THINK OF UNWANTED SPECIES IN FORESTS, WE OFTEN THINK OF Asian gypsy moth or white pine blister rust. But besides these unwanted non-native insects and diseases, there are many more aliens hiding in the forest canopy and cut blocks infiltrating our forest lands and severely impacting timber activities. Invasive plants are experts at surreptitiously hitchhiking on machinery, vehicles and clothing, without the hosts being aware of the dangerous invaders they are carrying with them. This severe threat to BC forests has inspired action within the province and across the country. The Canadian National Forest Pest Strategy aims to combat invasives with a national approach to risk analysis and pest prevention. The Invasive Species Strategy for BC, released in 2012, called for collaborative action to prevent introduction of new species and reduce the impacts of existing invasive species.

An Oregon economic analysis study of noxious weeds found that production losses, fire damage and control costs amounted to \$125 million per year in the United States¹. This is just one component of the costs of invasive species each year in the US, which is approximately \$143 billion. Similarly in Canada, the numbers are exorbitant, with control costs outweighing prevention efforts by a landslide. In the forestry sector, the presence of invasive plants can result in high maintenance and control costs, health threats to workers and impacts on neighbouring lands. The negative effects of invasive species include the reduction of plant biodiversity, displacement of native plants, degradation of wildlife habitat, increased erosion and sedimentation, reduction in recreation opportunities, crop yield and quality, animal health and the reduced aesthetic value of an area. These risk analyses indicate the critical importance of prevention in all sectors; invasive species are not restricted to harming just forest lands and resources.

Many organizations and industry leaders are taking a stand to stop the spread of invasive species. The Ministry of Forests, Lands and Natural Resource Operations (FLNRO), in partnership with the Invasive Species Council of BC, has created a Best Management Practices Guide that offers simple solutions to prevent the spread of invasives for those working in the forestry industry. These best management practices give companies the tools to prevent the spread of invasive species and limit the spread of existing infestations. The cost of controlling invaders is huge; by comparison, prevention incurs minimal cost.

In addition to being negatively impacted by invasive plants, forestry activities directly affect the spread of invasive plants in two ways: as a vector (plant parts and seed can hitchhike on equipment, clothing and materials), or due to soil disturbance, (which is the ideal situation for an invasive plant.) By applying some simple best practices, forestry managers and field workers can reduce the spread and establishment of invasive plants.

The Invasive Species Council of BC (ISCBC) is a registered charity and works in collaboration to minimize the introduction, establishment and spread of invasive species. The ISCBC, in partnership with FLNRO and with input from the forest industry, has developed a set of best management practices that are suggested for all forestry activities in the province.

The Best Management Practices Guide for Forestry Operations, which is scheduled to be released this spring, includes plant identification information, legislative references and best practices, among other key components of invasive plant management. The guide was designed as a compact, waterproof reference manual for workers in the field to identify the best practices they can use, and to recognize some of the key invasive plants in the province. Key legislation such as the *BC Weed Control Act*



Viewpoints

By Jennie McCaffrey and Gail Wallin

The following best management practices should be used widely whenever possible:

1. Incorporate known invasive plant sites into development plans and report new sites as they are discovered

Inspect work sites and report the size and location of unreported infestations. Plan activities so they will not spread existing infestations.

2. Avoid infested sites for staging, parking and log sorting, both in the bush and storage yards

Vehicles, equipment and logs can pick up plant parts and seeds, especially in muddy conditions, and carry them to new locations.

3. Work in uninfested sites before moving to infested sites

Vehicles, equipment and clothing are vectors for seeds and plant parts, so whenever possible, schedule work activities to begin in the most pristine sites first and end in the most infested sites.

4. Clean equipment before moving to a new work site or region

Remove seeds and plant parts within existing infestations or at designated wash sites to prevent spread to new sites. Do not move muddy equipment to a new work location.

5. Inspect and ensure road fill materials are free of invasive plants before transport and use

Use only clean fill material from an invasive-plant-free source. Regularly inspect material sources (e.g. gravel pits) for invasive plants and record and report any infestations.

6. Minimize soil disturbance and maintain native vegetation

Minimize unnecessary soil disturbance. Every cut made by bladed equipment into previously undisturbed soil and vegetation increases the likelihood of infestation by invasive plants. A cover of native forest vegetation is the best defense against problem plants.

7. Revegetate disturbed sites promptly

Disturbed soil should be seeded promptly with mixtures that are free of weeds, locally adapted, non-invasive and quick to establish. Prior to seed purchase or mixing, request a "Certificate of Seed Analysis" for every seed lot and reject the seed lot if the analysis lists any species on the *BC Weed Control Act Regulation* or *FRPA Invasive Plants Regulation*.

8. Promptly eliminate infestations resulting from forestry activities

Remove invasive plants prior to seed set to prevent build-up of seed banks that will take years to eliminate. Prioritize treatment of roadsides and landings to reduce inadvertent movement of seeds and plant parts by vehicles and equipment. Monitor to ensure elimination efforts are successful and re-treat if necessary.

All forestry workers are encouraged to apply these best practices for the health of their operations, their staff and the forests of British Columbia.

Reporting

1. **Report-A-Weed app on your smartphone** (www.reportaweedbc.ca)

2. **Contact your regional invasive species coordinator** (information on our website: www.bcinvasives.ca)

3. **Use the Invasive Alien Plant Program Application online** (<http://www.for.gov.bc.ca/hra/plants/application.htm>)

4. **Call 1.888.933.3722**



and the *BC Forest and Range Practices Act* are summarized to provide an overview of those requiring compliance from the forest industry.

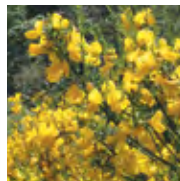
If you have any questions, or would like to book a training session in your area, please visit www.bcinvasives.ca for more information. Follow us on Facebook and Twitter (@ISCBC) 🐦

Jennie McCaffrey is the training and outreach coordinator for the Invasive Species Council of BC. Her experience is primarily in environmental education and professional development. Jennie currently lives in Kamloops where she enjoys spending her time outdoors gardening, camping and hiking.

Gail Wallin, executive director for the Invasive Species Council of BC, is an experienced facilitator for industry and government on complex resource management and land use planning issues across BC.



DID YOU KNOW? Giant hogweed (*Heracleum mantegazzianum*) is prevalent on Vancouver Island, taking over huge patches of land, blocking sunlight to seedlings, and causing severe burns to humans and animals due to its toxic secretions. This large dominant plant suppresses undergrowth vegetation often creating a monoculture stand covering hectares of land.



