

Time to Renew Your Membership



Your Practice Makes a Difference.

Be Sure to Renew Your Membership On Time.

There are three steps to renew membership for:

- Active RPFs or RFTs
- RPFs and RFTs on LOA who are employed and work in BC
- Associate Members
- Transferring Forest Professionals
- Limited Licensees

Step 1 Submit your 2013 Self-Assessment Declaration

Step 2 Notify the ABCFP if there has been a change in your indictable offence status.

Step 3 Pay your fees.

There are only two steps to renew membership for:

- FITs or TFTs
- Retired Members
- Special Permit Holders
- Registered Members on LOA (who are unemployed or work outside of BC)

Step 1 Notify the ABCFP if there has been a change in your indictable offence status.

Step 2 Pay your fees.

Your membership will not be renewed until you have completed all of the required steps.

How to Renew Your Membership

Renew online

The quickest and easiest way to renew your membership is to complete all the steps online. There is a link to the online Membership Renewal page right on the Home page of the website and in the renewal notice sent to you on October 1st.

Renew by mail, fax or in person

You can also renew your membership by mail, fax or in person by downloading the forms available on the Steps to Renew page of the website (click on Members' Area, My Membership and Steps To Renew).

Membership Renewal Timeline Self-Assessment Declaration FAQs

Membership Renewal Process	DEADLINES
A membership renewal notice is sent to each member.	OCTOBER 1ST
Annual fees are due AND, where applicable, self-assessment declarations are due.	DECEMBER 1ST
Administrative fee of \$50 plus GST is added to the fees of members who have not paid their annual fee AND/OR, where applicable, have not submitted their self-assessment declarations. Notices will be sent to those members affected.	DECEMBER 2ND
Final deadline for membership renewal.	JANUARY 31ST
Any members who have not renewed will be struck from the register and notified accordingly soon thereafter.	FEBRUARY 1ST

This year the ABCFP is asking you to tell us your top three practice areas when you renew your membership in order to ensure that we have a representative cross section of the different aspects of professional forestry when we select members for practice reviews.

When is my self-assessment declaration due?

Your declaration is due on December 1, 2013. If you submit your declaration after December 1, 2013, additional charges will be applied to your membership renewal fee.

What happens if I don't submit my self-assessment declaration?

If you fail to either pay your membership fees or complete your declaration (if required) by December 1, 2013, you will be assessed an administrative fee. If you fail to pay your membership fee or complete your declaration by January 31, 2014, you will no longer be allowed to practise forestry in BC.

Can I submit my self-assessment declaration online?

Yes, you can do it online! There is a link to the online Membership Renewal page right on the Home page of the website.

BC

NOVEMBER – DECEMBER 2013

Forest

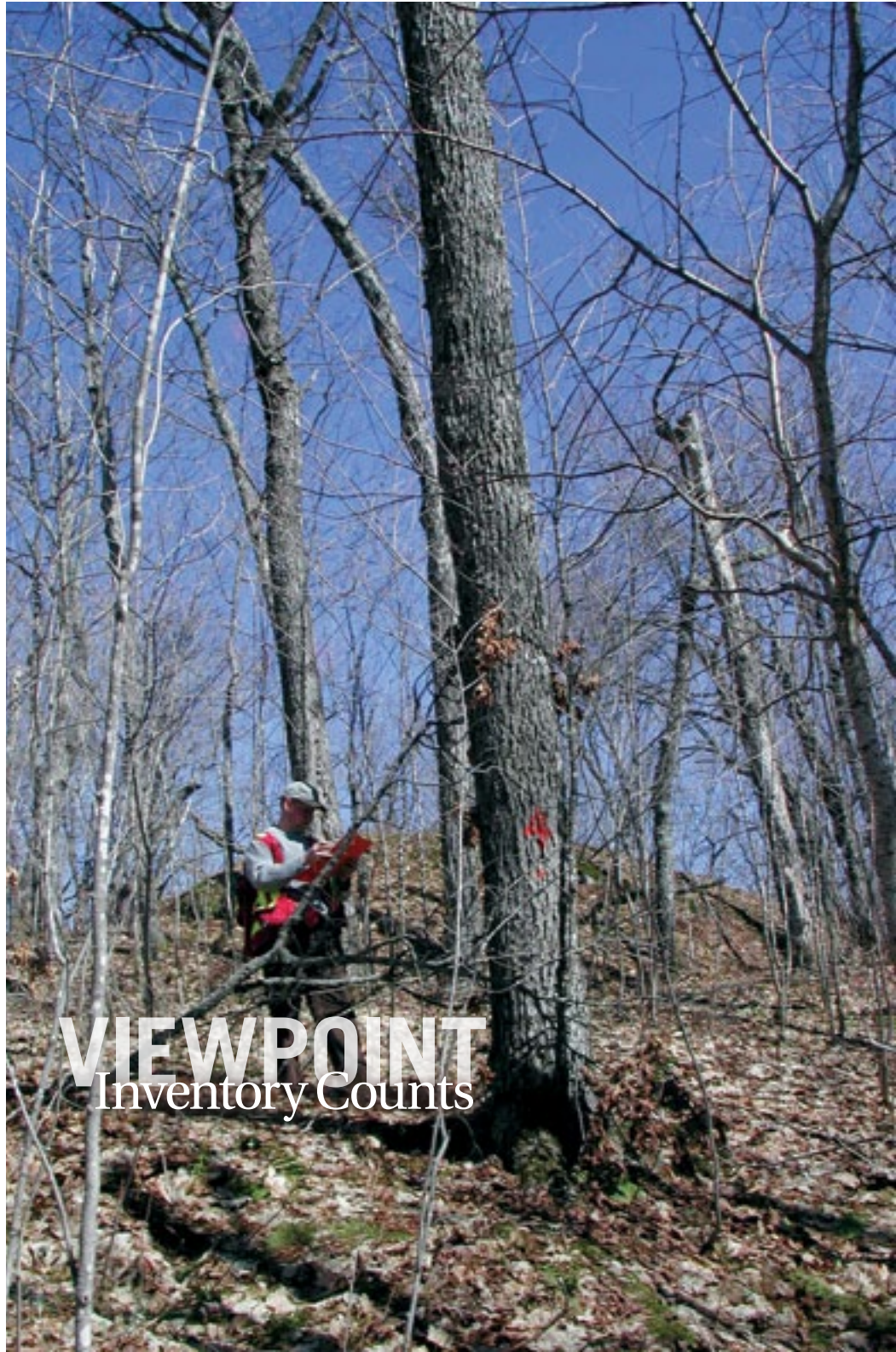
PROFESSIONAL

From Film to Lasers:
A look at the Evolving Use of
Forest Inventory Imaging

Wildlife Protection and
Inventory Decision Making:
A Fine Balance

National Best Practices on
the Use of Airborne Laser
Scanning

**The ABCFP's
66th AGM and
Conference:**
Exciting Lineup Unveiled!



VIEWPOINT
Inventory Counts



Wildlife Danger Tree Assessor Course

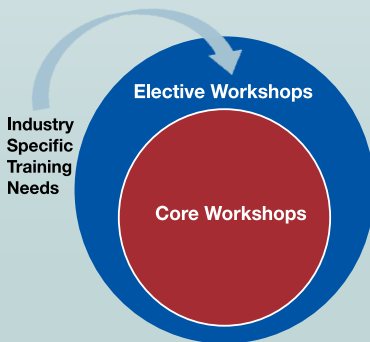
To better serve our customers we are changing the way we are delivering the Wildlife Danger Tree Assessor Course. For contracted or in-house courses, please contact Troy Lee at **250-960-5914** or troy.lee@unbc.ca to book your module in advance.

Visit our website for a comprehensive list of all upcoming courses into the summer of 2014 and book your spots today!

Certificate in Management Excellence and Supervisory Excellence

UNBC Continuing Studies offers two different management certificates, the **Certificate in Management Excellence** for individuals already in a management position and the **Certificate in Supervisory Excellence** designed for individuals who are hoping to move into supervisory positions, or are very new into supervisory positions.

Both certificates are workshop-based, and consist of a combination of required core and elective workshops. Individuals will need to complete a total of 140 hours (approximately 20 days) of workshop-based training to complete their certificates. This format allows individuals to work at their current jobs while moving forward with this training.



Customized Management Certificates

If you would like to provide your staff with specific learning opportunities while developing their management skills then look no further. UNBC Continuing Studies can work with your organization to develop an industry-specific management certificate through strategic elective development.

Visit www.unbc.ca/continuing_studies for workshop dates and times.

Upcoming Courses!

Invasive Plant Species Identification, Ecology and Control

Date: Sept 20, 2013 Location: UNBC Prince George, BC
Cost: \$160

Design, Construction, Inspection, Reporting and Management of Bridges, Culverts and Retaining Walls, an Overview

Date: Oct 16 - 18, 2013 Location: UNBC Prince George, BC
Cost: \$595

Mining Essentials

Date: Sept 30 - Oct 1, 2013 Location: UNBC Prince George, BC
Cost: \$500

Mining Essentials

Date: Oct 3 - 4, 2013 Location: UNBC Terrace, BC Cost: \$500

Silviculture Survey Exam

Date: Sept 14 - 15, 2013 Location: Parksville, BC Cost: \$630
Date: Oct 3 - 4, 2013 Location: Prince George, BC Cost: \$630
Date: Oct 17 - 18, 2013 Location: Sorrento, BC Cost: \$630

Introduction to Autocad

Date: Oct 28 - Nov 1, 2013 Location: Terrace, BC Cost: \$1250

GIS Certification Modules

Date: Oct 21 - 24, Nov 12 - 15, Dec 2 - 5, 2013
Location: Terrace, BC
Date: Oct 28 - 31, Nov 18 - 21, Dec 9 - 12, 2013
Location: Ft St John, BC
Date: Nov 4 - 7, Nov 25 - 28, Dec 16 - 19, 2013
Location: Prince George, BC

Road Eng - Road Design - Civil

Date: Nov 5 - 7, 2013 Location: Terrace, BC Cost: \$895
Date: Nov 26 - 28, 2013 Location: Ft St John, BC Cost: \$895

Road Eng - Road Design - Forestry

Date: March 4 - 6, 2014 Location: Prince George, BC Cost: \$895

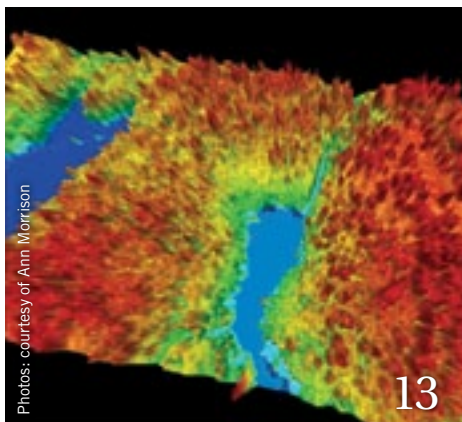
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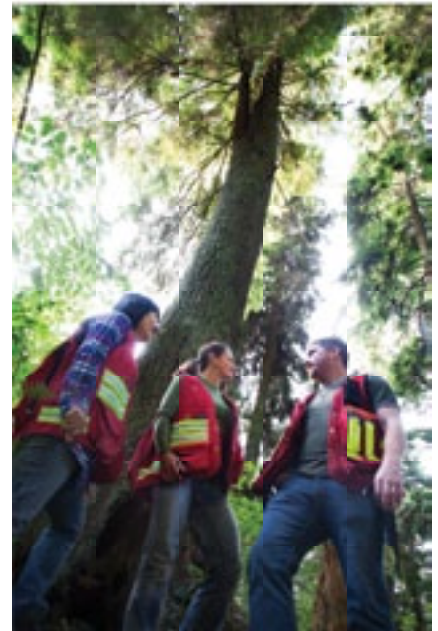
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Forestry

University of British Columbia

master of sustainable forest management

A new path to becoming an RPF



The Master of Sustainable Forest Management (MSFM) program has just been accredited by the Canadian Forestry Accreditation Board. This is a major milestone in our development and implementation of this new course-based Master's program, and a first for forestry graduate programs in Canada.

For more information of the MSFM program see: <http://cbm.forestry.ubc.ca/master-of-sustainable-forest-management-msfm-degree/>

**University of British Columbia
Faculty of Forestry**

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mfmm.program@ubc.ca



a place of mind

Regular Columns Still a Source of Valuable Information

On a recent boat ride out of Bute Inlet, I read through the September–October **BC Forest Professional** magazine and wanted to write in with my feedback.

