

SEPTEMBER – OCTOBER 2015

BC

Forest

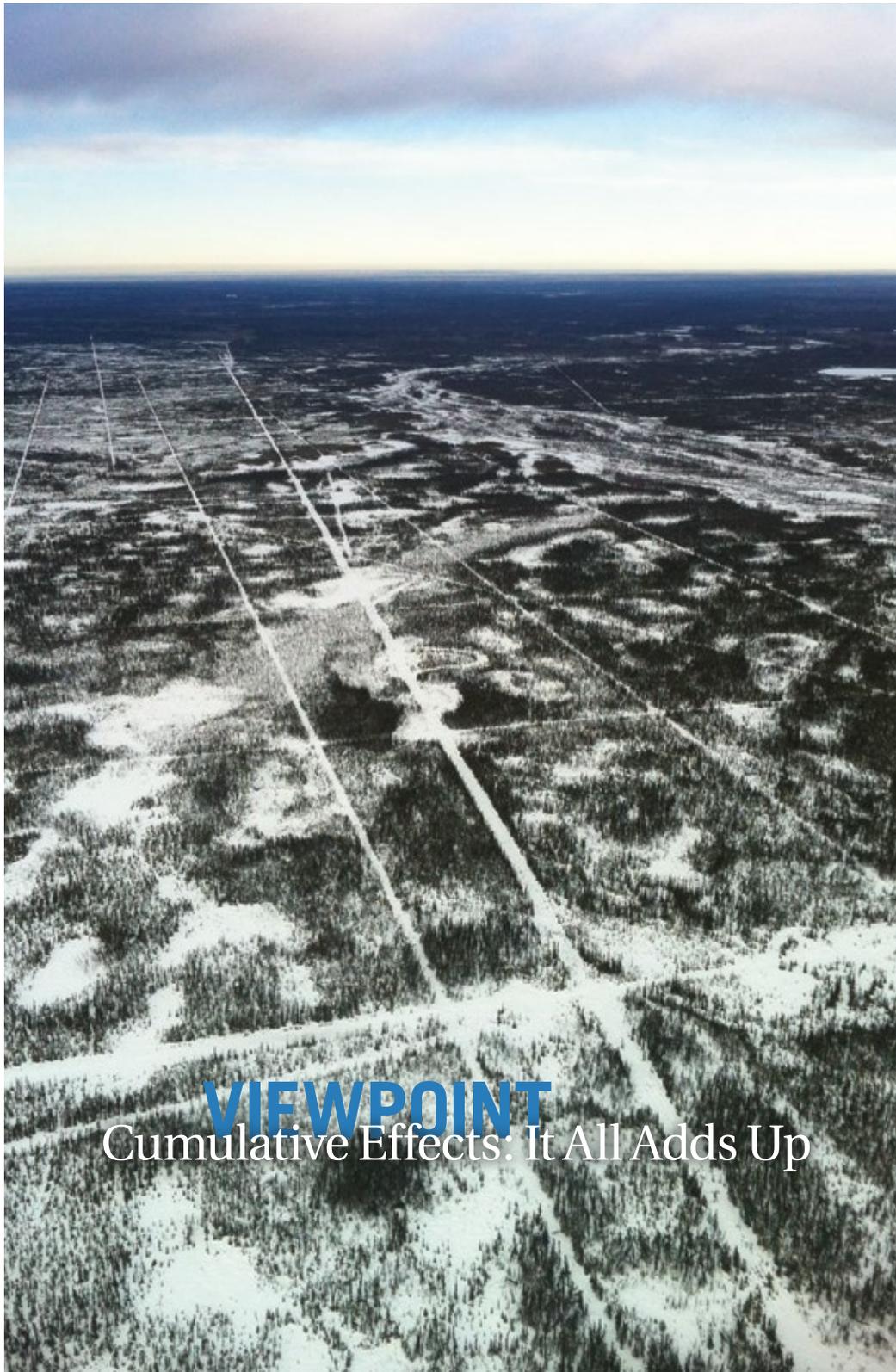
PROFESSIONAL

BC's New Cumulative
Effects Framework:
**What is it and What
Does It Mean for You?**

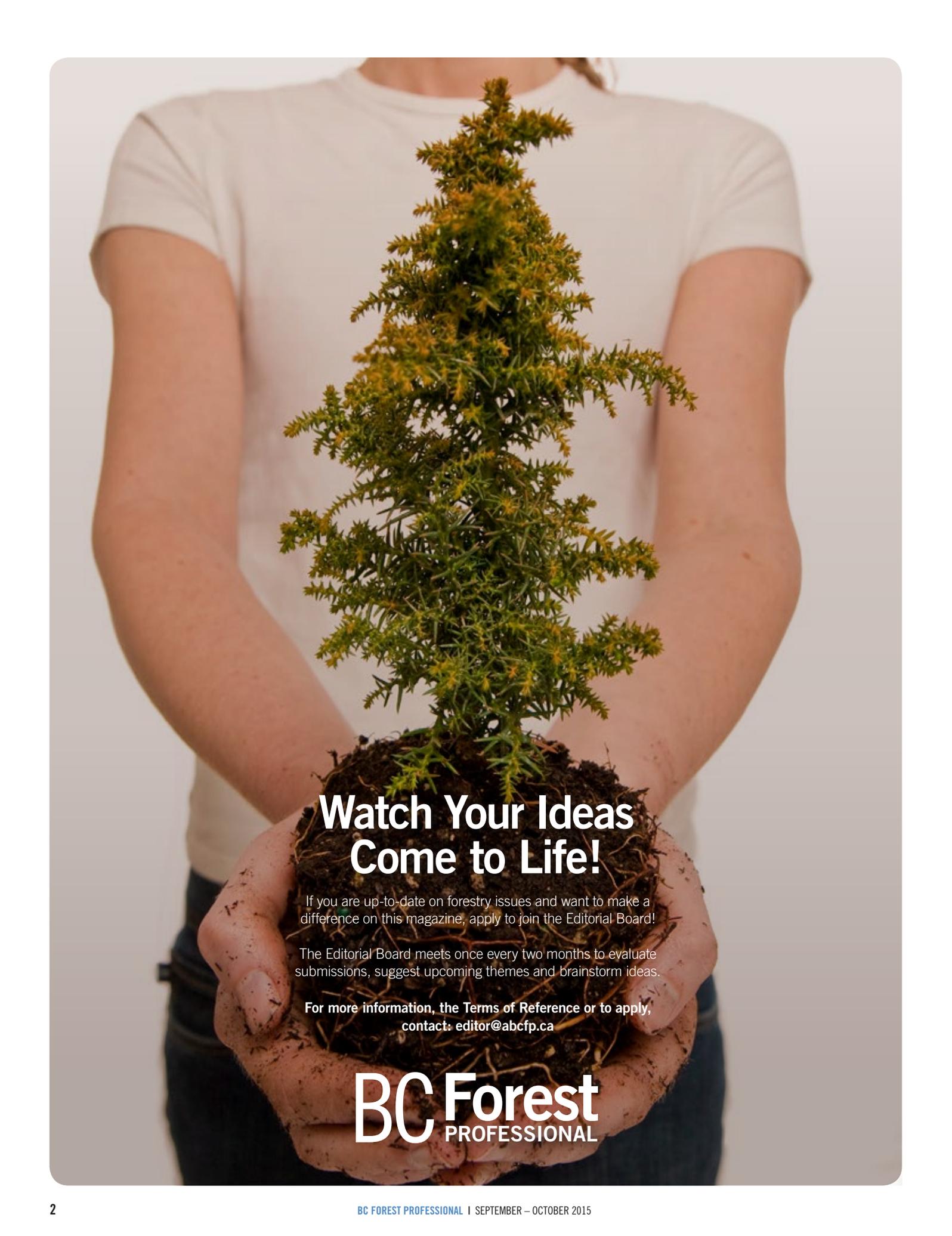
Area-Based Analysis:
**The Oil & Gas Sector's
Approach to Managing
Cumulative Effects**

Protecting Wildlife in a
Changing Land Base

**Meet this Year's
ForesTrust Recipients!**



VIEWPOINT
Cumulative Effects: It All Adds Up



Watch Your Ideas Come to Life!