DID YOU KNOW? Scotch broom (*Cytisus scoparius*) competes with seedlings and can quickly take over a large area with no regard for biodiversity. This rapidly growing plant can overtake young plantations requiring the planting of larger and older stock—all increasing costs of silviculture.



DID YOU KNOW? Leafy Spurge (*Euphorbia esula*) can quickly invade cut blocks, outcompeting native plants and seedlings. It also exudes a toxic, milky, latex substance and thrives in partial canopy environments.

1 Husack, C., Harte, M and Chan, S., 2009. The Economics of Invasive Species. University of Oregon, Corvallis, Oregon.



MAIN IMAGE: Scientists have developed genomics-based diagnostic tests to identify if these healthy looking trees are carrying pathogens



Discovery research uncovers the genetic and molecular underpinnings of practical and selective tree breeding.



Blighted leaves, spotted needles, bare branches, cankered stems—they are proof that an increasing number of young and mature trees are succumbing to invasive pests.

Photos: Courtesy Genome British Columbia



Genomics: A Valuable Tool in the Fight Against Invasive Microbiotic Species

Global and Local Invaders

Invasive species pose a significant challenge to Canadian forests, tree farms and nurseries. The evidence is all around us — blighted leaves, spotted needles, bare branches and cankered stems — they are proof that an increasing number of young and mature trees are succumbing to invasive pests. The worrisome rise in alien pathogens can be attributed to the globalization of trade and the increased movement of goods and people. The expanded range of pathogens is likely due to climate change. In addition to indigenous threats to our forests such as Septoria Canker, Canadian flora must also contend with the accidental introduction of invasive alien pathogens and infectious agents such as viruses, bacteria and fungi. Non-native pathogens including white pine blister rust, chestnut blight and sudden oak death have caused irreversible, ecosystem-wide damage.

Invasive pests cost the Canadian economy more than \$2 billion annually. But we have a new weapon in the fight and we're turning the tables on these invasive 'creatures' by using their own DNA against them. The information in their genomes gives us a blueprint of their molecular makeup, thereby enabling the development of bold new genomic tools to help thwart their presence in our forests.

Seeing the Pathogen Through the Trees

Identifying both the infectious agents and their origins is critical to preventing damage to the forestry and horticultural industries. We know that many pathogens can remain latent on asymptomatic plant or wood material and that no amount of visual inspection will ever pick them up. The key is to identify hidden pathogens in what appear to be healthy plants and trees. Techniques involving the physical isolation of the pathogen take weeks to perform—precious time that forest professionals just don't have in situations where, for example, a dangerous pathogen is detected in a foreign shipment and this infestation will put other tree species in the nursery at risk. And, isolation-based techniques only look for known pathogens, often allowing unknown ones to slip through.

An example involves poplar cankers, which were first introduced to BC in 2005. The BC Ministry of Forests, Lands and Natural Resources (FLNRO) has been able to use the DNA assay test to sample thousands of leaves and map the pathogen's origin. The test results, when overlaid with a geographic map, showed that the pathogen was concentrated in and around tree plantations and not found anywhere else on the west coast of North America. This knowledge, generated by genomic testing, means that eradicating poplar cankers from BC is now possible because we know where it exists.

Genomics-based diagnostic tests shed light into whether a tree is carrying a pathogen even if it looks healthy. These tests, developed with support from Genome BC, Natural Resources Canada and FP Innovations, will deliver improved methods of pest diagnostics that can now be implemented in real time and can therefore prevent an imported, infectious sapling from finding its way into a Canadian nursery or forest. The protection of forest health is so critical that genomics research into detecting and fighting foreign pests is now being conducted by scientists including UBC's Dr. Richard Hamelin. At the request of partners such as the Canadian Food Inspection Agency (CFIA), Dr. Hamelin and his team have developed tools that are so advanced they can now target unique genes and can identify the strain of pathogen or virus these genes come from.

In genomic analysis the technique applied is targeting a specific pathogen rather than blanket testing. The samples, because they contain DNA, can be amplified from wood, needles, stems, roots, water and soil samples and are then targeted using a specific assay. While it is possible to do 'fishing' tests on samples, this usually provides more questions than answers. These methodologies and assay tools have been shared with the CFIA laboratory and the research team at UBC is conducting tests on behalf of FLNRO on a fee-for-service basis.

This type of diagnostic and preventative research will generate a number of important benefits, including the prevention of potentially detrimental pathogens from spreading through our forests; assisting the forest and nursery industries with plant and product certification; and ensuring that Canadian products and materials are in demand in international markets. The diagnostics provided by this work are expected to produce annual economic benefits in the tens of millions of dollars.

Fighting the Good Fight

Establishing basic genetic information takes a huge amount of effort and time, but without discovery research we would not be able to uncover the genetic and molecular underpinnings of practical and selective tree breeding. Today, because of strategic and forward-looking investments by Genome BC and partners, the forest pathologists' arsenal includes molecular technologies being used in combination with traditional testing methods to assess tree health, positioning BC as a leader in addressing forest health. 🐼

Gabe Kalmar joined Genome BC in August 2004 with a history of leading strategic consulting activities which included overseeing operations, implementing technology development and providing merger and acquisition planning. Gabe obtained his undergraduate science degree from the University of British Columbia and his PhD in biology from Simon Fraser University.

Don't Move Firewood!

A Movement to Contain the Spread of Emerald Ash Borer



Photo: Debbie Miller

Adult emerald ash borers create numerous tiny D-shaped holes throughout a tree and females lay hundreds of eggs on the bark and branches of trees.

IN 2010, A RECREATIONAL VEHICLE WAS STOPPED FOR A ROUTINE agricultural inspection on the state border of California. Originating in Michigan, the RV had already passed through at least six US states and traveled more than 2000 miles. Inside, alive and well, was a federally wanted, extremely dangerous, hitchhiker that was poised to escape into California, potentially killing millions. Who was it? The emerald ash borer.

This is almost certainly how the emerald ash borer will reach British Columbia. The emerald ash borer kills all the urban ash (*Fraxinus*) trees of each municipality it reaches — including the potential to destroy Vancouver's existing eight percent urban tree canopy. Unfortunately, this menace creeps closer and closer with every passing car, truck and RV. With millions of vehicles traveling across the continent each year, the statistics are not favourable for ultimately controlling the human-assisted spread of invasive foreign wood boring pests like the emerald ash borer.