President's Report — Glad to hear and see that recruitment and issues with recruitment (and the positive steps that are being made) are forefront in the magazine. Thank you Christine for encouraging forest professionals to get involved.

Page 10 — I enjoyed Hank and Casey's joint article on land use planning and found it to be very thought provoking.

Page 25 — A big thank you to Jeff Waatainen for continuing to provide 'The Legal Perspective.' I very much enjoy the articles he puts forward, as it helps us gain knowledge and insight.

Respectfully,

IAN EMERY, RFT, ASCT, PMP

The Editorial Board Wants to Hear from You!

Your Editorial Board has the task of helping managing editor, Amanda Brittain, and editor, Doris Sun, produce a bi-monthly magazine that is attractive, entertaining and informative — a well-written credit to the Association. Our 11 industry members share the goal of using the magazine to open up debate around complex and sometimes controversial issues. We are seeking your help to keep our magazine thought-provoking and valuable to the membership!

In September we met to determine a set of six themes for next year's issues, taking account of current developments, trends and problems. We will seek appropriate authors who are familiar with each subject and who will agree to write suitable articles. While factual articles are often accepted, we encourage those that address topics in an opinionated manner, so as to stimulate debate, discussion and perhaps, a

few more Letters to the Editor.

In fact, we welcome your feedback, whether as Letters to the Editor, ideas for future magazine themes, or Interest articles. Your contributions will help stir discussion and bring focus to issues many of us face.

Another way we hope to generate discussion is by having ABCFP staff share more about professional practice issues raised by membership. In 2014 you will see a regular column that indicates some of the tricky problems our members face and what the ABCFP recommends to overcome the challenges. Let us know if you've faced a similar situation, and how you dealt with it. We look forward to hearing from you. Please help us maintain our magazine as an anticipated publication! Send any magazine comments or contributions to Doris Sun at dsun@abcfp.ca.

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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Vancouver, BC V6E 3J7

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BC Forest Professional is published six times a year by the Association of BC Forest Professionals

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DESIGN: Massyn Design

PRINTING: Rhino Print Solutions

DISTRIBUTION: Rhino Print Solutions

ADVERTISING SALES MANAGER: Doris Sun
 602–1281 W. Georgia St, Vancouver, BC V6E 3J7
 Tel: 604.639.8103 • Fax: 604.687.3264
 E-mail: forest-ads@abcfp.ca

ISSN: 1715-9164

Annual Subscriptions: Canada; \$44.80 incl GST
 U.S. and international; \$80 Canadian funds
 Publications mail agreement No: 40020895
 Return undeliverable Canadian addresses to:
 ABCFP Circulation Department
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BC Forest Professional is the professional magazine of the Association of BC Forest Professionals (ABCFP). Editorial submissions, comments, letters to the editor, articles and photos should be sent to the editor, address above. The opinions expressed in **BC Forest Professional** do not necessarily represent those of the ABCFP, its council or other members. Reprinting and copying of **BC Forest Professional** articles is encouraged. Please include a credit to both the author and **BC Forest Professional**.

BCFP Book Reviewer Missing the Science

Two books disputing anthropogenic climate change reviewed prominently by **BC Forest Professional** in less than two years? Following the Jan-Feb 2012 review of *False Alarm: Global Warming – Facts Versus Fears* (70 % rating) there was a flurry of letters in the March-April 2012 issue that helped restore faith in members, if not the magazine. The titles of these letters spoke loudly: “Irresponsible...” “...Alarming” and “False False...”

Undaunted, the BCFP has now followed this in the September-October 2013 issue with a glowing review (80 % rating) of *Heaven and Earth: Global Warming the Missing Science*. In fairness, the reviewer does qualify that he accepted the author’s writing “...without due diligence checking of references or undertaking a critical assessment of [the] analysis and conclusions.”

A quick web search shows many contrary opinions about this book, notably from the scientific community. *Wikipedia, in ‘Reactions from Scientists,’ notes “a case study in how not to be objective,” “using selective evidence,” “the book has many errors and will be remembered for the confrontation it provokes rather than the science it stimulates,” “a cacophony of climate skeptic arguments that have been discredited by decades of research,” “the number of errors in the book [is] disturbingly high.”

It’s bad enough that BCFP has reviewed (and endorsed) two climate change denial books in only 11 reviews (18 %), challenging a viewpoint that most (97-98 %) scientists now accept as real, but it’s tragic for a profession working with climate adaptation that more scientifically objective, rather than wishful thinking, reviews weren’t done. What’s at stake? What might be the effects on policy and action? And where is the ABCFP’s social responsibility in this apparent lack of objectivity?

MIKE NASH, FORMER ABCFP LAY COUNCILLOR

* [http://en.wikipedia.org/wiki/Heaven_and_Earth_\(book\)](http://en.wikipedia.org/wiki/Heaven_and_Earth_(book)) accessed on September 22, 2013

Reviewers’ Credentials

After reading the book review by Greg Taylor, RPF, on the book called *Heaven and Earth: Global Warming the Missing Science*, I shared it with a climate scientist colleague and discussed the review with him. My colleague, a resource professional with another association, asked what Greg Taylor’s professional credentials are relative to climate science, and whether such a consideration is ever addressed by the editor before approving a book review for publication in the ABCFP’s magazine. As a member of our association, I was disappointed that I could not answer this question. I suggest that editorial board provide this information for reviews of books engaging an area of science and/or professional expertise. Making the reviewer’s professional credentials clear will improve the respectability of our association in the eyes of the public and other professionals.

PAUL KNOWLES, RPF

Without Due Diligence

In his book review of *Heaven and Earth: Global Warming the Missing Science*, Greg Taylor said he accepted the writings in this book ‘without due diligence.’ However, if Greg would have done some basic due diligence he may not have accepted these writings so easily. Here is what I found out during my first 1/2 hour of searching the web.

- Plimer is a credible Australian geologist but;
 - The Department of Environment for the Australian government says he has no background in climate science.
 - I could not find any peer-reviewed publications he authored that are relevant to climate science.
- This book was published in 2009 hence our recent science would not be included in this book.
 - The IPCC has evaluated 9,000 peer reviewed publications relevant to climate change since its last major publication in 2007.
- The Australian Department of Climate Change and Energy Efficiency in 2011 published “Accurate Answers to Professor Plimer’s 101 Climate Change Questions.” This department summarized by saying Plimer’s questions and answers “are based on inaccurate or selective interpretation of the science.”
- Plimer’s statements around submarine volcanoes highlighted in this book review have been rebutted by the US Geological Survey among other credible agencies [e.g. the EPA].

MIKE GEISLER, RPF(RET)

Bad Optics

I would have expected the editorial board of the **BC Forest Professional** to be more careful about running book reviews of junk science (*Heaven and Earth: Global Warming the Missing Science*) on climate change after its last embarrassment to the profession (*False Alarm: Global Warming – Facts Versus Fears*, January/February 2012).

Why on earth would the board choose to run a review in 2013 of a book (*Heaven and Earth*) published in 2009 and long since discredited and debunked by scientists? The optics are awful; especially for a profession that shares with author Ian Plimer problems with credibility.

ANTHONY BRITNEFF, RPF(RET)



Where Are All the Female Foresters?

For many years women have accounted for nearly half of Canada's labour force but the participation of women in the forest sector has not reflected this. Of the women choosing to work in the forest sector an alarmingly few are at senior executive levels.

I am only the third female president since our association was created over 66 years ago. When you review the names of the senior executives of our forest companies and resource ministries, you will find few women running the operations side of the business. One notable exception comes to mind, a female chief forester appointed just this year in one of our province's major forest companies.

Senior leadership experience can be tough to come by for women. The ABCFP council is a great opportunity for female forest professionals to lead. Our nominations are open and I'm glad to see, that as of this writing, a few women have put their names forward. After thinking about my experience on council and the opportunity I've had to lead the organization, I realize I could have and should have done more to recruit even more women to run for council. In fact, I think as a professional organization, all of us can do more to recruit women to run.

I think one of the things that stopped me was that I didn't want to be labelled a feminist because, like it or not, our society has given that word a negative connotation. I also feared that pointing it out would sound like I thought we should be giving women special treatment, and I didn't want to be viewed as unfair or biased. Despite these fears, I realize nothing about the trends in our association, or the sector at large, will change unless we start talking more openly about the dynamics that has led to them and continues to make it so. The truth is, there are many competent women who are members of the association and very worthy of sitting on council. I have loved my role on council, both as a member and president. I was especially hesitant as I became a new mother last year, but I have found the time to balance that new priority with the role as president and I haven't regretted a moment.

I have no quick fix for the lack of gender balance in the forestry sector, but I do believe having the diversity of thinking that comes from having both men and women on our association's council and committees, and across all positions in our natural resource sector, will improve our competitiveness and future success. For now, making small changes in our behaviours together with talking about the issues in an open forum would be a good place for all of us to start. 🐦



Strengthening Our Social Licence

Here's an issue that's been bothering us for some time now. It's about how our members identify themselves and their profession. For example, when someone asks you what you do, do you say, "I'm a Registered Forest Technologist and I specialize in forest engineering for XYZ Company" or do you say, "I work for XYZ Company?" We're learning that many members choose option two and do not to mention that they are part of a registered profession.

We believe this is a phenomenon unique to forestry. As the joke goes: "If you walk into a room of people, how do you know which ones are the engineers? Don't worry, they'll tell you." That is certainly not a dig at our engineering colleagues but rather an example of how proud they are to be engineers. Similarly, doctors and nurses won't tell you they work at a hospital and leave out the fact that they are medical professionals. So what's up with forest professionals?

Here are some facts that we want you to think about:

1. You are part of a profession that has been around since 1947. That's 66 years of working in BC's forests. A proud history for sure.
2. You belong to one of the few professions that has both the right to title and the right to practise – otherwise known as a restricted profession. That's important, and the public has told us repeatedly they think it's important too.*
3. The public trusts you. A lot. In fact our polling shows that the public trusts resource professionals more than environmentalists, forest industry executives, government managers, academics and politicians.**
4. Forest professionals are trained to weigh and balance issues. Not just look at the science and report it — but to suggest trade-offs and make the tough decisions that are involved in complex ecosystems and resource management.
5. Your employer hired you because you are a forest professional and you base your decisions on science. Understanding ecosystems and forest lands is complicated and you are trained to look at the big picture.

So what's the take away from our facts and why are they important?

Let's start with the last point. Your employer hired you because you are a forest professional. Your employer knows that no matter who owns the land, resource development cannot take place without the blessing of the public. In fact, most of the time we refer to the public blessing as social licence.

So your employer counts on you to ensure that the practice of professional forestry is done in a way that preserves its

social licence. Whether you work for a tenure holder, the government, or consultants, retaining the social licence to develop resources is an absolute necessity.

And, if you begin to put your employer before the public, the inevitable will happen: The public will lose the trust they have in you and they will demote you. That's right — Below all the other resource professions — and even politicians. Instead of being allowed to manage for the long term, the public will make sure that your employer will be publicly shamed and will be forced to stop what they're doing.

Even worse, you will have broken the public trust in a proud profession. And ironically, your employer won't thank you for putting them first. They thought they were hiring a forest professional who had a duty to protect the public and to speak up when forest sustainability was at risk. Economics may be important but nothing outweighs the value of having the social licence to carry on operations.

There are lessons about trust and working in natural resources. Forestry employers understand the value of hiring forest professionals to maintain their social licence. At some point the light will go on with other industries that work in natural resources and on the forested land base. The lesson about trust and forest professionals and the public is important.

So next time someone asks you what you do for living, remember to say that you're a forest professional. You are a trusted resource professional. Forestry and resource management are your domain. And you belong to a profession that has been protecting the public interest in BC for 66 years. And you should be proud to say so. 🐾

* For more information on how the public sees the forestry profession, go to www.abcfp.ca and look for the survey results of the 2013 ABCFP public opinion poll.

** A disclaimer here: we know some of our members are environmentalists, forest industry executives, and government managers. We think in order to increase your credibility – you should talk about how you're also a forest professional.