If you are up-to-date on forestry issues and want to make a difference on this magazine, apply to join the Editorial Board!

The Editorial Board meets once every two months to evaluate submissions, suggest upcoming themes and brainstorm ideas.

For more information, the Terms of Reference or to apply,
contact: editor@abcfp.ca

BC Forest
PROFESSIONAL

Index

September – October 2015

BC FOREST PROFESSIONAL | Volume 22 Issue 5

Viewpoints

- 9 Managing and Mitigating for the Benefit of All
BY DORIS SUN, MJ
- 10 BC's New Cumulative Effects Framework — What Does it Mean for Forest Professionals?
BY LEAH MALKINSON, RPF
- 12 Managing Cumulative Effects in the Oil and Gas Sector Using Area-Based Analysis: The BC Regulator's Approach
BY SEAN CURRY, RPF
- 14 Managing Cumulative Effects on the Forested Landscape: Scientific and Traditional Knowledge Perspectives from Northeastern BC
BY SONJA LEVERKUS, FIT, RPBIO, PAG AND PHDC AND ELEANOR STEPHENSON, MSC
- 16 The Challenge of Cumulative Impacts — Conserving and Managing Wildlife Habitat
BY CHRIS JOHNSON, PHD, RPBIO



12



6

Interest

- 18 Fraser Valley Family Exemplifies Woodlot Values
BY SARA GRADY
- 24 Drone Technology Taking Off in Forest Management
BY COLIN FILLITER, RPF

Special Feature

- 20 Introducing This Year's ForesTrust Scholarship Recipients: Forestry's Next Generation
- 22 Do We Have the Public's Trust?
BY MIKE LAROCK, RPF, AND MEGAN HANACEK, RPF, RPBIO
- 26 Dodge the Bullet but Get Hit by the Train
BY CASEY MACAULAY, RPF

Departments

- 5 Letters
- 27 The Legal Perspective
BY JEFF WAATAINEN, LLB, MA, BA
- 29 Member News

Association Business

- 6 President's Report
- 7 CEO's Report
- 8 Association News

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

Ricardo Velasquez,
District Silvicultural Forester
Ontario Ministry of
Natural Resources



SEE FULL TESTIMONIAL
ON BACK COVER



www.snapdcs.com

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

602-1281 W. Georgia St, Vancouver, BC V6E 3J7
Tel: 604.687.8027 Fax: 604.687.3264
E-mail: editor@abcfp.ca Website: abcfp.ca/web

MANAGING EDITOR: Amanda Brittain, MA, ABC
EDITOR: Doris Sun, MJ
EDITORIAL ASSISTANT: Michelle Mentore

EDITORIAL BOARD:

Ron Hart, RPF; Erika Higgins, RPF;
Tom Hoffman, RPF (council rep.);
Marie-Lou LeFrancois, RPF;
Lindley Little, RPF; Kirstin Storry, RPF;
Roy Strang, RPF (RET); William Wagner, RPF

DESIGN: Massyn Design

PRINTING: Met Fine Printers

DISTRIBUTION: Met Fine Printers

ADVERTISING SALES MANAGER: Doris Sun, MJ
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
602-1281 W. Georgia St, Vancouver, BC V6E 3J7

Reflections on Ethical Requirements

A characteristic that distinguishes forest professionals is a commitment to develop forest lands and forest resources in a sustainable way (Bylaw 11.3.1. *To advocate and practice good stewardship of forest land based on sound ecological principles to sustain its ability to provide those values that have been assigned by society*).

Being stewards of natural resources, forest professionals “work to improve practices and policies affecting the stewardship of forest land” (Bylaw 11.3.5).

For these reasons forest professionals include knowledge of cumulative effects from various activities on forest land and resources when they provide advice, judgement and direction to employers and the public.



FOREST AND NATURAL AREAS MANAGEMENT

We're training the next generation of forest professionals. Accepting applications starting November 2015 for the September 2016 intake.

Learn more.

bcit.ca/fnam



PRESIDENT Jonathan Lok, RFT

VICE-PRESIDENT Christopher Stagg, RPF

PAST PRESIDENT Dan Graham, LLB, RPF

LAY COUNCILLORS

Rod Visser, Tom Walker

COUNCILLORS

Jill Affleck, RFT; Gail Brewer, RPF;
Mauro Calabrese, RPF, RPBIO;
Tom Hoffman, RPF; Morgan Kennah, RPF;
Robin Modesto, RPF, PENG; Lisa Perrault, RFT;
Trevor Swan, RPF

CHIEF EXECUTIVE OFFICER Sharon L. Glover, MBA

REGISTRAR AND DIRECTOR OF ACT COMPLIANCE
Casey Macaulay, RPF

DIRECTOR, PROFESSIONAL PRACTICE
AND FOREST STEWARDSHIP
Mike Larock, RPF

DIRECTOR, FINANCE AND ADMINISTRATION
Lance Nose

DIRECTOR, COMMUNICATIONS
Amanda Brittain, MA, ABC

DIRECTOR, PROFESSIONAL DEVELOPMENT
AND MEMBER RELATIONS
Brian Robinson, RPF

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.

Why Not Manage our Forested Land Base for Highest Financial Return?

The July – August edition of **BC Forest Professional** was outstanding as usual. Of particular interest were the articles on looking to the future of our forests using planning and modelling techniques. The article by Doug Williams, ‘Economics in the AAC Determination Process’, brought it all together for me.

I have felt for many, many years the public, who owns the vast majority of our forests, is not getting the best financial return on this huge forest asset. As the various articles point out, planning to accommodate all of the demands on the forest land base is complex and all-encompassing. I believe that, as a professional group, we have done an outstanding job of managing these often conflicting demands. However, in my opinion, while we have given full weight to every environmental, ecological and social value imaginable it has been at significant economic and financial cost to the public.

Almost all of the articles touched on the financial and economic side of the long term management issue in one way or another but it came across to me as if planning to give a high financial return to the public was somehow improper or politically incorrect. Is it time to stand up and say that in addition to providing the highest level of forest stewardship we plan to get the highest level of financial return for the public?

The article, “Strategic And Tactical Timber Supply Planning,” by Mike Buell, RPF, was very informative and suggested we are commonly

providing multiple layers or duplication of protection measures for forest values that reduce both volume and value. I tend to believe a lot of people in the sector are aware of this problem and some I have talked to have some ideas for getting back to more of a balance. There needs to be rational tradeoffs. So far most of the tradeoffs have been one way and there are a lot of people in small communities around our province who have felt the impact of these one-way tradeoffs.

Many things were touched on in the selection of articles but in my opinion two things were missed and require emphasis. First is the land itself. Are we managing the land, the soil, for the best economic return? We have many situations where for a variety of reasons we are not getting the highest possible growth rates. In some cases it may be nothing more than the need for a bit of fertilizer or some specific micro nutrients. The second issue is first class growing sites occupied by a less than optimal species mix. Some of these sites are being taken over by nothing more than weeds and are certainly not providing the public with the best financial return.

Maybe it is time to place getting a high level of financial return to the public on a par with all the other values we consider. Looking at Canada’s current economic situation, maybe it should be top of the list.

JACK CARRADICE, RFT(RET)

STAY SHARP



BC Forest Safety Council
Unsafe is Unacceptable

Slips, trips and falls are the second most common workplace injury. Stay on your feet with proper footwear, being aware of where you step and carrying only what is needed.
It's easier to stay well than get well.

www.bcforestsafes.org



Help Wanted. Apply Within.