The eastern half of North America is already familiar with the ravages of emerald ash borer. First documented in 2002 in Michigan, the emerald ash borer has since spread through three main methods — ash nursery stock movement, ash firewood movement and natural dispersion—to now infest at least one county in 18 US states as well as multiple infestations in the provinces of Ontario and Quebec. The movement of infested ash nursery stock was curtailed dramatically once it was discovered to be a vector for the emerald ash borer; however, in some cases the beetles had already become entrenched and infestations could not be controlled. With one method of spread largely eliminated by the actions of the nursery industry, there remains one way that humans help emerald ash borer march across the urban, rural and wildlands forests of North America: moving firewood.

It might seem far-fetched to say that ordinary citizens move firewood all the time—but they do. The Nature Conservancy conducted a poll of US citizens in 2010 that showed 50% of all respondents use firewood in a given year, and 35% of those people had moved

that firewood some distance (e.g. farther than from the backyard into the fireplace). 42% of those people (making seven percent of the total sample) move it more than 50 miles at a time. That means that 22 million people, largely without realizing it, are taking their chances at relocating invasive forest pests every single year.

Once the emerald ash borer reaches a new population of ash trees, there is no currently available treatment that can control it in the long term. All true ash (all *Fraxinus*, but not *Sorbus*) are affected, and without treatment all will die from emerald ash borer infestation, usually within two to five years. Thankfully, there are pesticides that can be applied to control emerald ash borer in limited applications. Unfortunately, this solution is costly, requires years of commitment, is ineffective in certain environmental situations and is not necessarily environmentally desirable on larger scales (see emeraldashborer.info and search for Insecticide Options to learn more). Pesticides, ultimately, cannot be the only solution for emerald ash borer.

Emerald ash borer is a non-native invasive species and as such, biological control through natural enemies may hold potential. Unfortunately, while the biological control of emerald ash borer through three species of host-specific stingless parasitic wasps from China is being actively pursued by multiple US federal agencies and partners, the current extensive infestations of emerald ash borer throughout North America are not yet being significantly reduced by biological control releases. Only the future will tell if emerald ash borer can be brought down to a manageable level in North America by the process of forcing it into a more natural equilibrium via parasitoids.

The emerald ash borer has killed more than 25 million trees in North America and continues to spread across the continent. Think about the real life example of the RV entering California, multiply it by 22 million people moving firewood more than 50 miles every year, and you can see that human-assisted movement of firewood is



A closer look at the size and scale of the adult emerald ash borer.

Photo: Marianne Prue



The damage to a tree caused by emerald ash borer

Inset photos courtesy of Bugwood.org

Photo: Daniel Herms

hugely problematic. To complicate matters, the movement of firewood is both an issue of individuals moving it independently, and of the widespread commercial distribution of firewood to retail outlets. Untreated commercially distributed firewood is also a significant part of the picture, although this threat is mitigated by the many regulations and quarantines present in the Eastern region's emerald ash borer-infested states and provinces. A study published in 2012 by William Jacobi in the journal, *Forest Entomology*, provided a disturbing glance at the extent of the issue in currently emerald ash borer-free Western US's commercial firewood markets.

"In a national survey of retail locations selling firewood in 18 states, over half (52%) of the firewood was from sources out of the purchase state and 50% showed evidence of insect infestation... In 2007 to 2009, we purchased 419 firewood bundles from retailers in Colorado, New Mexico, Utah and Wyoming and caged the firewood to quantify insect emergence. Live insects emerged from 47% of firewood bundles over 18 months of rearing time."

The Nature Conservancy manages the international "Don't Move Firewood" campaign, which serves as a connection point for dozens of cooperating groups and agencies throughout North America that are working to educate the public on the issue of firewood movement and invasive forest pests. To learn more about Don't Move Firewood, please visit dontmovefirewood.org or friend us on Facebook at [facebook.com/dontmovefirewood](https://www.facebook.com/dontmovefirewood)

For specific information on emerald ash borer in Canada, please visit: <http://www.inspection.gc.ca> and search for Emerald Ash Borer in the search box at the top right. 🐛

Leigh Greenwood manages the Don't Move Firewood campaign for The Nature Conservancy's Forest Health Protection Program. She lives and works in beautiful Missoula, Montana.

Biological Control of Emerald Ash Borer in Canada

- The Canadian Forest Service petitioned the Canadian Food Inspection Agency in February 2013 to permit the import of biological control emerald ash borer parasitoid wasps from the rearing facility in Michigan.
- If approved, the release of *Oobius agrili*, *Spathius agrili* and *Tetrastichus planipennisi* will take place in southwestern Ontario in spring and summer 2013.
- A minimum of 1,600 individual wasps will be deployed throughout the emerald ash borer's susceptible periods at the selected field site.
- If this release proves successful, multiple future releases of these exotic parasitoids will complement additional planned efforts to utilize native parasitoids and fungal pathogens in reducing emerald ash borer infestations.

Invasive Plants: The Top Offenders

This at-a-glance reference guide shows BC's most prevalent invasive plants.

Knowing what to look for and what best management practices to follow are the first steps in stopping their spread and protecting BC's Forests.

Background Sources:
Open Learning Agency. 2002. Guide to Weeds in British Columbia. BC Ministry of Agriculture, Food and Fisheries. Victoria, BC.
Images and descriptors courtesy of the Invasive Species Council of BC



Canada Thistle *Cirsium arvense*

The roots of the Canada thistle can grow rapidly, growing up to 5.5 metres per year. New shoots are produced anywhere along this root system, creating dense thickets that are difficult to manage.



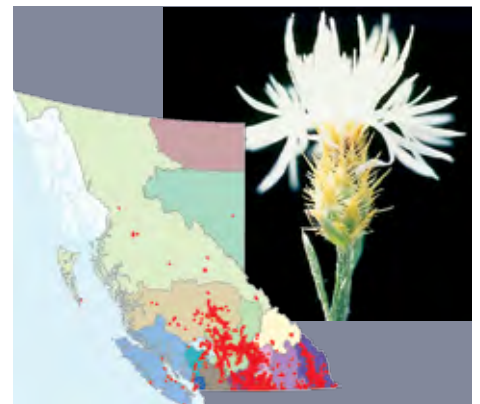
Gorse *Ulex europaeus*

Gorse can be a fire hazard in logged areas, colonizing the disturbed site before native vegetation can take hold.



Marsh Plume Thistle *Cirsium palustre*

This invasive plant colonizes quickly in cut blocks and aggressively competes with seedlings.