Registrar Randy Trerise Set to Retire

Registrar Randy Trerise, RPF, is taking partial retirement in 2014 and will fully retire in 2015. Randy will reduce his workload to approximately 50% beginning January 1, 2014. Current resource operations specialist, Casey Macaulay, RPF, will split his time equally between his current position and that of associate registrar to fill in for Randy. Randy and his wife are looking forward to spending some more time travelling and spoiling their grandchildren. As always, ABCFP staff, led by CEO Sharon Glover, MBA, will work to ensure members continue to receive the same level of service they've come to expect from their association.

Council Approves Small Inflationary Fee Increase

At its most recent meeting, the ABCFP council voted to implement a small inflationary fee increase for the next membership renewal period which began October 14th. The inflationary increase of 1% was deemed reasonable as it is an approximate average of the current and past years' rates of inflation. In 2012 the inflation rate for BC was 1.9% and it is currently 0.3%. This increase was reflected in the renewal notice you received in early October.

New Career Brochure Now Available

We have revamped the career brochure that tells high school students about careers in forestry. The new brochure features photos of ABCFP members Sean Muise, RPF; and Jill Werk, RPF; as well as a photo taken by Daniella Oake, RPF. Members may order the brochures to use in school presentations and at career fairs. You can see the brochure and find ordering information in the student section of the website: <http://www.abcfp.ca/students/classroom-resources.htm>.

Newly Designed Codes of Ethics Available

As the ABCFP's supply of printed Codes of Ethics was almost depleted, we took the opportunity to redesign this important document. Of course, there were no changes to the actual Code of Ethics, just changes to how it looks on the page! We are pleased to provide the newly updated Codes to all members and not just newly minted members. If you would like to order copies of the new Code of Ethics for all the forest professionals in your office, please e-mail Amanda Brittain, director of communications, at: abrittain@abcfp.ca with the number of copies you need along with your mailing address.

The ABCFP Office Has Moved

As the rent at the ABCFP's previous office in Gastown was to increase at the end of our lease, the office has moved to new premises that offer a number of benefits to members and staff. The new office is in a safer neighbourhood outside the downtown core but is only a few blocks from SkyTrain. The office is larger and has a boardroom that will seat approximately 20 people. This means most committee meetings can take place in the office, which saves on offsite space rental. The next time you're in Vancouver, be sure to drop by to see the new office! We are located at #602-1281 West Georgia Street.

Don't Miss Our Upcoming Issues!

The January/February BCFP will feature forest economics and the March/April issue will examine fire management in BC. If you would like to write an article for BCFP, don't hesitate to contact the editor, Doris Sun at: dsun@abcfp.ca.



Around the Clock:
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Make sure you're protected around the clock. Make now the time to call us at HUB International.

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The Principles of Forest Stewardship¹ and Inventory

The ABCFP has spoken out several times regarding the need for a healthy and well-supported forest inventory program in BC. Our advocacy on this topic is related to our vision statement:

Leading the way to diverse, healthy and sustainable forest lands and ecosystems in BC.

We understand that there is a clear linkage between sustainability and having confidence in the state (quantity and quality) of our natural resources. Resource inventories provide a common thread across the range of activities that forest professionals are involved in. When you have a discussion with a fellow member or the public regarding forest stewardship, conversation often turns to what it is we are measuring and how we measure it. Some of these things include the supply of timber, wildlife habitat, water quality, visual management, or landscape-level disturbance.

The seven principles of forest stewardship require members to have a good knowledge of the current state of the resources being managed and an ability to predict impacts based on proposed activities. This allows a member to set management objectives, determine over what timeline and scale impacts may occur, and adapt practices to ensure resource management is consistent with the values and interests of society. In order to do so, a professional must have an inventory of the resources being managed that is both accurate (spatially and attribute correct) and functions at the appropriate scale for the indicators being measured. Thus, when using an inventory, a professional should know the intended purpose for which it was developed and if it is appropriate for the use they intend.

For example, if the BC forest inventory program is designed to be strategic (e.g. limited to supporting Timber Supply Reviews,) then it will be challenged to meet operational needs (e.g. wildlife habitat assessments) and will need to be supplemented.

As a forest professional it is your responsibility to ensure inventories are appropriate and accurate for the task at hand. If there are issues with the accuracy or completeness of existing inventories or a lack of appropriate inventories, members must advocate for improvements. This will help to ensure we have better tools in the future to make management decisions and monitor the outcomes of those decisions.

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

Knowledge in Numbers

Photo: member submitted

SINCE THE PROVINCE ANNOUNCED EARLIER THIS YEAR THAT IT PLANNED to commit \$8 million a year to a 10-year plan to update BC forest inventories, the sector has been abuzz with curiosity and optimism about what the initiative would entail — for good reason. Accurate inventorying of BC's forests has been lacking for decades. Add to that such complicating factors as the mountain pine beetle infestation and what was already a cloudy picture about timber volumes becomes even murkier. What we know for sure is the sector is technically capable — now more than ever— to obtain a clear picture of its forests. With volumes of data available, though, new challenges emerge on how to process, interpret and share what is being learned.

This issue of **BC Forest Professional** tackles the subject of forest inventory from a number of different angles. We explore the history of forest inventorying and examine the evolution of forest imaging technologies, which will illustrate how far the province has come in efficiently pinpointing timber volume. What was once a cumbersome process involving film and considerable human power is now digitized and uses sophisticated satellites and lasers.

This issue also contains several nationally relevant pieces, with one article informing readers about a federally-produced best practices guide that will aid forest professionals in characterizing large forest areas cost-effectively; another piece examines the progress made by the National Forest Inventory in measuring timber volumes across the country.

But forest inventory is just not about trees. We include a perspective from a wildlife biologist about the delicate practice of balancing wildlife habitat with forest management goals. This issue also presents an industry case study on accurately forecasting timber supply on a TFL.

Stepping away from our Viewpoints focus, this issue also contains an important annual feature, the unveiling of our 66th AGM and Conference program! The conference Host Committee has been hard at work devising a well thought-out program that I am confident you will find exciting and timely. We look forward to seeing you in Kelowna next February! 🐿️



Photo 1

Evolving Imagery Use for Forest Cover Inventory

LIKE MOST TECHNOLOGY, THE AVAILABILITY AND VARIETY OF IMAGERY for inventory use has evolved rapidly. When I started working in inventory with the BC Forest Service some 20 years ago, we acquired mid-scale aerial photos from film cameras. The hardcopy photos produced were very useful for viewing in 3D with a stereoscope, but they couldn't be used directly for inventory mapping. Interpreters delineated forest cover polygons with ink on the photos, which were then transferred to create a digital map. In the mid-90s, we started exploring the use of softcopy technology that allowed interpreters to delineate directly into a digital map file while viewing the photos on a computer screen wearing 3D glasses (photo# 1). In order to utilize this technology, however, the film had to be scanned and processed into digital stereo-ready formats. Since 2009 we have been acquiring air photos directly from digital cameras, bypassing the scanning process and creating more usable products for less cost. Four spectral bands are available (blue, green, red and near infrared) which allow viewing of different colour combinations to better highlight features of interest. The contrast between live and dead trees, for example, is easier to see in false colour where live vegetation is displayed in red (photo# 2) compared to the natural colour combination (photo# 3).

High resolution low-level digital photos, similar to older 70mm photos, can be viewed in stereo as well as used in automated processes for stem counts, crown mapping and classification projects (photo# 4).

Digital photos and the advances in accurate spatial positioning create new possibilities for automating parts of the inventory process. A stand height model, for example, can be created from the combination of a high-resolution digital elevation model and corresponding surface model; this is created through a semi-automated stereo matching process. We are in the process of having sample height models created using inventory photography flown this summer for testing across a variety of terrain. If successful, height models could be used directly or indirectly in the inventory process, and also provide information on forest gaps and potential modelling of other inventory attributes. The height model can be visualized with colours ranging from blue to red for features with no height difference to large height differences respectively (photo# 5). Assigning the image pixel values to each height cell could also lead to automated delineation processes in the future. Although this photo matching method will not provide the full suite of products that are available from aerial laser scanning processes such as LiDAR, it may provide a cheaper, lower-resolution alternative in some cases.



Photo 2



Photo 3



Photo 4

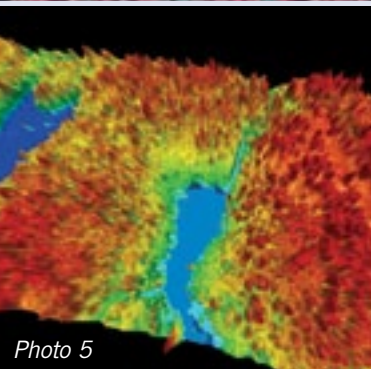


Photo 5

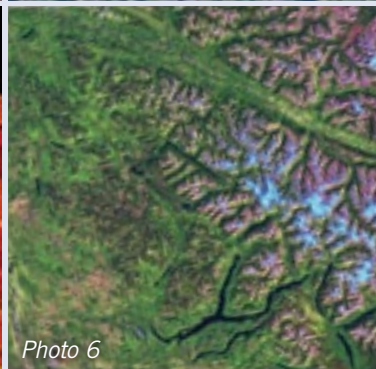


Photo 6



Photo 7

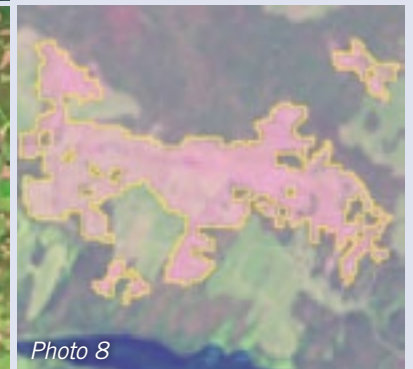


Photo 8

Photos: courtesy of Ann Morrison

The availability and cost of satellite image products for inventory has also changed over the years. It used to be a time-consuming process to obtain imagery in a form ready for digitizing or image analysis. These days, imagery is available at different resolutions in a much timelier manner, within days of acquisition in some cases. Landsat* imagery (photo# 6) in particular, has been invaluable to the inventory program since the late 90s, and for the last few years has been available at no cost. The spatial resolution isn't as high as other digital satellite image products but is adequate for landscape-level mapping projects and identifying features, such as large fires (photo# 7). Since 1999, we have acquired all available Landsat scenes across the province each year and made them available through the GeoBC image warehouse. Temporal analyses of these images have been conducted using semi-automated processes to detect and map forest cover changes during the mountain pine beetle red attack stages, as well as to produce an annual forest harvesting change layer (photo# 8) quickly and inexpensively. Although the harvest perimeter boundaries do not meet photo interpretation delineation standards, they provide a current, temporary, layer for timber supply analysis, and other strategic-level planning processes for areas of the

province where updated inventory information is not yet available.

Landscape-level projects are also underway that combine the use of high-resolution digital photos, automated Landsat delineation and classification matching techniques to provide timely, low-cost, low-resolution options for areas where traditional inventory techniques may not be cost-effective in the short term. Forest attributes, interpreted from numerous photo samples, are assigned to the delineated Landsat segments through an innovative matching process and a number of class-based products generated to suit strategic level requirements.

As the tools and techniques for using digital imagery continue to evolve, the opportunities for updating and enhancing the forest inventory in a flexible, timely and cost effective manner will continue to grow. Over the years, I have enjoyed working with the variety of image products and new technologies available to the inventory program and look forward to the changes ahead. 🐦

Ann Morrison, RPF, is a geospatial inventory forester with the Forest Analysis and Inventory Branch, Ministry of Forests, Lands and Natural Resource Operations, in Victoria.

*courtesy of the U.S. Geological Survey



Provincial Resource Inventories – A Historical Perspective and a Brief Look Forward

PROVINCIAL RESOURCE (TIMBER) INVENTORIES HAVE HISTORICALLY AIMED to address three issues: how much do I have, where is it and how does it change with time? The available methodology and technology, however, have often constrained the abilities of early pioneers to provide fulsome answers to these questions. Information gathered through these processes were often used for purposes other than the initial design.

The Early Years 1910 – 1951: “How Much Do We Have?”

Early surveys focused on determining “how much of the forest resource existed.” Strip surveys were the methodology of choice. Strips were run perpendicular to surveyed baselines. They were one chain, (66 feet) wide and with every 10 chains, one acre of ground was sampled. Prior to 1910, standards for cruising did not exist and most cruises focused on identifying high-value timber estates for subsequent development. Sampling intensity was generally low with one to two percent of the area being sampled for provincial inventories and achieving 10 to 20% intensity on operational cruises.