As you may have heard, our CEO Sharon Glover will be leaving the ABCFP in January 2016. I have worked with Sharon since 2006 and was part of the executive search team that originally hired her to the ABCFP. She was a 'dark horse' candidate at the time, new to BC and without any forestry experience. But she impressed the committee with her extensive association experience, strong business background and impressive strategic approach. With her at the helm, the ABCFP really hit its stride as an effective and efficient association staffed with a high-performing team. As North America's largest professional forestry association, the ship doesn't turn quickly and there are icebergs everywhere; legislation can change, public opinion often swings and financial challenges — among others — can arise suddenly. Where Sharon excelled, though, was in helping us maintain a strategic focus while ensuring effective implementation within a strong governance model.

Many people don't understand the role of a CEO. Typically a professional who functions as the senior manager of a business or non-profit organization, the scope of responsibilities involve direct interaction with both employees and volunteers of the organization, working with the board of directors (Council) to ensure the entity is functioning according to its mission statement and goals, and working with financial officers to ensure the non-profit is working within its budget. It also requires looking toward the future. This often involves working alone and with others on the team to create and develop events, strategies and organization enhancements that will raise awareness and help secure the future function of the organization. It also means being the spokesperson, issuing statements to the media and making public appearances on behalf of the organization. The role of Council is to provide oversight and guidance to the CEO. The board ensures that the association stays aligned with its mission and values and maintains oversight with respect to legal, management (to the extent of the CEO's hiring, job description and performance), financial and strategic program functions. Council and the CEO share the responsibility of developing and enacting the strategic plan to guide the organization and also work together to evaluate its effectiveness and success.

So with this in mind, our search committee is seeking a new CEO to lead us into the future. Sharon and her staff have positioned the ABCFP nicely for this transition. The staff are a great, high-performing group, the strategic plan is moving into its final year, the financial foundation is solid, and I will no longer be President — what more could the new CEO ask for?! In addition to the strong leadership attributes we've come to rely on from Sharon, such as great communications skills, relationship building, delegation, business acumen, financial knowledge, human resources, strategy development, etc. we are also seeking more background in the arena of forestry-related issues. Topics such as climate change, First

Nations relationships, cumulative impacts, timber supply, wildlife, water etc. are front and centre for our members and we recognize that our new leader will need to hit the ground running in these aspects. Where do we find this amazing person, who has all these skills AND might also be a forest professional? I believe he/she is out there and I hope that our membership will help us identify potential candidates by directing them to the ABCFP website to apply for the CEO posting. Sharon leaves some pretty big shoes to fill but I'm excited about the opportunity we have to take the next transformational step at the ABCFP. 🐾





Addressing ASFIT and ASTFT Enrolment Concerns

IN RECENT YEARS, THE ABCFP HAS SEEN AN INCREASE IN THE NUMBER OF enrolled members who come from non-accredited degree and diploma-granting programs. This increase may be due to the previous downturn in forestry school graduates, the high demand for new professionals and the desire for employers to re-build succession into their organizations. The ABCFP originally created the Allied Science routes of entry (Allied Science Foresters in Training (ASFITs) and Allied Science Trainee Forest Technologists (ASTFTs)) to make forestry more inclusive of diverse educational backgrounds. In addition, the ABCFP extends eligibility to those who have 'equivalent' education and combined experience. This creates opportunity for students and employers; however, it requires more awareness from all parties. We have received numerous questions and comments from ASFITs and ASTFTs, as well as employers, about the program. I'll try to answer the most common ones here but feel free to send me additional questions (sglover@abcfp.ca).

WHY AREN'T ALL PROGRAMS ACCREDITED? The ABCFP continues to support accredited forestry programs; however, not all programs that deliver natural resource education wish to become accredited. The decision to accredit a program rests solely with the school and the national accreditation bodies.

Non-accredited programs that have a significant number of graduates going into forestry need to recognize that they are creating a lot of extra work for their alumni by remaining unaccredited. While the accreditation process requires time and money from the school, it ensures a much simpler path into the forestry profession across Canada. The ABCFP encourages these institutions to call our registrar for more information about why this is an important step or call the accreditation bodies directly to inquire.

WHAT IS THE DIFFERENCE BETWEEN CERTIFICATION AND ACCREDITATION? Accreditation is the formal recognition and alignment of a degree or diploma-granting program against the national standards for forestry and forest technology. The ABCFP is not directly involved in this process although we often clarify or explain the importance of accreditation when we are speaking with academic institutions.

Certification is the process that the forestry profession uses to measure an individual's credentials against the accreditation standards. This evaluation considers the candidates' academic backgrounds as well as the competencies gained from their work experience. Because this assessment is at the individual level, it is dependent on the quality and clarity of information provided by the candidate.

DOES THE ABCFP ACCREDIT PROGRAMS? No. This belief is a common misconception. There are three national accreditation bodies — The Canadian Forestry Accreditation Board (CFAB), the Canadian Technology Accreditation Board (CTAB) and the newly formed Technology Accreditation Canada — that accredit forestry and technology programs respectively. The ABCFP is represented on CFAB and CTAB and we work with the other board members (including provincial associations and schools) to set the standards for admission to the profession. The ABCFP alone does not set the standards.

WHY IS ACCREDITATION IMPORTANT? Accredited programs meet national standards and therefore all provincial forestry associations know that graduates of those programs meet the educational standards and are ready for admittance as an enrolled or trainee member. These graduates do not require more education. The ABCFP supports accreditation and encourages post-secondary schools to have their forestry programs accredited by CFAB or CTAB.

WHY IS THE ALLIED SCIENCE APPLICATION PROCESS SO ONEROUS?

Because the Allied Science program is national, it has to account for all the natural resource post-secondary programs in Canada as well as graduates from international programs. These programs are diverse and thus produce candidates with varying skills. In order to ensure that only qualified people can enter the profession of forestry, CFAB and CTAB ask them to prove that their education meets the national standards through a process of certification. This process is owned at the national level but is managed cooperatively by the forestry professions in Canada. This process is labour intensive because each candidate must be assessed individually.

WHAT DO THE FEES COVER? The fees cover the individual assessment and the costs associated with certification. These fees do not go to the ABCFP.

WHAT DOES "ELIGIBLE FOR REGISTRATION IN THE ABCFP" MEAN? Anyone who has a science-based education in forestry or natural resources is eligible for registration in the ABCFP. However, employers and allied enrolled members need to be realistic about what this means as it does not assure immediate full membership. Graduates of accredited programs enter the ABCFP with no further education requirements but must complete their work experience and take the appropriate workshops. Graduates from non-accredited programs must have the gaps in their education filled in addition to completing the work experience and other requirements. While non-accredited grads are eligible for registration, they generally take longer to achieve registration than graduates from accredited programs. Employers should take note that eligibility for ABCFP membership can mean a variety of things and that allied graduates may have to take additional courses in order to become registered members.

WHAT DOES THE FUTURE HOLD FOR THE ALLIED SCIENCE ROUTES OF ENTRY? The ABCFP will continue to recognize allied science graduates, as non-traditional pathways into the forestry profession grow. With more new members joining the association in this way, we will be seeking to introduce increased efficiencies in the certification process, particularly for graduates of programs that are well known. We also want to make sure that employers understand the implications of hiring allied graduates, as more time and commitment is required for these individuals to become registered. Finally, the ABCFP wants to make sure that post-secondary programs continue to understand the importance of accreditation. This dynamic process requires patience by all parties and effective communications at all of the stages towards the eventual registration of the new member. 🐾

Good Luck to Exam Candidates!

The ABCFP council and staff wish all exam candidates good luck as they get set to write the registration exams on October 2nd.