Diffuse Knapweed *Centaurea diffusa*

This invasive plant replaces forage species, reducing biodiversity as well as creating erosion issues.



Scentless Chamomile

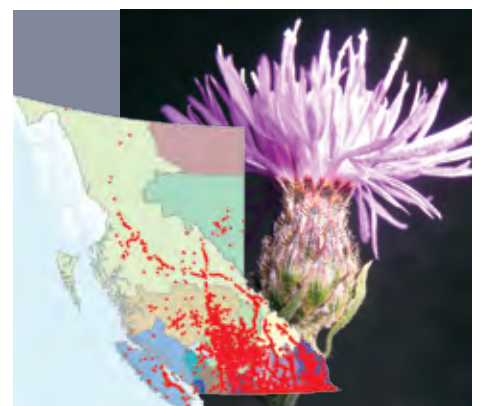
Tripleurospermum inodorum

This invasive plant can form dense stands and thrives near water bodies, germinating during flooded conditions.



Oxeye Daisy *Leucanthemum vulgare*

Oxeye is often found on landing and skid trails, quickly colonizing the disturbed soil and out-competing native vegetation.



Spotted Knapweed *Centaurea biebersteinii*

This invasive plant is very competitive, quickly reducing native populations, and can cause skin irritation for human and animals on contact.



Orange Hawkweed *Hieracium aurantiacum*

This invasive plant can quickly infest a disturbed site; minimize disturbance and wherever possible, maintain native perennial cover to avoid infestations.



Knotweeds *Fallopia spp.*

Knotweeds grow quickly above and below the ground, causing slope destabilization and erosion. Japanese knotweed, giant knotweed and Himalayan knotweed are shown above.



Dalmatian Toadflax

Linaria dalmatica

This invasive plant spreads with its large root system, and thrives in forest grasslands. It is toxic to animals and can reduce forage areas.



Giant Hogweed *Heracleum mantegazzianum*

The giant hogweed excretes a milky fluid that can cause severe skin burns.



Common Tansy *Tanacetum vulgare*

Common tansy grows well in disturbed areas, and can be toxic to humans if consumed in large amounts.



Bull Thistle *Cirsium vulgare*

Bull thistle invades disturbed areas such as clear cuts and can thrive as the dominant species for years.



Yellow Hawkweed *Hieracium pratense*.

This invasive plant can quickly infest a disturbed site; minimize disturbance and wherever possible, maintain native perennial cover to avoid infestations.



Leafy Spurge *Euphorbia esula*

Leafy spurge secretes a milky substance that is toxic to some livestock, and can cause skin irritation and swelling for humans that come into contact with it.



Annual Sow Thistle *Sonchus oleraceus*

This invasive plant can rapidly colonize both disturbed and healthy environments. It thrives in moist climates and does well in recently logged areas.



The Effects of Low-Intensity Fire on Vegetation and Fuel in a Pine/Bunchgrass Savanna

WITH FIRE BECOMING INCREASINGLY ACCEPTED AS A FUEL MANAGEMENT tool and fire danger at the wildland/urban interface becoming more evident, we were able, in 1978, to set up a long-term field trial to quantify the effects of burning; most previous assessments on the impacts of fire had been qualitative and subjective.

The study site is in the Lower Dewdrop Range near Kamloops in the very hot, dry sub-zone of the ponderosa pine biogeoclimatic region. The soil, (well-drained loamy sand) with a 1 cm humus layer and a compacted C horizon, overlies colluvial material on volcanic bedrock. Vegetation is an open stand of ponderosa pine and interior Douglas-fir over rabbitbrush and sagebrush with a ground cover of mainly bluebunch wheatgrass and rough fescue.

We measured vegetation, soil and weather parameters in detail before burning; fire intensity during burning; and detailed changes in soil and vegetation for three years after the fires. Despite changes in personnel and funding, less intensive measurements were carried out 10 years later and followed up by visual inspection.

The results were encouraging. Fuel reduction, combining all fuel class sizes, ranged from 92% to 53% and averaged 76%. There was significant leaf drop in the months following burning, which caused a build-up of fine fuel but this lasted through only one summer. Only the smaller trees were killed by the fires: the survival threshold was 7.5 cm diameter at breast height (dbh) for Ponderosa pine, estimated age 35 years; and 12.0 cm dbh for Douglas-fir, estimated age 55 years. For this site there was a good correlation between age and diameter but bark thickness was too variable to permit meaningful correlation.

From a range management perspective, our results were again encouraging. The unpalatable sagebrush and rabbitbrush were killed in all burned plots except one which was burned only lightly in May and where a few specimens survived. Shrub canopy was reduced by 99% while, in the control, it increased slightly, by two percent. At the same time the desirable bluebunch wheatgrass increased in basal area relative to the control and, in the year following burning, in nutrient content also. This enhanced nutrient value had disappeared three years after burning.

Changes in soil nutrient content were also short-lived. Initially there was a greater nitrogen content in the control than in burned plots but, conversely, less ammonium; concentration of ammonium was greatest in the most recently burned plot. Available phosphorus increased after burning but there was only a slight and temporary increase in foliage phosphorus, likely due to immobilization of phosphorus by dry conditions and interaction with calcium. More exchangeable potassium was detected in the 0-5cm stratum of burned plots than in the control but it should be noted that potassium is readily leached and so burning before the usual rainfall peak in June might deplete soil potassium. The relatively high concentration of calcium in the most recently burned plot and after the hottest fire is consistent with a flush of available nutrients

following burning. Soil pH was initially higher in the burned plots than in the control but little different after 10 years.

There are both short-term and long-term benefits from low-intensity fires—reduction in fuel loading, enhanced forage nutrient quality and removal of unpalatable shrubs. Possible harmful effects are elimination of the youngest age class of conifers and a risk of depletion of soil potassium if fires are burned shortly before rain falls. One cannot eliminate the possibility of fire escape but thoughtful planning and careful operating minimize this risk.

Fire scars dating back to 1540 indicated an arithmetical mean fire interval in this site of 19.3 years with a range from 5 to 49. From this we can postulate a controlled burn regime of 20 years as approximating natural conditions with accompanying short-term beneficial effects and no unacceptable environmental changes. 🐾



Soil pit adjacent to bush plots

Roy holds a BSc (forestry) degree from Edinburgh University (1950) and a PhD (ecology) from London University (1965) and was named ABCFP Distinguished Forester in 2000. After a career in research and teaching he retired as Associate Dean (Renewable Resources) of BCIT. Since then he has reviewed many books for BC Forest Professional magazine, served on the editorial board and has been pivotally active in Sunnyside Acres Urban Forest.