Mapping of forest cover improved during this period. Starting from the surveyed baselines, cruisers either paced or chained along the strip gathering data and mapping timber type changes as they went. The area between the strips was interpolated.

The first attempt to estimate the extent of the provincial timber resource was conducted by the Royal Commission of Inquiry on Timber and Forestry under the chairmanship of Fred J. Fulton¹. When the members tabled their final report in 1910, they estimated the extent of the provincial timber resources at 240 billion board feet (bd ft) on 15 million acres. They prefaced this data with the caveat “... we are obliged, in absence of statistics based upon cruise and survey, to depend very largely upon guesswork in estimating the amount of merchantable standing timber.” Table 1 provides the standards for this assessment and its metric equivalents.

Cruise data continued to improve with the creation of the provincial Forest Branch created upon the recommendation of the 1910 Royal Commission.

Table 1 Early Estimates of the extent of the provincial timber resource

Author	Fulton	Whitford & Craig	Mulholland
Date	1910	1918	1937
Area of Interest	existing Crown grants, railway rights of ways and guess of the rest	Provincial	southern portion of the province excluding 27.5 million ha of the north
Utilization	60 cm dbh Hemlock & Abies not tallied	25 cm stump All Species	20 - 28 cm dbh All Species
Estimate of the Provincial Timber Resource			
Million ha	6.1	38.6	30.3
Million m ³	453.1	863.7	600.6

The period between the wars saw the creation of the Forest Surveys Division in 1927² under the lead of Fred Mulholland. Mulholland brought more rigour to the art of forestry, creating “Instructions for Forest Surveys” that remained the standard with minor revisions until 1951. When the field work was completed in 1937, the resulting product was a one-inch to the mile forest atlas comprising 174 maps. Mulholland estimated the merchantable volume at 254.5 billion bd ft³ on 75 million acres. The northern portion of the province’s 68 million acres was excluded from this estimate.

During this inventory, the use of air photos was pioneered in 1931 by Gerry Andrews. In 1938, the inventory data was coded onto Hollerith cards, the precursor to computer cards.

From 1938-1950, this inventory remained the major source of information on BC forests.

Mapping “Where Is It” 1951–1976: The Average Volume Line Inventories

The paradigm pioneered by Gerry Andrews was implemented using aerial photographs that were now readily available to delineate forest cover strata, estimate the attributes of the strata and sample the

strata to create estimates of total volume, net merchantable volume and annual net forest growth. Funded by a joint federal/provincial program, the Forest Surveys and Inventory Division was created in 1951 with the objective of creating a new inventory for the province.

Samples now moved from strips to four-plot clusters in mature stands and two-plot clusters in immature stands. The minimum diameter at breast height (DBH) was 11 inches. Average volumes compiled from each sample were then applied to all similar strata within the sampling frame. Upon the completion of the inventory in 1957, the commercial forest volume was estimated at 8.66 billion cubic metres⁴ on 47.7 million hectares.

The unit survey inventories from 1961 to 1977 extended this design and served as the basis for many of the annual allowable cut (AAC) reviews conducted in the late 1980s and 1990s.

Determining “How it Changes With Time” 1977-1994

The period from 1977 to 1994 saw a number of efforts to update the provincial inventory for change and projected for changes in yield. Satellite imagery was introduced to track changes to forest cover. Volume samples gathered from the unit surveys were combined with growth and yield samples to create the Variable Density Yield Projection (VDYP) system. VDYP provided the means to estimate individual polygon attributes using stand density to better allocate the mean volume among similar strata, as well as projecting periodic yield changes during the inventory update cycles.

From 1988 to 1994, re-inventory of some management units were undertaken that re-classified new air-photos and applied VDYP to estimate the polygon volumes; no new volume samples were installed. During this period, the database and mapping systems that were created were the precursor to the geographic information system of today. All provincial inventory data was digitized and transformed to meet the continually evolving GIS standards. The provincial database was brought online in the early 1990s. This provided digital access to these data sets.

The Vegetation Resources Inventory (VRI) 1994

The Forest Resource Commission report of April 1991 called for the development of compatible resources inventory standards that would ensure the ability to integrate information across the spectrum of resource values. After three years of development and testing, the Vegetation Resources Inventory⁵ (VRI) was implemented.

The inventory uses a polygon estimation phase similar to previous designs but with broader reach attempting to characterize other resource values. A second phase, the phase two plots, is allocated with probability proportional to size and is used to capture ground variables. Unlike previous designs, there are no merchantability limits imposed on data collection. The key aspect of these plots is the ability to relocate the plots for subsequent monitoring of change and the flexibility in the information sampled to reflect the business need. The phase two plots were designed to adjust the bias, if any, in the estimations plus supply other ground variable information not acquired through photo interpretation.

Twenty-three of the 37 timber supply areas have new VRIs with the focus on those TSAs that have undergone rapid change due to the bark beetle epidemic.

A New Future - Airborne Laser Scanning

A maturing technology is the application of Airborne Laser Scanning (ALS; also referred to as Light Detection and Ranging or LiDAR) for forest engineering and inventory applications. Joanne White et. al.⁶ provide the seminal reference on ‘wall to wall’ ALS data and the associated sampling and analytical techniques to turn these data into polygon-specific estimates. Ground sampling is critical to the approach described and ground samples must represent the full range of variability in forest conditions present.

Early adopters of ALS technology such as Island Timberlands reported at a CIF-sponsored workshop this spring that strong uptake of the ALS data by field engineers have realized increased efficiencies in their office and field practices. Western Forest Products and BC Timber Sales are currently working with the Forest Analysis and Inventory Branch on northern Vancouver Island to ensure that enhanced forest inventories produced using ALS data meet VRI standards.

The challenge to the inventory forest professional has been to supply statistically sound estimates of the variables of interest. Those estimates, as we have seen in this brief historical perspective, have often been used, extended and stretched well beyond the original sampling designs. The VRI design principals, along with the rapidly evolving ALS methodology, perhaps offer the ability to generate reliable statistically based polygon attributes at a reasonable cost.

To close the circle, the current estimate⁷ of the timber harvesting land base is 21.8 million hectares supporting an AAC of 76.8 million m³.

Acknowledgements

John Parminter’s and Jim Thrower’s papers supplied the bulk of the information for this article. Although not referenced, W.G. Burch’s autobiography, *Still Counting the Rings*, provided an excellent picture of industrial cruising in the 40s & 50s.

I am indebted to the reviewers of this paper however, any errors or omissions remain mine. 🌿

Dave Gilbert, RPF, (Ret) served as the director of resource inventory in the Ministry of Forests from 1990 to 2001 and as the executive director of resource information in the Ministry of Sustainable Resource Management until 2003, when he retired after 33 years of service. After retirement, Dave consulted on carbon management, resource information and forest vegetation management on golf courses. In 2006, Dave was recognized by the ABCFP for his article on Canada’s Green House Gas Inventory, Kyoto Forest Accounting Rules and Implications for BC Forest Professionals.

- 1 Fred J. Fulton, A.S. Goodeve and A.C. Flumerfelt, Final report of the Royal Commission of Inquiry on timber and forestry, 1909-1910 (Kings Printer, Victoria, B.C.) p. D 16. 10 (Kings Printer, Victoria, B.C. 1910) p. D 16. <https://www.for.gov.bc.ca/hfd/pubs/Rc.htm#RC1909>
- 2 John Parminter, From Timber to Biodiversity, The Evolution of British Columbia’s Forest Inventory Program, Forest History Today – Fall 2000, p. 15. <http://www.foresthistory.org/Publications/FHT/FHTFall2000/parminster>
- 3 Parminter, p. 16
- 4 Parminter, p.18
- 5 VRI Standards can be found at <http://archive.ilmb.gov.bc.ca/risc/pubs/teveg/index.htm>
- 6 Joanne C White, Michael A Wulder, Andres Varhola, Mikko Vastaranta, Nicholas C. Coops, Bruce D. Cook, Doug Pitt, Murray Woods, A best practices guide for generating forest inventory attributes from airborne laser scanning data using an area-based approach. Canadian Forest Service, Canadian Wood Fibre Centre, Information Report FI-X-010 <http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/34887.pdf>
- 7 Data current to June 2013 summary of Timber Supply Review land bases. Data is available from Forest Analysis and Inventory Branch



On The Importance of Wildlife Field-Based Inventories in Forest Management

CONSERVING BIODIVERSITY IS AN IMPORTANT OBJECTIVE OF TODAY'S forestry companies. In their efforts to meet this objective, companies must identify mature and old forest stands that will be retained within managed landscapes. The selection of these stands is important as they must meet the needs of many animals and plants, including species at risk. However, which stands should be retained? For example, in the Prince George Forest District, there are approximately 240 bird and mammal species; approximately 25% of them are associated with mature and old-growth forests (Proulx, unpublished data). Which stands should be protected to accommodate the needs of a majority of species, including those at risk? The selection of these forest stands should not be done at random or on the basis of a literature review.

After nearly 40 years of field work, I believe that the selection of forest stands for biodiversity conservation must be based on thorough, multi-year inventories of species and their habitats under various environmental conditions. By knowing the seasonal distribution of species, forest managers could then integrate coarse filter management strategies, which address the needs of a variety of sympatric wildlife species, with fine filter management strategies for species at risk.

The first step in developing an effective inventory program is to properly define the objective of the program. For example, the objective could be “to identify winter (a critical season for the survival of species) habitat use by species X, Y and Z.” Depending on the defined objective, inventories may be extensive to cover all animal taxa (e.g., Ruggiero et al. 1991), or limited to one (e.g. Proulx 2009) or many indicator species, including species at risk (Proulx 2005). After reviewing what is known about these species, biologists must attempt to make some preliminary predictions on species' habitat use and determine how the inventories will be conducted to gather scientifically sound datasets across landscapes. Various methods exist to assess habitat use. Capturing and radio-tracking animals may significantly contribute to our understanding of habitat use but these methods are expensive and usually involve only a few animals. Furthermore, to be captured and radio-tagged may be a stressful experience for some animals, and this could affect the quality of the data (e.g., Cattet et al. 2008). Researchers may use non-invasive methods that will provide information on the seasonal distribution of species in various habitat types, including snowtracking (Proulx and O'Doherty 2006), camera-traps (Mace et al. 1994) and bird point-count stations (Imbeau et al. 1999), which are among some of the techniques used to study species distribution, habitat use and even population densities. Non-invasive methods, however, may not allow one to assess a species' habitat use according to gender and age classes.

In central BC, I investigated the possibility of identifying high-quality habitat areas for American marten (*Martes americana*), fisher,

(*Martes pennanti*), wolverine (*Gulo gulo*), grizzly bear (*Ursus arctos*) and mountain caribou (*Rangifer tarandus*) using predictive distribution maps based on forest inventory databases and a knowledge of the species. I inventoried (snowshoed) marten (Proulx et al. 2006), fisher (Proulx 2006a) and wolverine (Proulx 2004) in late winter, during consecutive years and under different environmental conditions. I used spring aerial inventories to study the distribution of grizzly bears (Proulx 2006b), used snowtracking to determine habitat use by caribou and completed my dataset with observations from Ministry of Environment researchers. All these inventories allowed me to delineate two specific areas within the managed landscape where these indicator species' high-quality habitats overlapped (Proulx 2005). Further inventories showed that these areas sustained the greatest diversity of bird species associated with old-growth forests (Proulx 2006c) and plant communities at risk (D. Bernier, Ecora, unpublished data). In these two areas, various habitat conservation measures (e.g. old-growth management areas, reserves, wildlife habitat areas) could be implemented. Also, logging activities could be reduced in these sensitive areas at the expense of adjacent areas with less biodiversity potential — where timber removal may be increased in a compensatory manner.

Successful biodiversity management programs are those that are based on field inventories where we let the animals show us where they live during critical periods of the year. Unfortunately, some managers use quasi-spatial forest management models to retain discrete 'representative' ecosystems independent of species' specific habitat requirements (e.g. Bunnell et al. 2003, Huggard 2004, MSRM 2004). In order to save time and money, other managers will also use models to predict the distribution of species and habitats. Unfortunately, these models are often based on untested assumptions and they use data that do not take into account regional differences in the ecology of species. One just has to remember Habitat Suitability Index (HSI) models which often generated questionable results (e.g. Laymon and Barrett 1986). As Noss (1996) pointed out, we have no shortage of fabulous models and supercomputers; what we lack in many cases is good field data to plug into the models. Effective biodiversity conservation and forest management planning cannot be achieved without proper wildlife field-based inventories. 🐾

A comprehensive list of citations is available on the ABCFP website.