Congratulations to the New CIF President

On September 15, Jonathan Lok, RFT, became president of the Canadian Institute of Forestry (CIF). Jon continues in his role as president of the ABCFP until our AGM in February 2016. Congratulations to Jon on this great honour. We wish him the best of luck in his year as president of the CIF!

News About the 69th Council Election

Most of you will recall that there was an administrative error made last year that resulted in us electing one more council member than was usual. This resulted in us having eight at-large council members instead of our regular seven. Our bylaws allowed for the extra member so there were no long-lasting implications of the error; however, council promised to reduce the total size of council back to the normal 12 (seven at-large council members, a vice-president, president, past president, and two lay members) at the first opportunity.

We will fulfill this promise with the upcoming election for the 69th council. Two elected council members are leaving this year,

the past president and an at-large council member. This means we will not have an election for any at-large council members, but will need to fill the position of vice-president. We will be holding an election for the vice-president position; however, this position is often acclaimed. Mauro Calabrese, RPF, the at-large council member who has served for two years, has agreed to run for the position of vice-president. If others are interested in running for vice-president, then an election will be held. If not, Mauro Calabrese, RPF, will be our acclaimed vice-president and there will be no election.

Nominate a Colleague for an ABCFP Award

Each year at the annual conference, the ABCFP is pleased to present several awards to both members and non-members. You can nominate a worthy individual by visiting our website (www.abcfp.ca/web) Click on the About Us tab and then select Our People and then Awards and Award Winners from the drop-down menu).

Members can be nominated for the following awards: Jim Rodney Memorial Volunteer of the Year, Distinguished Forest Professional, Professional Forester of the Year, Forest Technologist of the Year and the new Climate Change Innovator Award. Non-members can be nominated for the ABCFP Honorary Membership and the ABCFP Award of Merit in Sustainable Forestry (see new award criteria below). The ABCFP is also pleased to present two awards jointly with fellow professional associations. The Bill Young Award for Excellence in Integrated Forest Management is sponsored jointly with the Association of Professional Biologists of BC. The Forest Engineering Award of Excellence is sponsored jointly with the Association of Professional Engineers and Geoscientists of BC.

The deadline for award nominations is November 6.

New Nomination Criteria for Award of Merit in Sustainable Forestry

The ABCFP has had the Award of Merit in Sustainable Forestry for a number of years; however, it was only available to individual non-members. It came to our attention that there are teams of people — including ABCFP members as well as scientists and other professionals — doing excellent sustainable forestry work. We wanted to encourage and reward this exciting work so we've opened up the award to both members and non-members. Please view the new award criteria on the Awards section of our new website for information on all our awards.

Navigating the New ABCFP Website

We unveiled the new ABCFP website recently. We invite you to peruse it and use keyword search (at the top of each page) to familiarize yourself with this new space. If you encounter an "Access Denied" message on the Members section, please sign in using your existing username and password. You can access the website through the old Home page or at: <http://member.abcfp.ca/> Please send questions to Michelle Mentore, senior communications specialist & webmaster (mmentore@abcfp.ca).



HUB International Insurance Brokers is pleased to offer a specialized insurance program designed specifically for members of the **Association of BC Forest Professionals**.

With HUB International, you receive the best coverage, service and value, based on the strength of our vast global resources and solid local relationships.

Use Our Insurance to your Advantage.

Jordan Fellner

T: 604.269.1888 TF: 1.800.606.9969 E: tos.vanprof@hubinternational.com

www.hubprofessional.com



Photo submitted by Sonja Levenkus, FJT, RBio, PAg and PhDe



Managing and Mitigating for the Benefit of All

BC's AUDITOR GENERAL, CAROL BELLINGER, CERTAINLY DIDN'T MINCE WORDS IN her recent report on the province's cumulative effects management efforts. "In this audit we found that the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is not adequately addressing cumulative effects in its recent natural resource use decisions, in northwestern B.C. where we looked," she wrote. "If not managed, these changes to the environment can compound and eventually harm the environment."

Cumulative effects — alterations to the environment caused by past, present and potential future human activity — are highly complex given that they involve multiple resource sectors and require coordination, legislation and clear government leadership. FLNRO has stated its intention to take on a leadership role by developing and piloting a Cumulative Effects Framework (CEF) in several areas around BC. Our opening Viewpoints article delves into CEF and addresses what it will mean in practical terms for forest professionals.

We continue to explore cumulative effects management from the perspective of other sectoral stakeholders that share in the land base. Foremost amongst them is the oil and gas industry, and in this issue the BC Oil and Gas Commission provides an informative look at its implementation of Area-Based Analysis to assess and manage oil and gas development. We also look at cumulative effects from the point of view of wildlife, examining how forest harvesting and other human activities are impacting the distribution and abundance of forest-dependent species. A discussion on cumulative effects would be incomplete without an examination of how they are impacting First Nations territories in the Northeast. Our writers outline the issue and make recommendations on mitigation strategies that uphold ecological and cultural values for the land.

As part of the Auditor General's report, nine recommendations were brought forward for FLNRO to consider. As the province moves towards the 2021 full implementation of the CEF, it will be important to continue the discussion, as the process is an evolving one and can potentially be shaped by all. 🐦

The Principles of Stewardship¹ and Cumulative Effects

Cumulative effects are impacts on the environment caused by combined past, present and future human actions. Assessing cumulative effects, in a landscape already impacted by factors from mountain pine beetle to climate change, is a high priority for the profession in BC.

More than ever, our professional forestry decisions on the landscape need to be considered in terms of the big picture. For example, how does recent forestry activity in a watershed contribute to impacts on water, ungulate habitat, stakeholder concerns and FRPA values?

Beyond forest activities, the operations of multiple neighbouring parties with diverse, and often competing, goals are in play across Crown lands. The ABCFP is committed to working with the BC government in the development of the Cumulative Effects Framework. The CEF will:

- provide direction for considering the outcomes of regional Values Assessments in natural resource development, planning and decision-making
- support timely, informed and transparent decisions with other parties on the landscape.

¹ The main document can be seen at http://member.abcfp.ca/WEB/ABCFP/Practising_in_BC/Practising_in_BC.aspx

BC's New Cumulative Effects Framework —

YOU MAY HAVE HEARD THAT THE PROVINCE HAS BEEN DEVELOPING A NEW 'Cumulative Effects Framework' (CEF) to support natural resource decision-making in BC. This edition of **BC Forest Professional** provides a timely opportunity to convey what the CEF is all about and what it might mean for forest professionals. Hopefully, this will stimulate further dialogue and result in feedback from forest professionals on this important initiative.

So What is the Cumulative Effects Framework?

Cumulative effects are defined as “changes to environmental, social and economic values caused by the combined effect of present, past and potential future actions or events on the land base.” The CEF is a new program of strategic-scale assessment and management of resource values in BC. The CEF will provide new management tools and procedures for addressing cumulative effects in resource planning and decision-making. It reflects a ‘values-centric’ approach to management — requiring that the condition and trend of selected values (Figure 1) are consistently considered and management recommendations are coordinated across sectors (e.g. forest, mining, oil and gas, or other activities that may impact the value). As part of the CEF, government staff will regularly (e.g. annually) assess and report on the current condition of selected values and will periodically assess foreseeable future conditions as well — incorporating the potential impacts of certain and reasonably foreseeable activities. From time to time, analyses of the cumulative effects of long-term development scenarios may also be completed, where there is a defined need to support strategic decision-making for an area or value(s).

Cumulative Effects Assessment (CEA) results — in the form of maps (Figure 2), detailed reports and summary “report cards” — will be made openly available through public and client websites and provide a consistent foundation and context for natural resource applications, planning and decision-making.

Why is it Needed?

The basic premise goes like this — if we only ever assess and manage the effects of individual projects or industrial sectors, the accumulation of multiple activities in an area, over time, can result in unintended impacts to resource values. For example, I've heard forest professionals express frustration with having developed sustainable forest management or stewardship plans for an area, only to have to re-consider them when they were made aware of plans for energy development or oil and gas in the same area that would impact their results or strategic values in the area.