Clockwise from left:

General view of trial site.

Additional general view of trial site.

Characteristic ground cover of coarse and fine fuels and bunchgrasses

Temporary accumulation of needles after burning, with a single pine germinant.

The 65th ABCFP Forestry Conference and AGM

ABCFP • 2013 AGM



forestry
The Future is Growing

Clockwise from top left: Bill Bourgeois, PhD, RPF, accepting his Professional Forester of the Year award from ABCFP president Steve Lorimer. Among his many accomplishments, Bill was recognized for his instrumental role in coordinating a non-partisan volunteer initiative known as Healthy Forests-Healthy Communities: A Conversation of BC Forests.

Mauro Calabrese's, RPF, contribution to the November/December edition of BC Forest Professional magazine, entitled "Big Dreams and Hard Realities in BC's Interior" earned him Best Article for 2012.

THE FORESTRY: THE FUTURE IS GROWING

conference in Prince George attracted 300 attendees—the largest conference the ABCFP has held in several years. Participants were able to learn from experts on recruiting and retaining top talent; working with multiple generations; the future of forest products and markets, and turning adversity into opportunity.

We were very pleased that both Minister Steve Thomson and Norm Macdonald, the NDP forestry critic, spoke at the conference. Minister Thomson announced the province's inventory plan at the Minister's Lunch and also highlighted the work of forest professionals employed by the provincial government.

A proud moment for this year's inductees, as they await being called up to the stage to be officially welcomed into the ABCFP.

Rick Monchak, RPF, was named 2012's Distinguished Forest Professional, an honour bestowed to him in recognition of his 30-year career in forestry, which included roles in operations, silviculture, planning and mentorship.

One of the highlights of the conference was the President's Awards Banquet. Attendees were entertained by comedian Damien James who turned award winner Maruo Calbrese, RPF, into a ventriloquist's 'dummy' for a short time. Professional Forester of the Year, Bill Bourgeois, PhD, RPF, and Distinguished Forest Professional, Rick Monchak, RPF, both received standing ovations.

Melissa Kirk, RPF, of Campbell River was named valedictorian after scoring the highest mark on the Registered Professional Forester exam. In her acceptance speech at the Inductees' Recognition Luncheon, Melissa spoke passionately about her interest in the field and the optimism she felt about the range of opportunities available to her entire graduating class. Megan Tandy, RFT, who earned the highest mark in the Registered Forest Technologist exam, delivered an engaging speech detailing her main motivation for achieving high marks on the exam: to win a bet with her sponsor! Both valedictorians were enthusiastically applauded by their peers, who were also welcomed into the association during the recognition ceremony.

The host committee was very pleased to also bring conference keynote speaker Warren MacDonald to College Heights High School in Prince George where he shared his love of the outdoors and message of overcoming adversity to the 400 students in the audience.

Next year's conference takes place in Kelowna. We hope you will be able to join us in 2014! 🌲



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Clockwise from top left: Warren Macdonald dazzled the crowd with his awe-inspiring story of how he found opportunity after a devastating rock climbing accident left him an amputee.

This year's RFT valedictorian, Megan Tandy, offered enthusiastic and optimistic perspectives on the first steps of her journey into a forestry career.

During a lunchtime speech, Minister Steve Thomson provided updates on provincial initiatives in the sector and also took time to answer individual questions from the assembled crowd.

NDP Forestry Critic Norm Macdonald spoke at the conference and provided many interesting insights on opportunities in the forestry sector.

A bagpiper led the procession of the new ABCFP members into the ballroom during the Inductees' Recognition Luncheon.



American Canopy

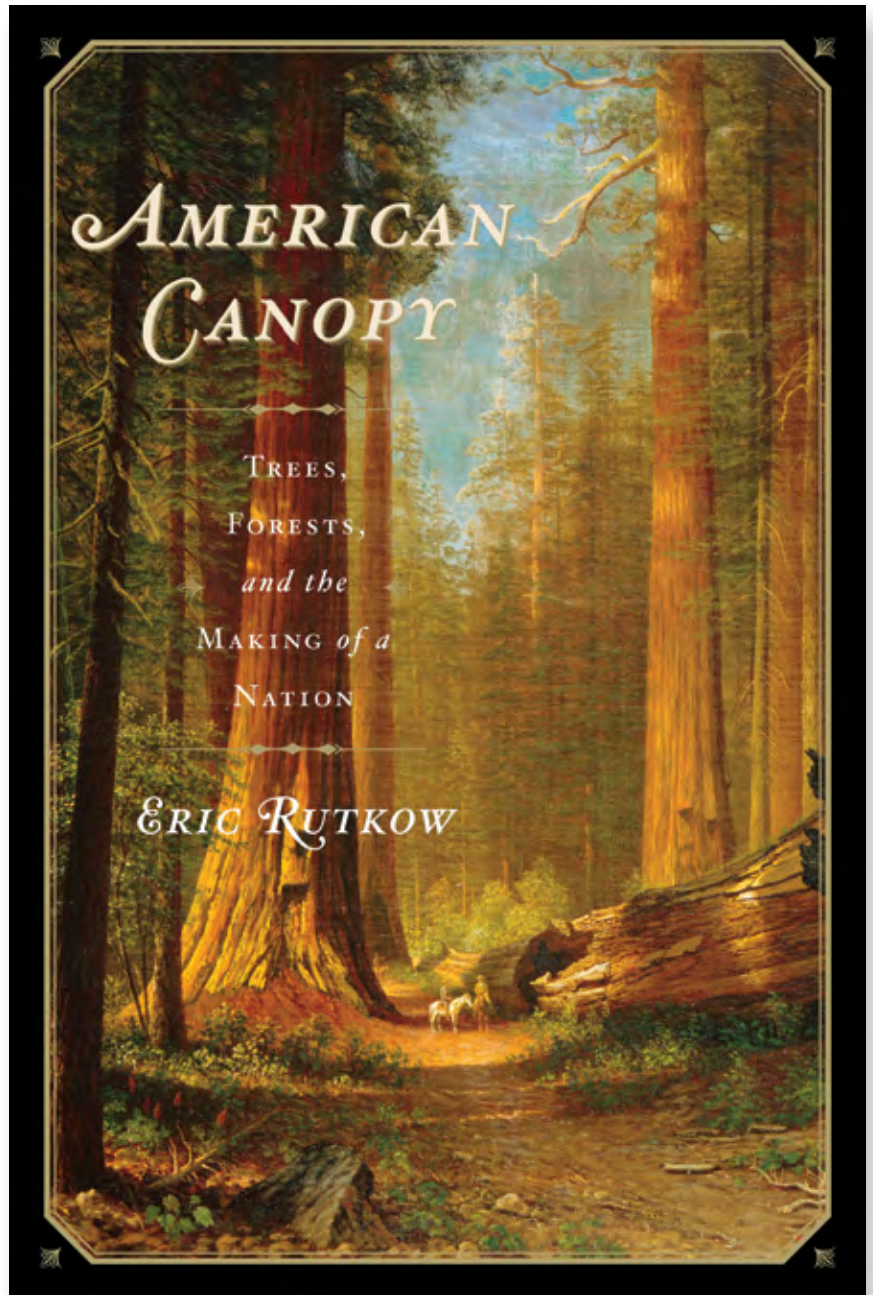
By Eric Rutkow
 Publisher: Scribner
 2012, hard cover, 348pp
 ISBN: 978-1-4391-9354-9