Gilbert Proulx is a wildlife biologist who has studied populations and habitats of ungulates, rodents and carnivores in North America and tracked mammals in Africa, South America and Asia. He is a field-oriented scientist and his activities focus on the study and management of wildlife in forest and agriculture ecosystems. He has published more than 120 scientific articles and 13 textbooks and field guides.



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WEDNESDAY

February 12, 2014

PRE-CONFERENCE TECHNICAL SESSIONS

Separate registration required. Fee includes one morning and one afternoon session.

Choose one of the Morning Sessions: 8 am – 12 pm

TBA

AND

Choose one of the Afternoon Sessions: 1 – 4 pm

TBA

CONFERENCE KICK-OFF

Icebreaker

Join new and old friends for a drink and snacks while you check out the amazing booths on the trade show floor. This event is included in the full conference package.



THURSDAY

February 13, 2014

MORNING EVENTS

- BREAKFAST**

Plenary Session **Opening Welcome**

Plenary Session **Opening Keynote**

Avrim Lazar, Former President and CEO, Forest Products Association of Canada

Break-Out Option A **Forest Industry 2020: Supply, Demand and Products**
Speakers TBA
Jim Girvan, RPF, MDT, Management Decision Technology Ltd.

OR

Break-Out Option B **Technology from the Ground to the Cloud and Beyond**
Trish Watson, Tolko
Brian Saunders, RPF, White Raven Innovations Ltd.
Steve Schmeekle, Esri Canada

- COFFEE BREAK**

Break-Out Option A **Slicing the Timber Supply Pie**
Mickey Werstuik
TBA

OR

Break-Out Option B **Roads? Which Direction are We Going?**
Michael Milne, LL, M. J. Milne & Associates Ltd.
TBA

AFTERNOON EVENTS

- INDUCTEES' RECOGNITION LUNCHEON**

Plenary Session **66th ABCFP Annual General Meeting**

Plenary Session **Council Hot Seat**

- COFFEE BREAK**

Plenary Session **Future Friendly: Marketing the Forest Profession**
Billy Garton, LL.B, Bull Housser
Tim Smith, PGeo, Westrek Geotechnical Services Ltd.
TBA

EVENING EVENTS

- PRESIDENT'S AWARDS RECEPTION**
- PRESIDENT'S AWARDS BANQUET**

FRIDAY

February 14, 2014

MORNING EVENTS

- BREAKFAST**

Plenary Session **Keynote Address**
Adam Kreek, Olympic Gold Medallist

Break-Out Option A **IDF - Back to the Fir-ture**
Ken Day, RPF, UBC
Ted Hensold, M.Sc

OR

Break-Out Option B **Communications – You're Talking but Are They Listening?**
Amanda Brittain, MA, ABC, ABCFP

- COFFEE BREAK**

Plenary Session **Resolutions Session**

AFTERNOON EVENTS

- MINISTER'S LUNCH**

Plenary Session **Social License - Creating, Retaining and Restoring**
Don Brown, RPF, Ainsworth Lumber Co. Ltd.
Tom Swann, The Nature Conservancy of Canada
TBD



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Session summaries will be available in early November

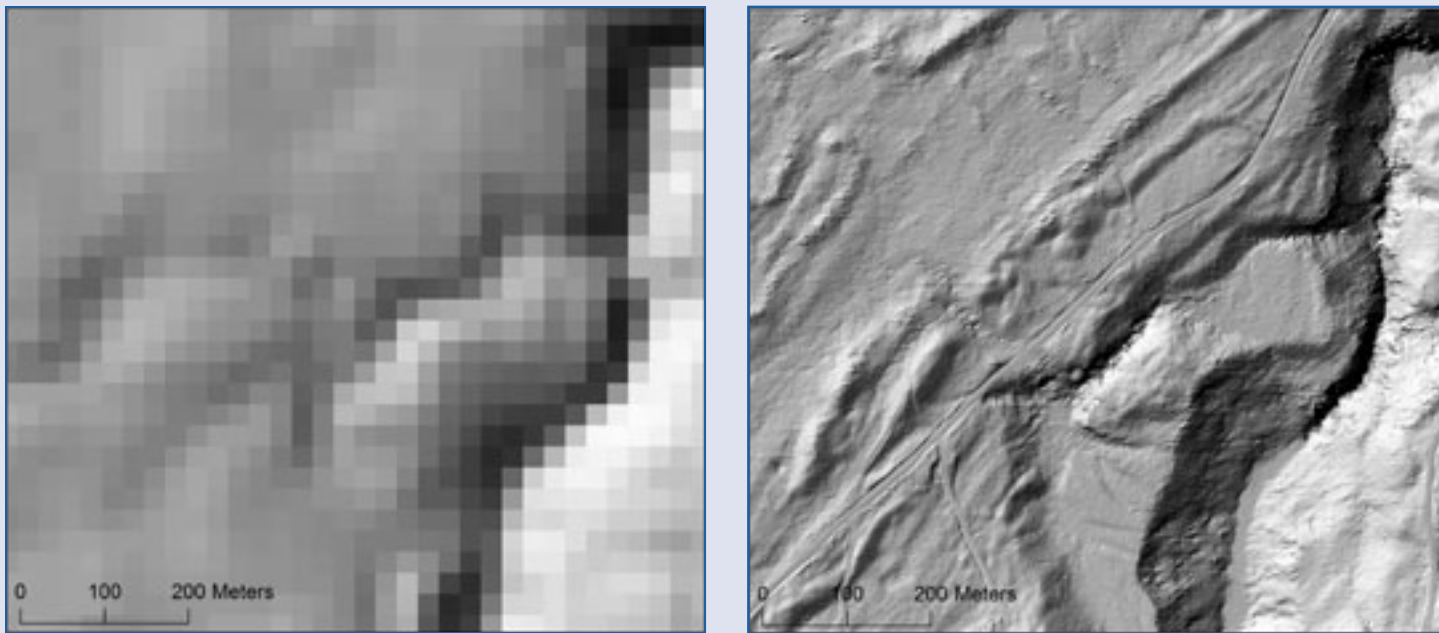


Figure 1. A comparison between a TRIM gridded digital elevation model (DEM) (25 m spatial resolution) (left) and a DEM generated from ALS data (1 m spatial resolution) for a 800 x 800 m area of BCGS mapsheet 092F.084 (near Campbell River, BC).

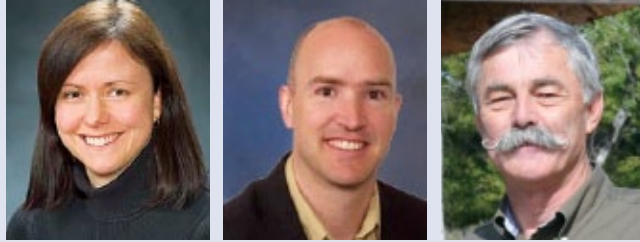
A Best Practices Guide for Generating Forest Inventory Attributes from Airborne Laser Scanning Data Using an Area-Based Approach

A**AIRBORNE LASER SCANNING (ALS; ALSO REFERRED TO AS LIGHT DETECTION and Ranging or LiDAR)** can map terrain and forest canopy structure at higher accuracy and finer resolution than air photo interpretation (Figure 1). Many forest companies have realized cost reductions by using ALS data in operational planning and there is growing interest in using ALS data to produce enhanced forest inventories (EFI). For more information on EFI, readers can refer to the January–February 2013 issue of *BC Forest Professional* (*Operational Implementation of LiDAR for Forest Inventory Purposes in Ontario*, p. 14). Recently, Western Forest Products and BC Timber Sales shared the cost of acquiring ALS data for more than 100,000 hectares of forest land on northern Vancouver Island, and are partnered with the Forest Analysis and Inventory Branch to ensure the EFI will meet vegetation resources inventory (VRI) standards.

As the use of new technologies in forest inventory can often necessitate alterations to existing standards, it is important to ensure consistency and transparency in the application of technology and related outputs. The Canadian Forest Service (CFS), Natural Resources Canada, has recently produced a best practices guide for the use of ALS data in forest inventory applications. The guide is available for download from the CFS bookstore (<http://cfs.nrcan.gc.ca/publications?id=34887>) and brings together state-of-the-art approaches, methods and data to enable readers interested in using ALS data to characterize large forest areas. The best practices recommended are based on more than 25 years of scientific research on the application of ALS data to forest inventory. The entire process required to generate forest inven-

tory attributes from ALS data is described — from ground sampling through to metric generation and model development — with best practices recommended for each step. Since the collection of ground plot data for model calibration and validation is a critical component of the recommended approach, it is described in detail in the guide. Appendices provide additional details on ALS data acquisition and metric generation. The guide is not intended to be prescriptive, but rather to provide a science-based foundation upon which those interested in using ALS data to produce EFIs can make informed decisions appropriate for their specific forest and management environments.

An area-based approach is a method for predicting forest inventory attributes such as volume or basal area, at high spatial resolution across an entire management area. Using ALS data and ground plot measurements, the area-based approach is accomplished in two steps (Figure 2). In the first step, tree-level attributes (e.g. height, basal area) from a sample of ground plots are measured and summarized to the ground plot level. ALS data are acquired for the entire area of interest (wall-to-wall coverage) and canopy metrics (e.g. descriptive statistics) are calculated for each grid cell, the size of which relates to the size of the measured ground plots. Canopy metrics are also calculated for a subset of the ALS data that are clipped to correspond to the area (shape and size) of the measured ground plots. These co-located ALS data and ground measurements are then used to develop predictive models for forest inventory attributes of interest. To ensure the development of robust models, it is necessary for the ground plots to represent the full range of variability



Viewpoints

By Joanne White, Mike Wulder and Roger Whitehead

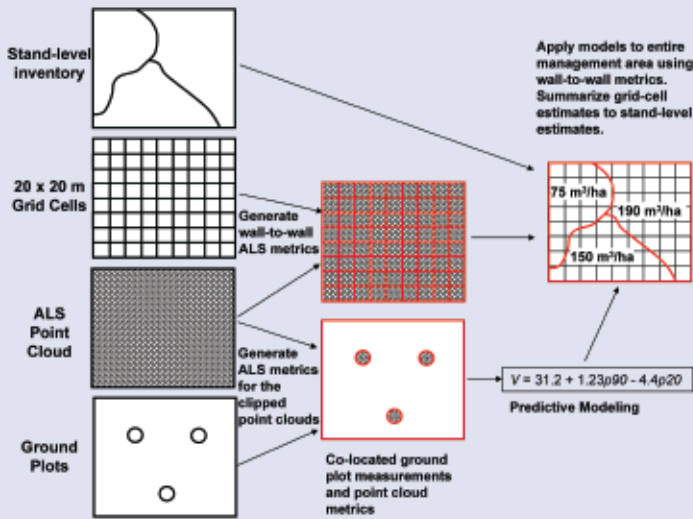


Figure 2. Schematic of the area-based approach using ALS data to generate forest inventory attributes.

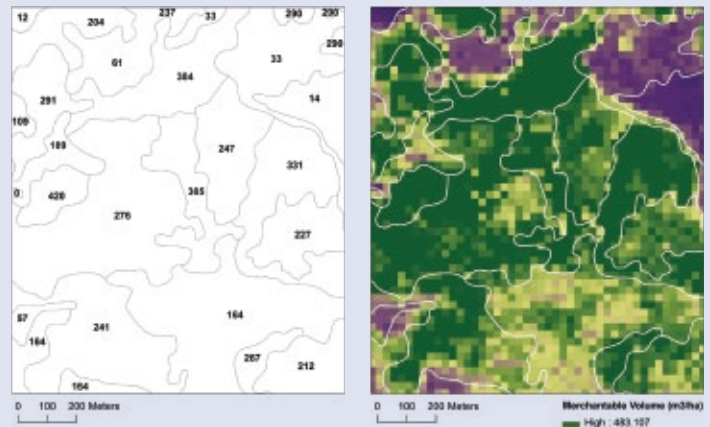


Figure 3. A conventional forest inventory provides a single stand-level estimate of merchantable volume (m^3/ha) (left), whereas an EFI provides a grid-cell level estimate (right), enabling within stand variability to be characterized.

in forest conditions in the area of interest. To this end, it is recommended that the ALS data be acquired first and that select metrics be used to stratify the area of interest and guide the acquisition of ground plots. In the second step of the area-based approach, these predictive models are applied to every grid cell in the area of interest to generate wall-to-wall estimates and maps of specific forest inventory attributes. The outputs are raster layers that can be stored and analyzed within a GIS.