The courts have also provided direction on the importance of considering the historical context and cumulative effects of previous disturbances when assessing the potential impact of proposed activities on the meaningful exercise of Aboriginal and Treaty rights¹. And BC's Office of the Auditor General recently recommended that government define clear responsibilities for cumulative effects assessment

management, improve the way cumulative effects are considered and reported in decision-making, and implement the CEF at a faster pace².

Cumulative effects assessment and management is not new. There are a myriad of ways that cumulative effects are addressed today — even if not explicitly stated as such. For example, strategic land use plans define key values and objectives and strategies for their management in most sub-regions of the province. Legal tools such as Land Use Objectives³, Wildlife Habitat Areas and Ungulate Winter Ranges⁴ contribute to mitigating the cumulative impacts of forestry activities on the values each are designated to conserve, and the Timber Supply Review process reflects these commitments in modelling sustainable long-term harvest levels. Proponents of major projects in BC typically have to assess cumulative effects if their projects have the potential to affect values after mitigation strategies have been applied.

But there are some limitations with the current ‘toolkit’ that the CEF seeks to redress, and its design can be boiled down to the following premises:

1. To be effective in managing cumulative effects, there needs to be consistency across the sector in how we assess effects and how we respond to the risks identified;
2. It is more efficient and often more effective to assess cumulative effects at a strategic scale (e.g. across landscapes or sub-regional areas) and have this information available as consistent context for individual resource decisions, than to expect every natural resource applicant to have to assess cumulative effects.
3. By proactively assessing and reporting on cumulative effects, industry can have increased certainty as to what is expected of them, fewer surprises at the 11th hour in an application for both industry and government, and a faster process overall for getting to an authorization decision.

So What Does the CEF Really Mean for Forest Professionals?

CEF assessments will provide information that is directly relevant to forest planning and management — in particular Forest Stewardship planning (FSP) and consultation with First Nations on any type of forest authorization. Many CEF values are consistent with *Forest and Range Practices Act* (FRPA) values, and assessments will report on conditions in relation to the objectives that forest professionals have to consider in developing results and strategies for their FSPs. Where existing objectives are directly measurable — such as those for old growth or ungulate winter ranges — CEA maps and reports will indicate whether objectives are likely being met, and by how much. Where objectives are currently more qualitative in nature, CEAs will assess ‘potential risk’ to the value, using best available science and expert opinion. In either case, this information should be relevant in defining strategies and practices that are appropriate for the condition or potential risk identified for the value.

In the case of First Nations consultation, CEAs can provide vital context on the broader picture of condition and trends for resource values to support meaningful discussion of proposed plans or permits.



What Does it Mean for Forest Professionals?



Figure 1: Values proposed for assessment under the CEF. Those with provincial standards currently under development are highlighted in green.

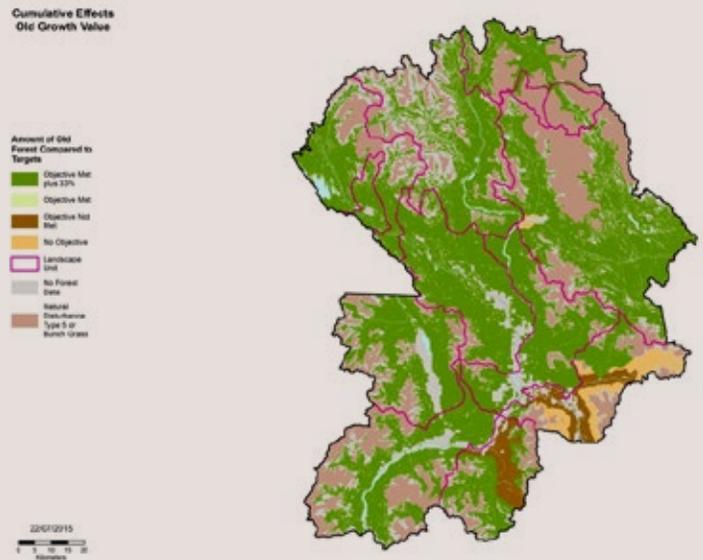


Figure 2a: Example of a CEA map for old growth – current condition in relation to old growth objectives.

So What's the Current Status of the CEF?

The CEF was initially defined and tested in demonstration projects across the province. CEAs completed as part of trial phases have been made available for use in decision-making. Work is well underway to develop provincial policy, procedures and standards for assessment of CEF values, and an assessment of current conditions based on proposed provincial standards is nearing completion for an initial five priority values (forest biodiversity, old growth, grizzly bear, moose and aquatic ecosystems). Assessment reports and maps, policy and communication materials will all be made available through the CEF web page as they are completed (go to www.gov.bc.ca and search 'cumulative effects framework'), and spatial data will also be made available through DataBC.

Please take the time to review available materials, find out if assessments have been completed yet in your area, and if yes consider how you can use this to support your next forest stewardship plan or cutting permit application. And tell us how the assessments or tools for extending them can be improved to support your planning needs. 🐾

Leah Malkinson, RPF, is a senior resource planning specialist with the Ministry of Forest, Lands and Natural Resource Operations. Leah's work over the last two decades has focused on strategic and tactical land and resource planning, and more recently on managing the development and implementation of the Cumulative Effects Framework.

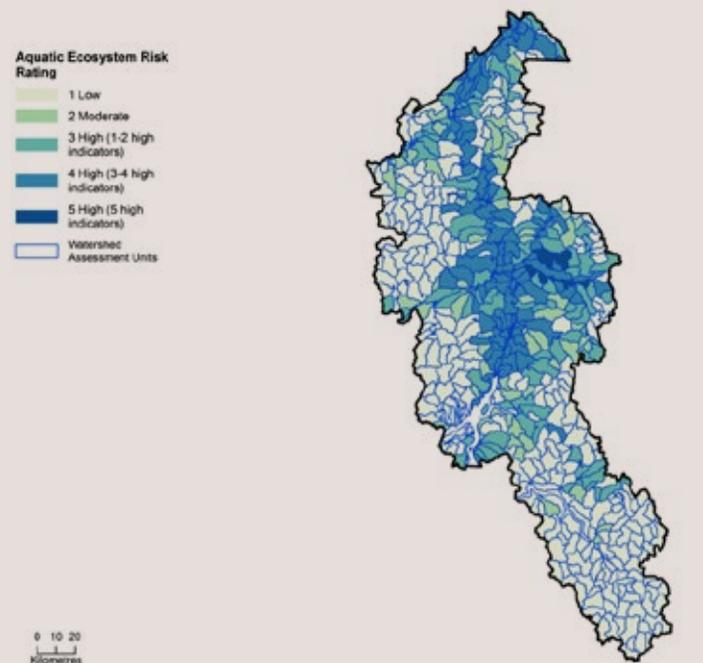


Figure 2b: Example of a CE risk assessment map for aquatic ecosystems

¹ For example: Tsilhqot'in Nation v. BC (2007); West Moberly v. BC (2011)

² For more information on the Audit recommendations and Government's response, see the report posted at www.bcauditor.com/pubs/2015

³ Established by Order under Section 93.4 – 93.7 of the Land Act, for the purpose of FRPA administration.

⁴ Established by Order under Sections 10 and 12 of the Government Actions Regulation

Managing Cumulative Effects in the Oil And Gas Sector Using Area-Based Analysis: **The BC Regulator's Approach**

THE BC OIL AND GAS COMMISSION (COMMISSION) HAS RECEIVED attention in several CEO Reports in *BC Forest Professional* magazine, and it's timely to provide an update on one component of what the commission has been doing to manage cumulative effects of the oil and gas industry.