“CUT’ER DOWN,” YELLED THE LEAD FOREST RANGER TO the tree feller hired for the local forestry project on Wheeler Peak. In 1964 the oldest non-clonal tree, a bristlecone pine named Prometheus that was at least 4,860 years old, was felled upon request by Donald Curry in western Nevada. The keen forestry graduate student wanted a clean age sample so he could study historical climate but unintentionally cut the oldest tree. Not surprisingly the mistake was collectively considered a tragedy. However, the rift this story created between different factions in society underpinned the strong personal relationships we have with this long-living member of the plant kingdom. Many of us were drawn into our professional forestry careers because of our own history with trees. We can all agree that society’s relationships with forests are rich, multilayered and have seen significant shifts in our perceptions of trees and nature. Eric Rutkow, a doctoral student at Yale University, reminds us in his new book *American Canopy*, that much of our continent’s history has been defined by trees.

RANKING: 4 OUT OF 5 CONES



The book explores a remarkable evolution of our relationship with forests from enemy, to friend and potential environmental saviour, drawing from rich informed historical accounts. Early settlers often agreed with the following commentary by Richard Bradford: “It was so encompassed with woods...and so much ground to clear, so as we thought good to quit and clear (leave) that place.” However, within 50 years these uninviting forests became the mainstay of North American culture. Rutkow succeeds in illustrating the long history of benefits the forests have bestowed on citizens, from ship masts to pulp for newspaper with whole regions of the continent transformed by a demand for wood in all its forms. With the onset of the environmental era, our awareness changed again as forests became



more than mere raw products for a growing society but as a buffer against climate change.

As forest professionals we often struggle to clearly express to ‘the public’ the utmost importance of forests. Often the public is only drawn into our daily conversation during observable catastrophes and soon returns to indifference. Share this book with friends and family outside of our stewardship community. A history of forests is a healthy antidote to the virtual reality in which many of us live. Rutkow clearly demonstrates both the past and future necessity of forests in our collective lives. 🌲

Reviewed by Nathan Paul Davis, RPF.

Occupational Health and Safety on Resource Roads

A YEAR AGO IN THIS SPACE WE EXAMINED AMENDMENTS MADE TO THE Occupiers Liability Act that limited the exposure of government and other parties responsible for resource roads to civil liability-related third party use of resource roads. This past fall, the government implemented another measure designed to insulate those responsible for resource roads from liability under the Occupational Health and Safety Regulation (“Regulation”) of the *Workers Compensation Act* (“Act”). The government’s cabinet passed an amendment to the Regulation that attempted to clarify some of the confusion that has historically existed with respect to the application of occupational health and safety law in BC to resource roads. Unfortunately, despite this entirely laudable objective, the amendment may have the opposite result.

The essence of the amendment is to establish that, for purposes of the Regulation, a “workplace” does not include a resource road. Among other things, the Regulation imposes obligations upon various actors (for example: owners, employers and prime-contractors) with respect to occupational health and safety at a “workplace.” In the past, questions have arisen with respect to whether a resource road is a “workplace” and if so, how a person with responsibility for occupational health and safety at such a workplace meets his/her obligations. At first blush, the amendment appears to resolve these questions in that it does away with any potential liability that a person with occupational health and safety responsibilities for a “workplace” potentially may have on account of a resource road that might otherwise have constituted a “workplace.”

However, there are two difficulties, one of a technical legal nature, and another in the nature of unintended consequences. With respect to the former, the term “workplace” is not actually defined in the Regulation—it is defined in the Act itself. Moreover, the Act explicitly states that its definition of “workplace” applies to Part 3 of the Act (the part concerned with occupational health and safety) and “[i]n... the regulations made under this Part.” That would include the Regulation.

Without getting too arcane about it, the problem is that government cannot modify by regulation what the legislature has done in a statute unless the legislature has given government the authority to do so in the statute itself. The Act does not appear to authorize government to use the Regulation to change a definition created under the Act for purposes of the Regulation itself. Interestingly, the Act does give government the authority to define by Regulation terms used in Part 3 of the Act but that are not defined

in Part 3. Of course, this does not apply to “workplace” given that the term is defined in Part 3 of the Act.

While government legal counsel could undoubtedly conjure up potential counter arguments, the absence of any express authority in the Act for this particular amendment to the Regulation raises the spectre of whether the amended definition of “workplace” for purposes of the Regulation is lawfully valid.

In terms of unintended consequences, the effect of the amended definition of “workplace” in the Regulation is that there is one definition of “workplace” under the Act (one that could include resource roads), and a different definition of “workplace” under the Regulation (one that does not include resource roads). Both the Act and the Regulation impose obligations upon owners, employers, prime contractors, and so on, with respect to workplaces. If a resource road was a “workplace” under the Act before the amendment of that term for purposes of the Regulation, nothing has changed—it is still a workplace for purposes of the Act, and all the requirements applicable to a workplace under the Act still apply. Any owner, employer or prime-contractor who relies upon its employees or contractors to ensure compliance with the requirements imposed under the Act with respect to resource roads that are workplaces under the Act better hope those employees and contractors understand this very subtle legal distinction, and do not simply assume that the Regulation has altered the definition of “workplace” for all purposes. 🐼

Jeff Waatainen is a past adjunct professor of law at UBC, has practised law in the forest sector for over 15 years, and currently works in the Forestry Law Practice Group of Davis LLP's Vancouver office.