The foremost advantages of the area-based approach are:

- Having complete (e.g. wall-to-wall) spatially explicit measures of canopy height, associated ALS metrics and all modelled attributes (e.g. basal area, volume) for an area of interest.
- Scalability of the resulting information.

Conventional forest inventories provide a single stand-level estimate for a given attribute of interest, whereas the area-based approach using ALS data provides within-stand estimates of attributes of interest that can then be rolled up to the stand level (Figure 3). The ability to scale wall-to-wall ALS-based estimates allows them to be seamlessly integrated into existing conventional stand-level strategic, tactical and operational forest inventories. This enables within-stand variability to be characterized while at the same time not precluding the implementation of standard or mandated inventory practices. Moreover, the scalability of ALS-based estimates can greatly improve synergies between strategic and operational information for

management and planning. Lastly, it should be noted that estimates of forest inventory attributes derived from ALS data using the area-based approach often meet or exceed operational accuracy requirements. 🌲

Citation:
White, J.C., Wulder, M.A., Varhola, A., Vastaranta, M., Coops, N.C., Cook, B.D., Pitt, D., Woods, M. 2013. A best practices guide for generating forest inventory attributes from airborne laser scanning data using the area-based approach. Information Report FI-X-10. Natural Resources Canada, Canadian Forest Service, Canadian Wood Fibre Centre, Pacific Forestry Centre, Victoria, BC. 50 p.

For more information contact:

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Due Diligence in Inventories and Timber Supply Forecasting— An Industry Case Study

I BELIEVE A QUALITY FOREST INVENTORY ALONG WITH A WELL-DESIGNED

growth and yield program can make an important contribution to improving the timber supply for many of the management units in the province. To illustrate, this article will provide some examples of how it was done on Tree Farm Licence (TFL) 52 (previously known as TFL52 and TFL5). While this approach can be implemented more efficiently on area-based tenures, the principles presented here can be applied to other management units.

Since 1997, West Fraser has used both company and government funding to acquire and enhance inventories of TFL 52's forests, ecology, and geographic features. This initial work also included improving the estimates of timber growth through a combination of sampling and monitoring of the TFL's managed stands. In addition, West Fraser has maintained a quality, basic silviculture program on the TFL designed to optimize timber production and quality.

For TFL 52, the key concept in acquiring quality inventories is to provide detailed information for forestry operations, planning and timber supply uses. The benefits of having detailed inventories include improvements in harvest scheduling, yield predictions, seral stage balancing, old-growth management and accommodation of other resource values.

For this discussion, the focus will be on the two main inventories used in timber supply analysis, specifically the Vegetation Resources Inventory (VRI) and Terrestrial Ecosystem Mapping (TEM). The two VRIs were completed on TFL 52 in 2000 and TFL 5 in 2002, while the TEMs¹ were completed in 1994 and 2000, respectively.

Once these TFL inventories were completed, additional sampling work was undertaken to improve estimates of managed stand growth and standing timber volume for use in timber supply analysis. For managed stands, random sampling was conducted in 1999 for the purpose of generating accurate estimates of site index for use in predicting stand yields. Site index estimates were generated for the TFL's planted species and then applied to the VRI and TEM inventories. Similarly, for natural stands 40 years or older, random sampling was done in 2002 and 2005 (VRI Phase II) to develop unbiased estimates of VRI forest inventory attributes used in predicting existing stand yields. Yield tables were developed for managed stands in 2000 and 2002, while natural stand yield predictions were completed in 2009 following the amalgamation of TFL 5 and TFL 52.

In 2001, a managed stand monitoring program was implemented on the TFL primarily to validate these new site index estimates and the attendant managed stand yields generated for timber supply

TFL 52 Silviculture Program

Quality, basic silviculture requirements:

- Average planting density 1,800 sph
- A class seed planting — Douglas-fir, lodgepole pine, Interior spruce
- Average regeneration delay: 1-2 years after harvest
- Timely brushing to reduce the impact of brush competition on tree growth
- Improved saw log quality through high density plantations — moderate/uniform piece size, reduce knots and log taper

analysis. The monitoring program also has a forest health component for estimating the incidence, extent and volume losses from damaging agents on the TFL's managed stands. To date, 132 Change Monitoring Inventory (CMI) plots have been installed across the land base on a two kilometer grid in managed stands of between 15 and 40 years old.

As stated, the CMI program provides important feedback for checking variables used in developing the TFL's Managed Stand Yield Tables. For example, the 2006-08 CMI five-year remeasurements identified the need to do additional sampling in younger managed stands to improve site index estimates for Interior spruce. This sampling work will be completed in 2013. Along with checking variables, another benefit of the program is the collecting of local data that can be used to adjust the TFL's silviculture program treatment regimes, where required.

As mentioned, the CMI data can also be used as an independent check of managed stands yield predictions used for timber supply analysis. For example, the managed stand yields developed in 2012 were compared to the CMI plots for merchantable volume estimates. Likewise, natural stands yield predictions developed with the same project underwent an independent check for merchantable volume using the TFL VRI Phase II plots. In both cases, the predicted volumes were shown to correspond well with the ground plot estimates with the differences being only four to five percent.

So, what have these programs accomplished for West Fraser besides more accurate timber supply forecasting? Initially, there was a 15% increase in TFL 52's base case annual allowable cut (AAC) for Management Plan 3 in 2003. Moreover, using the principles outlined, standing timber volume and managed stands growth rates

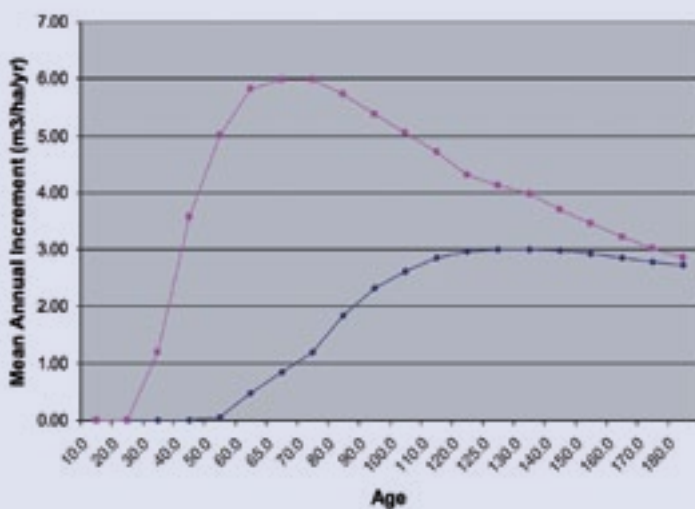


Viewpoints

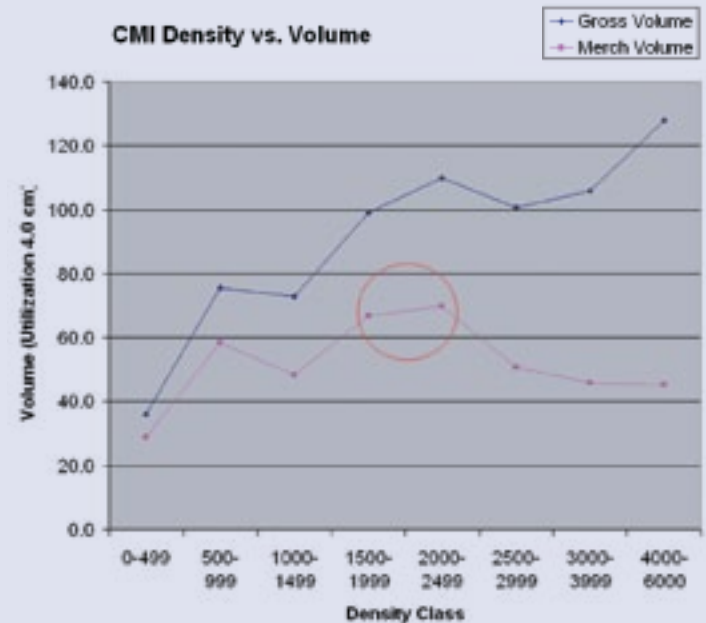
Earl Spielman, RPF

TFL 52 Yield Tables 2012

Managed Stands vs. Natural Stands: MAI
(Utilization 12.5 cm)



CMI Density vs. Volume



TFL 52 2012 Yield Table Summary

- Natural Stands – Mean Annual Increment (MAI) of 3.0 m³/ha/yr with a Culmination Age of 122 years;
- Existing Managed Stands – MAI of 6.0 with a Culmination Age of 64 years; and
- Future Managed Stands – MAI of 6.0 with a Culmination Age of 66 years.

TFL 52 CMI Data

Optimum merchantable volume to stand density.

are substantially higher than initially estimated by the standard VRI. In the case of TFL 52, the mid-term yield estimates for the land base indicate that the same amount of merchantable timber volume can be produced in about half the time for managed stands (64 years) when compared to natural stands (122 years). These increases will help improve the timber supply situation in the Quesnel Forest District, which has been devastated by the mountain pine beetle (MPB). As well, higher growth estimates will lead to greater support for the TFL's current silviculture program treatment regimes and the potential for greater stand yields in the future.

These programs have experienced few problems and this success can be attributed to having a full-time TFL inventory forester and the hiring of good consultants. However, not surprisingly, the MPB epidemic provided some challenges for the TFL's inventory program. Fortunately, as discussed, the inventory plots installed as part of the

initial sampling work provides a basis for quantifying the level of attack of both epidemic and endemic damaging agents. In this case, the VRI Phase II and CMI plots were revisited to estimate the level of MPB attack in natural and managed stands, respectively. Dead lodgepole pine volume estimates were applied to natural stands for the final yield predictions, while estimates of MPB attack from CMI plots will be used to reduce lodgepole pine volumes in existing managed stands for future analyses. As well, additional opportunities exist for revisiting VRI Phase II and CMI plots to determine the growth differences in MPB attacked natural and managed stands. 🐦

Earl Spielman, RPF, works in the planning department with West Fraser Mills Ltd. in Quesnel. He is responsible for the Inventory Program for Tree Farm License 52.

1. TFL 5 Ecological mapping was done using the Biophysical Habitat Mapping Methodology developed by Demarchi et al (1990).



Canada's National Forest Inventory: Where Are We and How Did We Get Here?

WITH THE RISE IN PUBLIC CONCERN FOR the environment in the 1980s and 90s, a need arose for national assessment of the sustainability of our forestry practices and of forest change. The forest sector's social license to operate was becoming conditional on our ability to document and demonstrate that our forestry practices were environmentally sustainable. An article in the May/June 1996 issue of the *Forestry Chronicle* explained the situation and described the need for a new national forest inventory (NFI) with a statistically valid sampling approach, a consistent methodology and a network of plots to provide the framework for ongoing re-measurement and monitoring. A cooperative multi-agency approach to implementation and maintenance of this NFI was recommended. All four authors of that 1996 article were from BC.

Almost 20 years later, we find ourselves in the sixth year of our first 10-year re-measurement cycle. Our NFI looks a lot like the inventory program that was recommended in that 1996 article. It is a design-based statistical survey with permanent, geo-referenced plots that sample all of Canada's forests. The program is coordinated by the Canadian Forest Service (CFS). Provincial and territorial collaborators, including BC's Ministry of Forests, Lands and Natural Resource Operations (FLNRO), collect and provide data using jointly developed standards and procedures. CFS provides the infrastructure to manage the data and leads in the analysis of data and generation of reports.

NFI establishment was a long and difficult job. First, a design was needed that would be flexible enough to align well with existing provincial and territorial inventory programs, but rigid enough to provide the necessary statistical rigour. Somehow, we needed to arrive at an optimal compromise between the idealized statistical design and something that would be practical and affordable to establish and maintain over the long term. Then, plots needed to be established and first measurements taken. Finally, a data management infrastructure had to be built to bring all the data together, provide the necessary quality control checks and feedbacks, and supply the data into statistical estimation and reporting processes.