As the provincial regulator of oil and gas activities in British Columbia, the Commission is responsible for regulating a variety of land surface activities including oil and gas exploration and development, pipeline construction and operation, oil and gas facilities operation and decommissioning, and reclamation of all activities.

The Commission must, among other things, regulate in a manner that “provides for the sound development of the oil and gas sector, by fostering a healthy environment, a sound economy and social well-being” — essentially balancing economic benefit with public interest. The Commission has a variety of statutory and policy tools it can and does exercise for environmental protection and management, including a suite of prescribed environmental objectives, developed and patterned after those in the *Forest and Range Practices Act* (FRPA). As the single-window regulator and statutory decision maker for oil and gas activities and related land management actions, the Commission is a land manager.

More than five years ago the Commission started developing Area-based Analysis (ABA) as an approach to integrating strategic direction from statutes, regulations and existing land-use plans. The analysis clarifies objectives from these different sources and measures the current condition of broad values in relation to desired outcomes. Finer-scale values are “nested” where they co-occur with broad values on the landscape, share common ecological processes and/or threats and can be expected to respond similarly to development pressures and management.

This approach provides a simplified and transparent framework to assess and manage oil and gas development related to environmental and cultural values. That assessment of current conditions includes the impact of other sectors, so it also measures cumulative effects.

As an integrating policy, planning and operational tool, ABA does not introduce new environmental objectives, but improves the efficiency and effectiveness of existing objectives and helps to identify gaps and inconsistencies, which can be addressed through established processes.

The province defines cumulative effects as “changes to environmental, social and economic values caused by the combined effect of present, past and reasonably foreseeable future actions or events on the land base.” The Commission and Ministry of Forests, Lands and Natural Resource Operations' (FLNRO) Northeast Region have worked closely to develop a coordinated methodology to identify key values and to assess and manage cumulative effects across the natural resource sector. Area-based Analysis plays a key role with the Commission when it considers oil and gas applications for exploratory, production and gathering activity, or for land-based



Figure 1: ABA use in British Columbia

activity related to major projects with environmental certificates from the BC Environmental Assessment Office or the federal National Energy Board.

With the potential for activity levels in northeast BC to increase, considering impacts solely by project or by industrial sector could allow unintended impacts to accumulate over time. Like the approach FLNRO uses, ABA is value-centric and evaluates the cumulative effects using ecologically-based assessment units (such as Watersheds or Natural Disturbance Units).

The initial values in ABA focus on the biophysical components of the ecosystem and include riparian ecosystems, water quantity and old forest. Additional values being developed include high priority wildlife, water quality, ground water, air quality, cultural heritage resources and recreation/resource features. Area-based Analysis covers the full extent of northeast BC, including the unconventional shale gas plays that are fueling the province's Liquid Natural Gas strategy, including the Horn River Basin, Cordova Embayment, Montney and the Liard (Figure 1).

So how does ABA actually work? An assessment framework is developed for each value (Figure 2) and is based on the underlying principle that management response escalates as industrial build-out increases the impact to a value. A GIS-based tool determines the combination of the current condition and the impact of the proposed activity if it was approved, and compares the result to predefined triggers for each value. The difference between current condition and the regulatory/policy trigger defines the



Area-based Analysis use with permit applications

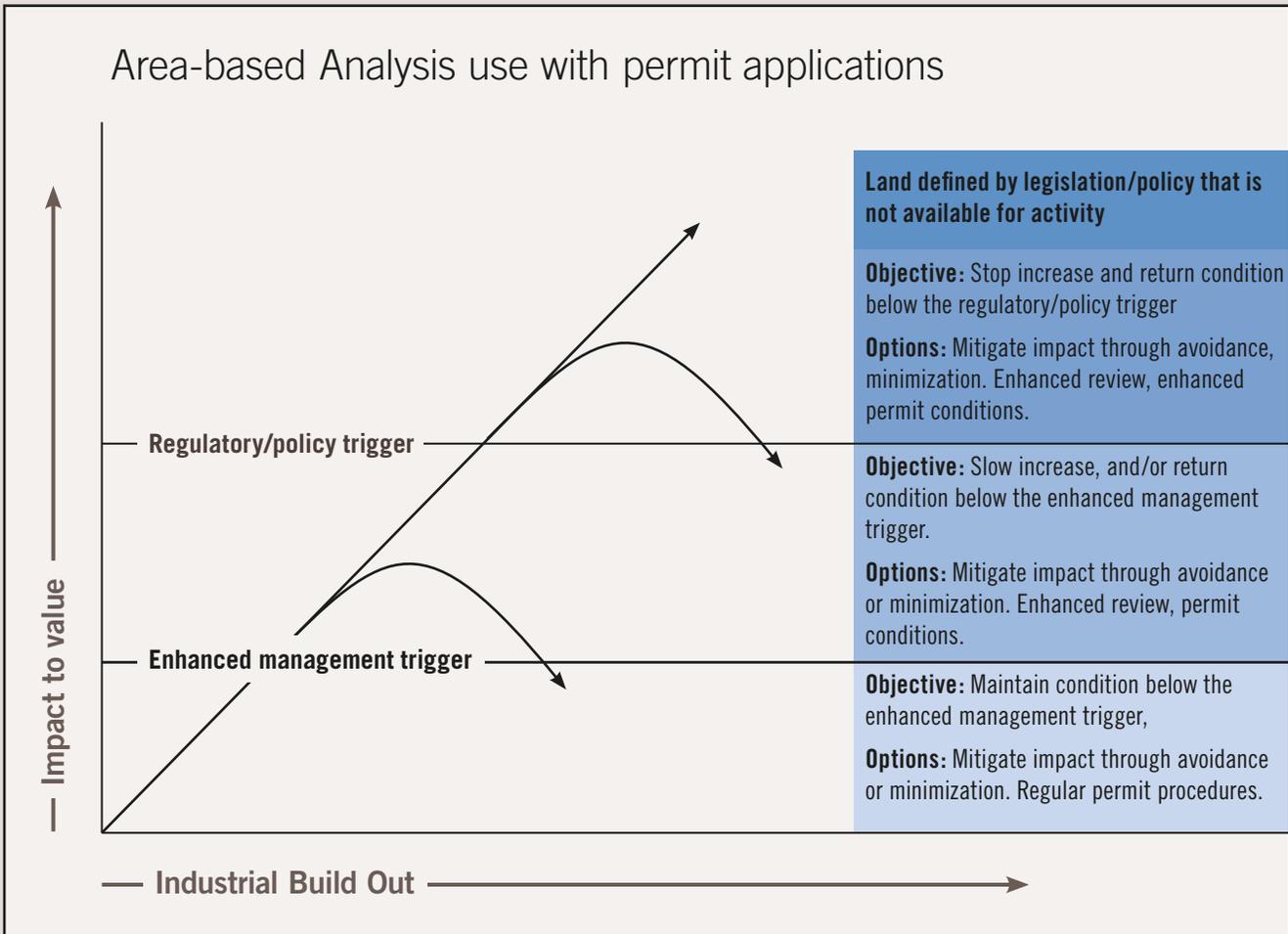


Figure 2: ABA framework

envelope of acceptable future development, but additional adjudication and/or permitting conditions are implemented when current condition reaches a lower, enhanced management trigger.

The results are incorporated as an additional factor in the application review process. In a similar fashion to other factors, results can be used by the proponent to modify their application, or by Commission staff to approve the application with ABA-specific conditions or to reject the application for ABA-related concerns. Since January 2015, all applications in northeast BC have been reviewed for ABA content, including:

AVOIDANCE

- How does the proposed activity avoid the value? Avoidance includes location, timing windows and specific operational components. How will the existing disturbance be used? Why is new disturbance required?

MINIMIZATION

- How will the activity minimize the amount of land needed? What practices will minimize the amount of vegetation cleared and soil disturbed?