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CHRISTMAS TALE continued from Page 10

invasive species to be introduced is crucial. If you come across something that you haven't seen before or notice increasing die back in trees, whether it is in your back yard or in the middle of the forest, take a closer look and then contact your district or regional forest health specialist to see if they are aware of it. Oftentimes, detection of invasive species do not come from formal surveys, but rather from members of the public who see something unusual and report it to specialists. With ever-tightening resources limiting the number of boots on the ground, combined with the ever-present threat of invasion, we all need to pitch in and be on the lookout for these alien invaders, both in the products we buy and in our backyards. 🐛

Jennifer is the provincial forest entomologist with the Ministry of Forest, Lands and Natural Resource Operations. Based in Victoria, she travels to wherever the bugs are.

WHAT WE DO continued from Page 11

with support of citizen science reporting. The more eyes noticing and reporting invasive plant species in the province, the greater the chance we can prevent the establishment and spread of new threats.

To facilitate reporting, there are now two options available through Report-A-Weed:

- 1) A three-step online tool that is connected to the Invasive Alien Plant Program (IAPP) Application (<http://www.for.gov.bc.ca/hra/plants/raw.htm>); and,
- 2) A smart phone application for Android and iPhones (Find links at <http://www.reportaweedbc.ca>).

Fortunately, most invasive plant survey and inventory information across the province is housed in the IAPP Application, a web-based database and mapping tool (<http://www.for.gov.bc.ca/hra/plants/application.htm>). The interactive mapping module allows users to query both invasive plant species distribution and specific treatment data, and is updated every 24 hours. This centralized inventory benefits all land and resource managers.

The challenges and risks posed by invasive species are significant. The IMISWG will continue to move forward on key strategic initiatives, such as those described above, and strengthen the cross-ministry collaboration and resource sharing that is now commonplace. This working group model has broken down traditional ministry silos, achieving one of the prime objectives for the original formation of the IMISWG – improved invasive species management and coordination across jurisdictions.

Val Miller is the invasive plant officer and program team lead at the Ministry of Forests, Land and Natural Resources.



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In Memorium

It is very important to many members to receive word of the passing of a colleague. Members have the opportunity to publish their memories by sending photos and obituaries to editor@abcfp.ca.

The association sends condolences to the family and friends of the following members:

James Robert Martin Brock

RPF #460

August 25, 1930 – January 9, 2013

Born and raised in Harrogate, BC, Bob worked as a young man in lumber camps and sawmills of the East Kootenays.



Those experiences undoubtedly instilled in him a love of the forest, and a summer job working on a survey crew evoked a desire to become a forest engineer. In 1956, he completed studies at the University of British Columbia, one of two students graduating with a Bachelor of Applied Science in Forest Engineering.

Beginning his career with MacMillan Bloedel on Vancouver Island, Bob joined the Engineering Services Division of the BC Forest Service in 1958, where for 10 years, he provided assessments and road access proposals for areas ranging from Terrace to Fernie.

One of his proudest accomplishments was the preparation of a development plan for the Chilcotin Plateau, including establishment of the optimal route for road approaches to a bridge across the Chilcotin River. Although a sudden landslide forced relocation of the bridge to Farwell Canyon, a sophisticated method, including the use of air photos, was employed to design a series of switchbacks approaching the bridge. The route is still in use today, providing access to the vast area from the Fraser River

westward to the Coast Mountains.

Bob and his wife, Margaret, were married in 1956 in Brisco, BC and their family eventually grew with the arrival of four daughters. In 1968 the family relocated to Nelson, where Bob completed his career in 1988 as regional engineering officer for the Nelson Forest Region. Following his retirement, Bob spent several summers inspecting forest road bridges. Over the years he also put his skills to good use in the development of Nelson's local Morning Mountain Ski Hill, several property subdivision projects and two local water systems.

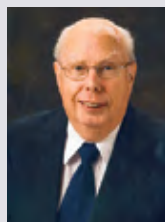
Returning to Vancouver Island in his later years, Bob enjoyed travelling and visiting with his daughters' families, especially his nine grandchildren and his great-granddaughter.

Gordon Lawson Baskerville

Honourary Member

1933-2013

Gordon was born in Emerson, Manitoba on February 20, 1933 and died peacefully in Victoria on February 2, 2013, surrounded by family members. Gordon was predeceased by his father, Wallace; mother, Marjorie, and sister, Doris. He will be dearly missed by his wife, Laura; his children: David, Marjorie, Kristine, and Michael; daughter-



in-law, Katharine; son-in-laws, Ross and Michael; grandchildren, Madison, Lauren, and Meg; as well as his brother, Jack, and his nieces, Wendy, Shelley and Patricia.

Gordon worked for the Canadian Forestry Service in New Brunswick from 1955 to 1974, first as a research scientist and eventually as the program manager of resources research. In 1975 he took up a professional position in the Faculty of Forestry at the University of New Brunswick (UNB). In 1983, after a period as the Assistant Minister of Forestry for the Province of New Brunswick, Gordon became dean of forestry at UNB.

Gordon and Laura left New Brunswick in 1993 when Gordon became professor of

forestry and head of the department of forest resource management at the University of British Columbia (UBC). He was at UBC until his retirement in 1998.

Gordon saw the forests for the trees: in his scholarly pursuits, research always went hand-in-hand with teaching and his thinking reached far beyond the academic community. His colleagues and his students will remember him as passionately committed to sustainable management policy that has had a lasting impact on Canadian forests. He was also a sailor and a skier and he taught all four of his children the wonders of both sports. In his later years, when struck by dementia, he continued to teach his family and friends patience, understanding and acceptance.