Most of this work has now been accomplished. Plots were established and first measurements were taken between 2000 and 2006. Baseline statistical reports are published online at nfi.nfis.org, and direct access to data can be requested through the NFI Project Office at the Pacific Forestry Centre in Victoria. We are processing a growing number of requests from inside and outside government. The CFS relies on NFI data to perform many of its core functions, including national and international reporting, as well as scientific research and policy development to support forest sector competitiveness, optimize forest value and advance the forest sector's environmental leadership.

NFI implementation in BC is aligned with FLNRO's forest inventory program to provide efficiencies and leverage opportunities for both programs. The two programs are complementary. The FLNRO inventory program's data and models provide information on current forest conditions and are used to forecast future conditions. These are used to inform forest



management decision making and strategic planning. The NFI delivers a national strategic-level inventory that is used to monitor trends and provide broad regional characterization across jurisdictional boundaries.

Those close to the operational delivery of the NFI and its data will tell you that there remain some very important challenges, both technical and institutional. Of course, such challenges come as no surprise to people who have experience working with large, complex datasets or cooperative multi-agency initiatives. Canada is a very large country and many of our forests are extremely remote. The resources needed for establishment and maintenance of the NFI have at times been challenging to obtain. All agencies involved, however, have remained focused on delivering the best possible program with the resources available. We've kept our focus because we know that the time series of NFI data will grow in value as it grows in length.

See NFI continued on Page 31



Attitudes towards climate change adaptation in BC's forestry profession

Personal Reflections on the Spring 2013 ABCFP Climate Change Survey.

What do forest professionals really think about climate change? Is there anything resembling consensus within our profession? Is consensus even desirable?

LAST SPRING, THE ABCFP CLIMATE CHANGE TASK FORCE (CCTF) conducted a membership survey in keeping with their mandated goal that “ABCFP members will be guided and supported in adapting practices to a changing climate.” The response to this survey was outstanding: there were a total of 1477 responses (27% of the total ABCFP membership base) from a representative profile of regions and employer groups. What was especially remarkable was that a total of 567 respondents (36%) provided paragraph-format comments totalling more than 33,000 words. That’s 100 pages of individual perspectives on climate change and what we need to do about it as a profession.

This level of response deserved a closer look, so the CCTF asked me to do a detailed analysis on the survey, and especially to draw some meaning out of the written responses. My report, as well as a categorized compilation of the written responses, is posted on the ABCFP survey website¹. This survey provides important insights into attitudes within our profession towards climate change and perceived barriers to adaptation. The following are some of my personal reflections on a few interesting aspects of the survey.

The first thing that struck me about the survey results was the high level of agreement that climate change is an important forest management consideration: 84% of respondents agreed to this statement, and only 6% disagreed. These attitudes towards climate change were highly consistent across regions and employer groups. In my opinion, these results provide a strong mandate for the ABCFP to move forward with advocacy and guidance on climate change adaptation.

Respondents were less certain on the causes of climate change. 71% of respondents agreed that current rates of climate change are significantly driven by anthropogenic greenhouse gases, 20% were neutral or unsure, and 9% disagreed. Given the scientific consensus on this issue, I was surprised that almost a third of respondents are unconvinced. However, an Angus Reid poll taken at the same time as the ABCFP survey concluded that only 57% of BC residents are convinced that climate change is real and anthropogenic². This

Survey Question:	# of Responses	Response					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Don't Know
3a. Globally and at continental scales, the climate is changing faster now than it has changed for millennia.	1429	4%	10%	15%	30%	27%	8%
3b. The current pace of climatic change is significantly affected by emissions of carbon dioxide and other gases.	1432	3%	6%	15%	42%	29%	5%
3c. Climate change has already impacted BC's forests and forest ecosystems.	1428	2%	7%	14%	47%	27%	3%
3d. Climate change impacts will pose future threats for BC forests.	1424	2%	6%	12%	43%	33%	4%
3e. I think it is important to consider climate change in the management of forests.	1426	2%	4%	10%	47%	37%	1%

suggests that forest professionals are more convinced by the reality of anthropogenic climate change than the general public.

As someone who thinks that the balance of information on climate change strongly favours proactive mitigation and adaptation, I was especially interested in the perspectives of forest professionals who have come to the opposite conclusion. The written responses to the survey suggest that the voices of doubt within the profession are a very diverse group that does not fit into a mainstream caricature of climate change denial. Some of the skeptics were stridently reactionary but others had more nuanced perspectives. Many respondents did not oppose climate change action per se, but want the ABCFP to develop a strictly evidence-based approach and avoid what they perceive as a climate change “bandwagon.” Others warned against prioritizing climate change adaptation to the detriment of other practice areas. Finally, many of the skeptical or cautious responses stemmed from humility with respect to interventions in complex ecological processes. The following response especially caught my attention:

“Throughout my 30+ year career in forestry a lot of research was focused on just understanding how ecosystems function, how dynamic they are, and how we can best manage our forests by emulating their function. Until climate change became ‘vogue’ most researchers would tell you they need to know more about them and that a steady process of adaptive management was the key to success. Now all of a sudden they are telling us we can and should change species mixes, manipulate

¹ This work was done on a volunteer basis at no cost to the ABCFP membership.

² Angus Reid Public Opinion. 2013. Global Warming Three-Country Poll: Less Than Half in U.S. and Britain Believe in Man-Made Climate Change. New York, April 2013. Full Question: “which of the following statements comes closest to your view of global warming (or climate change): (a) Global warming is a fact and is mostly caused by emissions from vehicles and industrial facilities (response: 57%); (b) Global warming is a fact and is mostly caused by natural changes (response: 20%); (c) Global warming is a theory that has not yet been proven (response: 13%); (d) not sure (response: 9%).”



The Private Managed Forest Land Act: A Framework for Forest Management Regulation on Private Land in BC

THE *Private Managed Forest Land Act* (PMFLA) WAS ESTABLISHED BY the BC Legislature in 2003 to encourage sustainable forest management practices and protect key public environmental values on privately owned land under the Managed Forest Program. Managed Forest is a property assessment classification under BC's *Assessment Act* established in 1988 to encourage private landowners to manage their lands for long-term timber production, where the land is taxed at a rate similar to, or lower than, rural residential land. There are 257 managed forest properties totaling 823,582 hectares, and they range in size from large industrial operations up to 323,000 hectares to small woodlots of 25 hectares or less. Managed forests are a sizable component of forest management in BC, accounting for approximately 10% of the annual timber harvest.

The PMFLA establishes forest management objectives for soil conservation, water quality, fish habitat, critical wildlife habitat and reforestation, as well as instituting the Private Managed Forest Land Council as an independent public agency to administer forest practices under the program. Council has the authority under the PMFLA to make regulations, levy administrative fees, enter private property, inspect records and operations, issue stop work orders, levy administrative penalties, order remediation and prosecute non-compliance through the courts. It is comprised of two members appointed by the provincial government, two members who are elected by the managed forest landowners and a chair who is jointly appointed by the other four members of Council. Although the Council operates independently, it is required to report annually to the Minister of Forests, Lands and Natural Resource Operations. Operations of the Council are fully funded through fees assessed to managed forest owners.

Council takes a results-based approach to regulating forest practices, grounded in performance-based standards designed to ensure practices meet the intent of the forest management objectives established under the PMFLA; at the same time, Council aims to ensure owners have maximum flexibility to manage their land accordingly. Professional reliance is an important component of the results-based approach. For example, Section 15 of the Private Managed Forest Land Council Regulation requires forest management activities on private managed forest land to not cause a material adverse effect on fish habitat or drinking water quality. Yet the common criticism is that tree retention standards under the Council's regulation are not comparable to the prescriptive riparian standards on Crown forest. This is like comparing apples to oranges; under the Council's regulation, owners need to comply with the minimum tree retention standards, maintain non-commercial tree species and understory vegetation and meet the stringent requirements of Section 15. Audits conducted by Council have shown that landowners routinely retain trees adjacent to streams far exceeding the minimum stipulated under the Regulation as due diligence to be in compliance with Section 15,

and have concluded that these practices are meeting the fish habitat protection objective in the PMFLA. Furthermore, reforestation and road regulatory standards applicable under the Council's regulation are comparable to forest licensee requirements on Crown lands.

The Council routinely conducts inspections and compliance investigations. Our policy is to inspect all managed forests at least once every five years where we assess performance relative to management commitments and regulatory requirements. In addition Council has undertaken several compliance audits that have examined a range of activities and criteria. Specific audits have focused on the requirements for timber harvesting; road construction, maintenance and deactivation; reforestation; and protection of fish habitat and drinking water quality. A recent effectiveness audit has assessed whether the forest management objectives in the PMFLA are being achieved under the current practices and regulatory regime; those results will be released later this year. Where non-compliance is alleged as a result of an inspection, audit, public complaint, or reported slide, Council will convene a determination hearing. Where an owner is found to have contravened the PMFLA or regulations, we assess penalties or require remediation. Council's policies and compliance determinations are published on our website.

As a result of its ongoing review, Council introduced new forest practices regulations in 2007 that updated road construction, maintenance and deactivation requirements, and strengthened the protection of fish habitat and water quality. Council maintains a commitment to ongoing review of forest practices on the ground and the effectiveness of its regulations in meeting the forest management objectives specified in the PMFLA.

Council understands that there are often conflicts between forest operations on private managed forest land and community interests relating to protection of local environmental values. We are committed to working with local government, communities and other provincial and federal regulatory agencies to address such issues. Promoting sustainable forest practices, protecting drinking water and fish habitat and ensuring harvested areas are reforested will continue to be priorities for Council. For example, a current focus is examining forest management activities with respect to drinking water quality. We welcome comments from the public and commit to follow up on issues raised or concerns identified regarding potential non-compliance with the regulatory requirements. Information on the relevant legislation, policies and compliance can be found on our website: <http://www.pmflc.ca/>, or by contacting our office by e-mail: execdirec@pmflc.ca or telephone: 250.386.5737. 🐦

Rod Davis is the chair of the Private Managed Forest Land Council, and lives in Victoria. He has over 40 year's experience in resource and environmental management, and was awarded the Bill Young Award in 2006.

The Problem of Multiple Owners and Prime Contractors

SECTION 118 OF THE *Workers Compensation Act* (THE ACT) REQUIRES a “prime contractor” to coordinate the safety activities of workers, employers and other persons at any “multiple-employer workplace” and to establish and maintain a system to ensure compliance with the Act and the regulations in terms of occupational health and safety at the multiple-employer workplace. Under the Act, “the” owner of a multiple-employer workplace is the default prime contractor unless some other party enters into a written agreement with “the” owner to become prime contractor. Identification of “the” owner of a multiple-employer workplace, then, appears critical to the identification of “the” prime contractor. Unfortunately, the legislative implementation of the Act’s policy with respect to multiple-employer workplaces lacks legal certainty when it comes to the identification of prime contractors.

The problem is that neither the Act nor its regulations identify a single “owner.” Part 3 of the Act provides a definition of “owner” that “includes” (among other things) a tenant, lessee, licensee or occupier of a workplace. Since the definition is inclusive (that is, it does not exclude other potential owners that are not specifically identified in the definition), a fee simple owner of a workplace is undoubtedly also an “owner” for purposes of Part 3 of the Act.

So, as WorkSafeBC acknowledges in its policies and guidelines, any given workplace can have multiple owners. This is particularly so with forestry sector workplaces where, contemporaneously, the Crown will hold underlying title, the tenure holder and the holder of any market-logging (quota rental) agreement are “licensees,” and a stump-to-dump contractor is potentially an “occupier.” Each of these actors fall within the definition of “owner” under the Act, but the Act does not identify “the” owner for purposes of prime contractor liability under the Act.

While the Act and regulations made thereunder clearly contemplate that only a single owner will exist at any given multiple-employer workplace for purposes of prime contractor liability, there is no legislative guidance to distinguish “the” owner from all the other potential owners. A tenure holder cannot know with certainty whether it is lawfully “the” owner of a multiple-employer workplace and, therefore, the default “prime contractor” and a “stump-to-dump” logging contractor cannot know with certainty that it is not “the” owner and, therefore, not the default prime-contractor.