RESTORATION

- What on-site restoration/reclamation activities are proposed to reduce impacts of the activity and accelerate recovery?

Area-based Analysis is about planning oil and gas activities in a way that minimizes the footprint and reduces restoration and reclamation timeframes on environmental values. The Commission is working with the best publically available data, and is working to improve ABA by:

- Assessing the accuracy of the inventory and GIS-based assumptions relative to field conditions for the riparian value.
- In conjunction with FLNRO, determining how succession, restoration and forest management changes the impacts of disturbance on values.
- Conducting a review of scientific and management literature to characterize the potential benefits of using ecological buffers to mitigate the impacts of oil and gas development.

The long-term goal is to identify and mitigate cumulative effects on values to deliver better environmental outcomes. Additional information about ABA can be found at:

<http://www.bco.gc.ca/public-zone/area-based-analysis-aba>

Sean Curry has over 25 years of forest and environmental management experience in Western Canada; primarily with the private sector, more recently with the BC Oil and Gas Commission. As the director of resource development, he is one of several Registered Professional Foresters there, and oversees the implementation of Area-based Analysis.

Managing Cumulative Effects on the Forested Landscape: Scientific and Traditional Knowledge Perspectives from Northeastern BC

AS CALLS GROW FOR ROBUST CUMULATIVE EFFECTS MANAGEMENT ACROSS British Columbia, we write to share perspectives from the Northeast. Here, the impacts of the oil and gas industry, hydro-electric projects including Site C, logging, mining, agriculture and ranching overlap, and occur within the traditional territory of Treaty 8 First Nations. With its heavy industrial footprint, the Northeast makes clear the importance of cumulative effects management. And, as homeland of Treaty 8 First Nations, the Northeast makes clear that cumulative effects management must account for interwoven ecological and cultural values for the land.

Humans have inhabited the landscape of northeast BC for centuries. Prior to European colonization of North America and the introduction of the fur-trade, Dene, Dunne-za, Sekani, Sauleau and Cree First Nations inhabited this region and relied on its lands and waters for sustenance and life. Livelihood practices including hunting, fishing and trapping remain crucial to First Nations and are protected under Treaty No. 8 and affirmed by the *Constitution Act* (1982). However, the past 100 years have brought about significant change to Treaty 8 territory, with impacts from the fur trade through the forestry industry to energy industries. Most recently, a boom in shale gas extraction has affected both ecological and cultural values for the landscape.

Cumulative linear disturbances including roads, seismic lines, transmission lines and pipelines have rapidly proliferated with the development of shale gas tenures. These linear corridors create edge effects, which have elsewhere been shown to increase the risk of predation, parasitism or disease, and competition from invasive species (Hilty et al. 2006). For example, Ehlers et al. (2014) recently found that caribou are most vulnerable to wolf predation when they are close to disturbances. Caldwell et al. (in press) find that within northeast BC, there are approximately 115 provincially listed species-at-risk that may be impacted by energy projects. Non-linear features including well sites, compressor sites, gas plants and borrow pits also affect wildlife movement and may exclude wildlife from resources such as mineral licks, calving grounds and denning sites (Caldwell et al. in press). Meanwhile, the high volume of water withdrawn for hydraulic fracturing can affect the health of riparian ecosystems through direct stresses to local streams and rivers, and impacts to aquatic species (Souther et al. 2014). For example, amphibians may be at risk and negatively affected by energy development projects; however, minimal research data has been published (Brittingham et al. 2014). Impacts to the watershed are particularly crucial because flowback water and produced water from hydraulic fracturing cannot be returned to the water cycle, having been treated with additives such as surfactants, pH adjusting agents, corrosion inhibitors and biocides (for more detail see fracfocus.ca, the BC Oil and Gas Commission's Chemical Disclosure Registry site).

Energy project structures and features are maintained for years and continue to affect ecological functioning after their lifespan. We can see this written on the landscape from past industrial activity: from the

1950's to 2000, vegetation along seismic lines was cleared using bulldozers for conventional fossil fuel exploration, leaving disturbances that, in some areas, have been slow to re-establish native vegetation and are still evident today. Unlike natural disturbance processes such as fire, which creates shifting mosaics across the landscape and regenerates habitat, the influence of oil and gas extraction is rigid and can have a long-term and potentially irreversible impact on the forested landscape.

These ecological impacts are interwoven with impacts to cultural values for the landscape. Cumulative linear disturbances have increased human access in areas that had a lighter human footprint in the past. First Nations in the Northeast have reported concerns about exclusion from harvesting grounds, impacts to culturally significant species and concerns about the safety of harvesting and drawing drinking water at cabins and on the land. There remain questions about the degree to which treaty rights can be practiced on an increasingly industrialized landscape.

While the province has taken positive steps to integrate environmental planning, there is still a pressing need for a broad, landscape-level management plan for the Northeast that manages for these diverse impacts. At present, energy projects are addressed on a permit-by-permit basis, leaving the door open for oil and gas proponents to split large projects and potentially circumvent environmental assessments and consultation obligations (see for example the recent BC Supreme Court ruling on *Fort Nelson First Nation v. British Columbia* (Environmental Assessment Office), 2015 BCSC 1180 (CanLII), <http://canlii.ca/t/gjz0j>). In a May 2015 report, the Auditor General found that the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) needs clearer direction from government to adequately address cumulative effects. The need to mitigate impacts past, present and future is pressing: as the province continues to pursue its LNG strategy and create a natural gas export industry, further development will be induced "upstream" in the Northeast. Cumulative impacts are only becoming more complex.

To mitigate the risks posed by impacts of industrial development, we advocate for a cumulative effects framework that accounts for both ecological and cultural values. We suggest that approaches to cumulative effects management that draw on both scientific and traditional knowledge, such as ecosystem-based management (EBM), provide promising examples. The ecosystem-based approach is premised on the understanding that land ought to be managed in an integrative manner, based on ecological, cultural and socio-economic information. For example, an ecosystem-based approach can draw together both scientific expertise and First Nations' deep resident knowledge of the landscape to establish baseline conditions, and to determine values and thresholds and monitor their status. EBM implies a participatory approach to governance, with local land users and knowledge holders participating in decision-making, planning, assessment and monitoring.

The lack of broad landscape management planning incorporating all



Viewpoints

By Sonja Leverkus, FIT, RPBio, PAg and PhDc
& Eleanor Stephenson, MSc



Photo submitted by Sonja Leverkus, FIT, RPBio, PAg and PhDc

industrial activity while maintaining ecological function and integrity is of significant concern for communities in northeast BC. The current Land and Resource Management Plans (LRMPs) lack culturally-appropriate content and methods as well as the primary industrial footprint of oil and gas. EBM is a way to resolve these gaps by understanding how an ecosystem functions and ensuring that the critical elements remain intact, considering varying thresholds for additional disturbance. EBM is not a new concept for BC, and has growing experience practicing this form of management on the Coast. Detailed reference materials are available and we suggest reviewing the work of Dr. Rachel Holt (<http://veridianecological.ca/>), one of the leading critical thinkers on EBM in BC.