Membership Statistics

ABCFP—February 2013

NEW REGISTERED MEMEBERS

Steve Mitchell Bros, RPF
John F. Pumphrey, RPF
Nadia Davina Ramnarine, RFT

NEW ENROLLED MEMBERS

Kurtis Pieter John Buyze, TFT
Justin Curtis Frank, TFT
Nicholas Richard Thomas Hogg, TFT
Caitlyn Anne Klaudt, TFT
Victor Ramirez Nery, FIT

TRANSFER FP TO TFT

Douglas Eric Nelson, TFT

REINSTATEMENTS ENROLLED

Jordan Duncan Carter, RFT, FIT

REINSTATEMENTS REGISTERED

Brett Gunn, RPF
Douglas A. Stables, RPF
Keith Irwin Turriff, RPF
William Jason Wright, RFT

REINSTATEMENTS ENROLLED MEMBERS

Jordan Arthur De Graaf, TFT

REINSTATEMENTS FROM LEAVE OF ABSENCE (REGISTERED MEMBERS)

John Alfred P. Neumann, RPF
Erik C. Wang, RPF

REINSTATEMENTS TO RETIRED STATUS

Delvin Hunter Blackstock, RFT (RET)
Stephen B. Pestell, RPF (RET)

DECEASED

Grant L. Ainscough, RPF (RET)
J. Robert M. Brock, RPF (RET)

The following people are not entitled to practise professional forestry in BC:

NEW RETIRED MEMBERS

Brian D. Downie, RPF (Ret)
Anthony J. Kelly, RPF (Ret)
Norman Philip Larson, RFT (Ret)
C. Gordon Rattray, RPF (Ret)
David J.S. Reid, RPF (Ret)
Phil J. Symington, RPF (Ret)

LEAVE OF ABSENCE (REGISTERED MEMBERS)

Drew Marshall Alway
Carolynn J. Anderson
Cheryl Mandy Crumblin
James Newton DeCoffe
Hongyun Dong
Fred R. Elsaesser
Penny A. Hendricks
Roderick Lloyd Hillyard
Darrin Richard Humber
Art James Murphy
Shawn Torin Murray

Larry Floyd Nixon
Katrin Ramona Powell
Marlene Corinne Thimer
Paul James Toovey
Barry L. Trenholm
Luc C.J Turgeon
Christopher A. Waite
Gary Allan Wallis.

LEAVE OF ABSENCE (ENROLLED MEMBERS)

Jessica Lea Bockus

RESIGNATIONS REGISTERED MEMBERS

Alison Lynn Galbraith
Ryan Glenn Blayne Giesbrecht
Janice L. Girvan
Ryan Conrad Heise
William A. Kuzmuk
Tim G. Shannon

RESIGNATIONS RETIRED MEMBERS

Gordon D. Grunerud

RESIGNATIONS (ENROLLED MEMBERS)

Alysia Jennifer Dobie
Ashley Lynn Hamaluk

MEMBERSHIP WITHDRAWAL

Patrick Doyle

Membership Statistics

ABC FP—March 2013

NEW REGISTERED MEMEBERS

Jillian Lindsey Affleck, RFT
Mitchell Scott Green, RFT
Megan Louise Genevieve Tandy, RFT
Friedrich George Von Westarp, RPF

NEW ASSOCIATE MEMBER

Brock Ryan Essery, ATC

NEW ENROLLED MEMBERS

Matthew Angelo Alves, FIT
Stacey Elizabeth Auld, FIT
Daniel Peter Braun, TFT
Yvan Andreas Kathriner, FIT
Sean Mark Neufeld, TFT
Luke Martin Oomen, TFT
Kevin George Simpson, RFT, FIT
Austin Leigh Tate Teti, FIT

REINSTATEMENTS REGISTERED

Richard Terry Green, RFT, ATE
Matthew Chad Lantz, RFT
Robert A. Love, RPF
Daniel S. Szekely, RPF

DECEASED

A. Larry Parlow, RPF(Ret)

LEAVE OF ABSENCE (REGISTERED MEMBERS)

Lisa Marie Bourdages,
Samuel Dennis Flanagan,
Janet Katharine May,
Theodore Conrad Moore,
Robert Douglas Thompson
Richard Lee Winje

RESIGNATIONS REGISTERED MEMBERS

Kevin L. Wagner

RESIGNATIONS (ENROLLED MEMBERS)

Jason Michael Gowda, RFT*

*active RFT, resigned FP

The following people are not entitled to practise professional forestry in BC:

NEW RETIRED MEMBERS

John C.R. Allan, RPF(Ret)
Kathryn D. Danchuk, RPF(Ret)
David T. Wetton, RPF(Ret)

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A Moment in Forestry

Submit your moment in forestry to Doris Sun at: editor@abcfp.ca



Serenity Now Submitted by Dave Knowles

A serene view captured just north of Golden, BC. Looking down on Kinbasket Lake, which is backed up by the Mica Dam, this vantage offers a clear view of Bear Island, aptly shaped and featured in the distance.



Contract Training

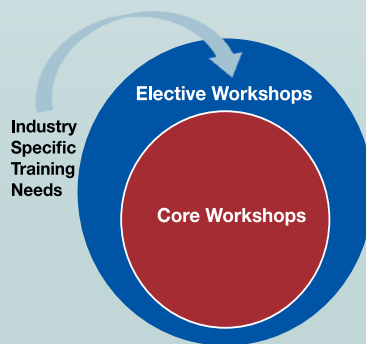
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Forest Harvesting & Silviculture Module

Date: May 6 - 7, 2013 Location: Campbell River, BC

Date: May 13 - 14, 2013 Location: Nelson, BC

Wildland Fire Safety Module

Date: May 8, 2013 Location: Campbell River, BC (recertification)

Date: May 8 - 9, 2013 Location: Duncan, BC

Date: May 17 - 18, 2013 Location: Nelson, BC

Parks & Recreation Module

Date: May 6 - 7, 2013 Location: Victoria, BC

Date: May 15 - 16, 2013 Location: Nelson, BC

Date: May 23 - 24, 2013 Location: Prince George, BC

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Upcoming Courses!

Silviculture Survey Accreditation Exam

Date: May 6 - 7, 2013 Location: Sorrento, BC Cost: \$630

Wildland Firefighting Training Certificate

Date: May 6 - 17, 2013 Location: Prince George, BC Cost: \$1800

Introduction to OzieExplorer

Date: May 13, 2013 Location: Prince George, BC Cost: \$150

Silviculture Survey Accreditation Exam

Date: May 13 - 14, 2013 Location: Prince George, BC Cost: \$630

GPS for Silviculture Surveyors

Date: May 15, 2013 Location: Prince George, BC Cost: \$195

Wildland Firefighting Training Certificate

Date: June 3 - 14, 2013 Location: Kamloops, BC Cost: \$1800

Advanced Road Deactivation

Date: June 11 - 13, 2013 Location: Kamloops, BC Cost: \$395

Northern Silviculture Committee Summer Field Tour

Date: June 18 - 19, 2013 Location: Burns Lake, BC Cost: \$225

Ecosystems of BC

Date: August 19 - 31, 2013 Location: Field Tour through BC

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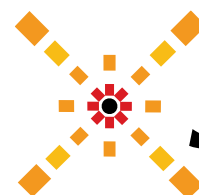
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