WorkSafeBC also has no obligation to accept a particular state of affairs that various actors may have agreed upon with respect to prime contractor liability for a multiple-employer workplace. Parties

to a market logging agreement may acknowledge in their agreement that the purchaser (rather than the holder of the Crown tenure) is “the owner” of any multiple-employer workplace that may exist in relation to their agreement since the purchaser under a market logging arrangement is, at law, a licensee as the holder of a sublicense. The purchaser, as “the owner,” may then enter a written agreement with its logging contractor whereby the logging contractor assumes the role of “prime contractor” from the purchaser. While this type of arrangement commonly arises and makes sense, there is nothing in the legislation that compels WorkSafeBC to lawfully recognize the arrangement if, in WorkSafeBC’s view, the holder of the underlying tenure was still “the owner” of any multiple-employer workplace regardless of what the parties had otherwise agreed upon.

The problem of multiple owners in relation to prime contractor liability has existed since 1999 when Bill 14 was brought into force and Part 3 of the Act came into existence. It is nothing new. Yet, neither government nor WorkSafeBC appear motivated to bring in legislative certainty as to who, exactly, is “the” owner for purposes of prime contractor liability under the Act. One might think that clear rules with respect to who is responsible for coordinating occupational health and safety at multiple-employer workplaces is both good for safety and good for business. But, instead, we are left to rely upon policy statements and other guidance from WorkSafeBC that are not lawfully binding and, therefore, do not provide much in terms of legal certainty. 🐼

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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Alan Lindsay Orr-Ewing: The Father of Forest Genetics in BC

By W.G. Burch, RPF, (Ret) and M.D. Meagher, RPF, (Ret)

Published by Forest History Association of BC. 2012

ISBN 978-0-9877112-7-4

155 pages, paperback

In BC, we are familiar with large planting programs of a million trees or more. This is often followed by another big program the following year, complete with plantation surveys and tending of the previous year's stands. In short order, the BC forest professional is very aware how well their seedlings are growing.

Fortunately forest professionals have benefited from the many professionals who have dedicated their careers to the development of tree seed and seedlings. This book does a remarkable job of describing the contribution of a professional forester, the ABCFP's first 'Distinguished Forester' and BC's first PhD in forest genetics, Dr. Alan Orr-Ewing.

Alan Lindsay Orr-Ewing: The Father of Forest Genetics in BC is written by authors and fellow professional foresters, W. Gerry Burch, RPF (Ret), and Michael D. Meagher RPF (Ret). The authors have woven together a collection of first-hand accounts of the career of Alan Orr-Ewing and in

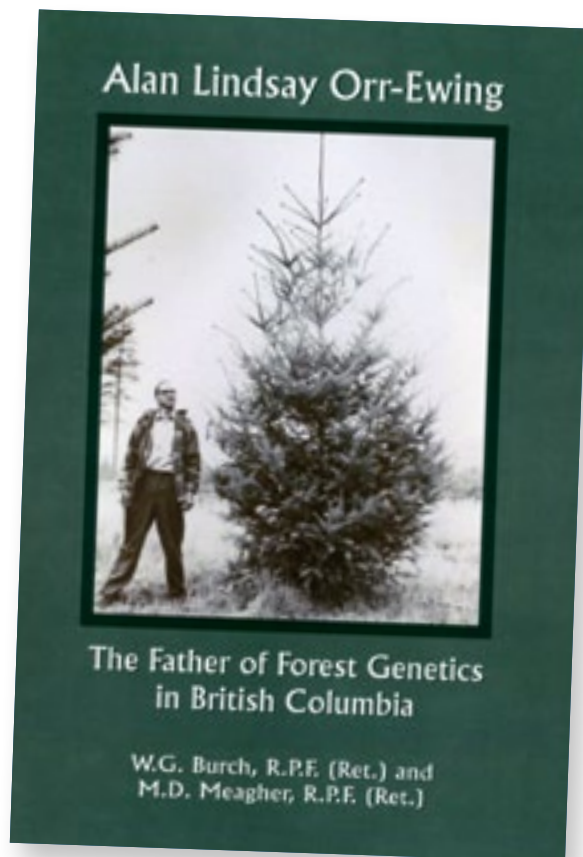
doing so, also capture the birth and growth of our tree breeding program in BC.

The story begins with Orr-Ewing's interest and education in agriculture, followed by a forestry degree and his early

employment in the research branch of the BC Forest Service. Like so many professionals from this era, Alan's life was interrupted by the call to serve his country in World War II and his imprisonment, escape and recapture. Almost immediately afterward, Alan picked up where he had left off and the tree improvement story accelerates. The story includes the initiation of the 'Plus Tree' program, work at the Cowichan Lake Research Station, and a list of practical solutions required by industrial forest companies. The first-hand accounts from forest professionals and Alan's family and friends all seem to reveal his enthusiasm, but also his use and documentation of good science. Alan Orr-Ewing's perseverance and dedication are described by the international recognition he received in the final chapters of the book.

Forest professionals benefit from the Orr-Ewing legacy and today easily discuss orchard seed, the kind and amount of genetic gain and seed transfer. Burch and Meagher use personal recollections and quotations from many confidants and colleagues providing not only insight, but attention to important details. *The Father of Forest Genetics* is a short book that chronicles a great impact to BC forestry and will continue for generations of trees. 🌲

Book Review by Mike Larock, RPF.



Climate Change continued from Page 25

the ecosystems and modify their processes for a nebulous set of future conditions they cannot know will happen. We can no more 'build' resilient ecosystems than we can predict the future. Human history has a long list of failures but not so many successes in this regard."

As a profession, we are on the front lines of our society's interactions with the natural environment. Forest professionals are well positioned to detect climate change occurring on our landscape and grasp its implications. For that reason, I am not surprised that our profession appears to be more ready than the general public to accept anthropogenic climate change as a real threat. However, our experiences with attempting to manage the diverse and complex ecosystems of BC have taught us humility. Reading through the written responses to the survey impressed on me that the skepticism held by some forest professionals is part of our collective wisdom. As we move forward with climate change adaptation, both as individual practitioners and collectively as a profession, I think it is important that we make room in our dialogue for the voices of doubt.

Colin Mahony, RPF, is a forestry consultant based on Bowen Island, and has recently become a volunteer member of the ABCFP Climate Change Task Force. He is currently working on a M.Sc. research project at the UBC Faculty of Forestry using the Biogeoclimatic Ecosystem Classification to understand historical and projected climate changes in BC. To follow the progress of his research and provide comments, go to his open science research blog: <http://blogs.ubc.ca/colinmahony/>.

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ABCFP – August 2013

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Chesley Neil Clem, FIT
 Boris Sebastian Egli, FIT
 Claire Louise Errico, FIT
 Gavin John Hallan Lane Fox, FIT
 Jesse Daniel Grigg, FIT
 Kyle Stanley Krupop, FIT
 Stephane André Louis Léger, TFT
 Kyle Ryan Myschowoda, TFT
 Jeffrey Adam O'Hara, FIT
 Sarah Elizabeth Quickfall, TFT
 Lori Colleen Sparrow, FIT
 Jayson Laine Warkentin, FIT
 Xin Yuan, FIT

REINSTATEMENTS FROM LEAVE OF ABSENCE (REGISTERED MEMBERS)

Arthur A. LaCourciere, RPF

DECEASED

Douglas A. Ruffle, RPF

NEW ASSOCIATE MEMBERS

Christopher James Sill, ATC

REINSTATEMENTS (REGISTERED MEMBERS)

Naomi Fern Wills, RPF

REINSTATEMENTS FROM LEAVE OF ABSENCE (REGISTERED MEMBERS)

Stacey H. Gould, RPF

REINSTATEMENTS FROM LEAVE OF ABSENCE (ENROLLED MEMBERS)

Mitchell R. Wilson, FIT

THE FOLLOWING PEOPLE ARE NOT ENTITLED TO PRACTICE PROFESSIONAL FORESTRY IN BC:

RESIGNATIONS (REGISTERED MEMBERS)

Dennis G. McPhail

RESIGNATIONS (ENROLLED MEMBERS)

Bruce Gerald Gullickson, RFT*
 Craig Daniel Shook, RFT, ATC**
 Cameron H. Stevens

*active RFT, resigned FP

**active RFT, ATC, resigned FIT

Membership Statistics

ABCFP – September 2013

NEW REGISTERED MEMBERS

Brianna Michelle Lukkar, RFT

NEW ENROLLED MEMBERS

Lucie Jana Babak, FIT
 April Mabel Bilawchuk, FIT
 Alison Jing-Yi Cabana-Wong, FIT
 Theresa H.C.N. Denton, TFT
 Emily Marie Francis, FIT
 Simon Joseph Christie Fodor, TFT
 John Trevor Harvey, FIT

Todd John James, FIT
 Darcie Lynn McNeill, FIT
 John Gordon Montgomery, TFT
 Eddy Joal Plant, TFT
 Steven Jeffrey Trommel, FIT
 Bradley Allen White, FIT

REINSTATEMENTS (REGISTERED MEMBERS)

John Brian McGuire, RFT, ATE

REINSTATEMENTS FROM LEAVE OF ABSENCE (REGISTERED MEMBERS)

Sarah Elizabeth Quinn, RPF
 Norah Jennifer White, RPF

THE FOLLOWING PEOPLE ARE NOT ENTITLED TO PRACTICE PROFESSIONAL FORESTRY IN BC:

RESIGNATIONS (RETIRED MEMBERS)

Gary A. Patrucco

RESIGNATIONS (ENROLLED MEMBERS)

Gavin Edward Thomas Anderson
 Kathy Adele DesRochers
 Ritchey Clarke Ivans, RFT*
 Thomas Norman Thompson, RFT*
 Rebecca Mary Werner, RFT*
 David Jason Wolfe, RFT**

*active RFT, resigned FP

**active RFT, resigned FIT

A Moment in Forestry

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



A Bygone Encounter

Submitted by Jim Girvan, RPF, MB

An old spring board still stuck in a stump near Sandspit, BC — a discovery made while walking in the woods.

We are now living in a data and information-rich age that would have been difficult to imagine 20 years ago. Satellites are collecting torrents of data everyday. Many of these data streams have valuable information for forestry and several can be accessed cheaply. Computing technologies have advanced exponentially, opening doors to new data synthesis and integration techniques that would have been inconceivable at the time our NFI was designed.

The pace of global environmental and economic change has also accelerated. We need a lot more information than we used to have. And we need it faster. Our forests and forest sector are being profoundly impacted by changing climate and changing markets, respectively. The changes we've seen recently are only the beginning. Forest science needs nimble access to reliable data in order to respond quickly and with authority on emerging policy, planning and forest management issues. Having access to standardized data of known precision will be one of the keys to developing well informed, timely responses to the challenges we'll face.

Data such as those provided by a longstanding and consistently implemented NFI will be invaluable. Examples of some current science applications include the calibration of the carbon budget model of the Canadian forest sector (CBM-CFS3) using NFI ground plot data to improve our understanding of the contribution of forests and forestry to global climate change mitigation and feedbacks; the use of NFI data in combination with remote sensing and other geospatial datasets to produce detailed national-scale maps of forest attributes; and the use of NFI tree core data to explore the impacts of climate change on past forest productivity

to lay the foundation for forecasting future tree growth.

For the NFI to succeed, we must remain steadfastly focused on our original mission while adapting to the evolving information needs of forest sector stakeholders and remaining responsive to immediate demands for data and information. The challenges that we've encountered during NFI establishment and first re-measurement make it clear that some adjustments are needed. We are looking continuously at new technologies and will incorporate them where appropriate, while ensuring statistical rigour and time series consistency.

Many years of effort by a large number of dedicated and visionary forestry professionals brought us to where we are today. The real pay-off will begin in earnest when our first re-measurement is complete and we publish our first change estimates. From that point forward, the NFI will be fulfilling its original mission of documenting and demonstrating the sustainability of our forestry practices. The NFI will also be providing a basic data infrastructure for national forest science and policy and in so doing, its value will go beyond that envisioned by those four visionary BC foresters who wrote the *Forestry Chronicle* article back in 1996. 🐦

Graham Stinson is manager of Canada's National Forest Inventory and is based out of the Pacific Forestry Centre in Victoria. Graham joined the Canadian Forest Service in 2001 to help build the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) and investigate forest carbon science and policy questions. He has worked extensively with forest inventory data from across Canada throughout his career, and came on board as NFI manager in 2011.

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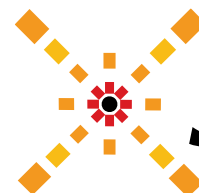
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