For those who live in the Northeast and secure a livelihood from this landscape, cumulative effects management is imperative. Lack of appropriate cumulative effects management puts the forested landscape and waters of the Northeast at risk, and threatens cultural values. This landscape has sustained livelihoods for centuries; it should be managed in a way that ensures it will continue to do so into the future. 🐾

Sonja Leverkus, FIT, RPBio, PAg and PhDc, is a forest professional, ecosystem scientist and owner of Shifting Mosaics Consulting. Sonja believes in conserving biological diversity from the past in the present for the future through ecologically and culturally appropriate methods and techniques. She can be reached at ShiftingMosaicsConsulting@gmail.com

Eleanor Stephenson, MSc, is a PhD student in Geography at McGill University working with Fort Nelson First Nation. She can be reached at eleanor.stephenson@mail.mcgill.ca

Cited:

- Auditor General of British Columbia. May 2015. Managing the Cumulative Effects of Natural Resource Development in BC. www.bcauditor.com
- Brittingham, M.C., Maloney, K.O., Farag, A.M., Harper, D.D. and Bowen, Z.H. 2014. Ecological risks of shale oil and gas development to wildlife, aquatic resources and their habitats. *Environmental Science and Technology*. (48:19) 11034-11047.
- Caldwell, J., Baccante, N., Bearer, S., Blankenship, T., Brittingham, M., Dunlap, K., Dyer, S., Frair, J., Gagnolet, T., Kaal, K., Lavallée, M., Leverkus, S.E.R., Maier, T., Norris, K., Patnode, K., Smith, T.O., and Williams, C. 2015. Impacts of shale gas development on wildlife and wildlife habitat in North America. *The Wildlife Society Technical Review 14-xx* (in press). The Wildlife Society, Bethesda, Maryland, USA.
- Ehlers, L.P.W., Johnson, C.J. and Seip, D.R. 2014. Movement ecology of wolves across an industrial landscape supporting threatened populations of woodland caribou. *Landscape Ecology*. (29) 451-465.
- Hilty, J.A., Lidicker, W.Z. Jr. and Merenlender, A.M. 2006. *Corridor ecology: The science and practice of linking landscapes for biodiversity conservation*. Islandpress. Washington, DC, USA.
- Souther, S., Tingley, M.W., Popescu V.D., Hayman, D.T.S., Ryan, M.F., Graves, T.A., Hartl, B. and Terrell, K. 2014. Biotic impacts of energy development from shale: research priorities and knowledge gaps. *Frontiers in Ecology and the Environment*. (12:6) 330-338.

THOSE FAMILIAR WITH NATURAL RESOURCE MANAGEMENT IN BC ARE increasingly becoming aware of a ‘new’ term on the policy landscape: “cumulative impacts.” Admittedly, this isn’t a new term; since the mid-1990s, cumulative impacts have been a required consideration during federal environmental assessments (EA) and in some cases provincial EA. And for nearly as long, the approaches, including the legislative tools designed to address those impacts, have been harshly criticized by both practitioners and academics.¹ Change, however, is on the horizon. Governments are now attempting to manage a more complete, but complex, conceptualization of cumulative impacts. This includes an accounting of activities from multiple resource sectors that range in intensity and geographic scope from the smallest exploration activities to the largest mega-projects.² This realization is an inevitable outcome of an expanding resource economy, driven by conventional and nonconventional energy, rapid salvage logging in response to the mountain pine beetle, and the observed and predicted impacts of those activities for human and ecological communities.

In BC, there has been progress in recognizing and maintaining biodiversity across landscapes managed for timber. Recent research,

however, is revealing how the legacy of past practises, in combination with new management challenges and new industrial players, is resulting in a reduction in the distribution and abundance of old forest-dependent wildlife. Many populations of woodland caribou, a species listed as threatened across central and southern BC (with a current recommendation from Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for up-listing to endangered), are in rapid decline. The causal factors are a complex mix of human activities that have facilitated habitat change and altered predator-prey dynamics. The loss of caribou from BC isn’t the result of one development by one industrial sector — the challenge of recovering caribou would not be nearly as daunting if this were the case. Populations of caribou are declining, and in some locations being extirpated because of the cumulative landscape change that has occurred over decades (Figure 1). This is a result of numerous large- and small-scale development activities, from the seismic line to the clearcut to the coal mine³.

The habitat story looks to be equally grim for a number of furbearer species. Recent research focused on the central interior of the province, an area with rapid and expansive salvage logging, has found that

The Challenge of Cumulative Impacts —

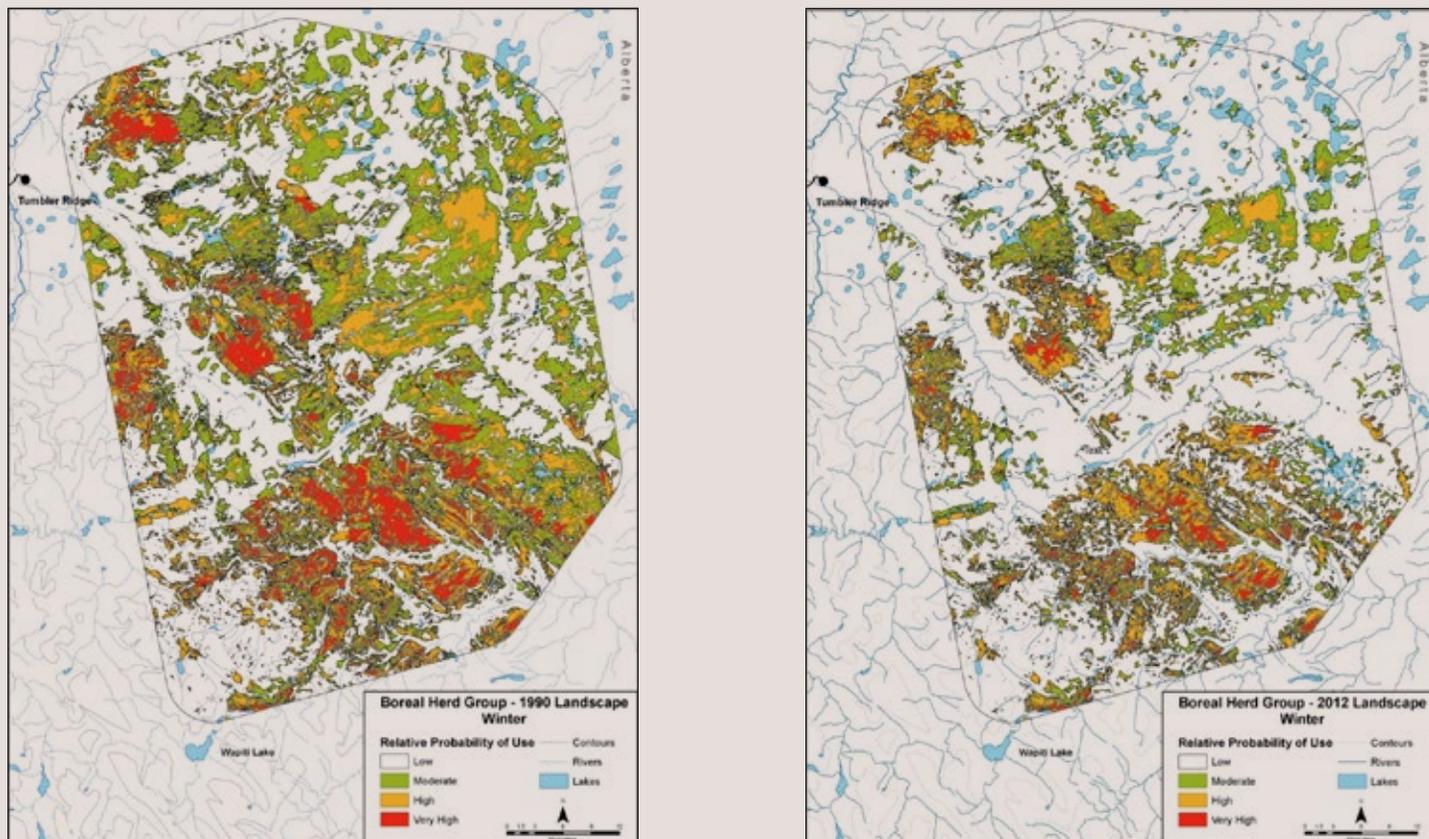


Figure 1: Illustration of cumulative change in the functional habitat of a population of woodland caribou in east-central BC³. Habitat change was the result of the expansion of industrial development from 1990 to 2012 and the observed avoidance (GPS-collar data) of monitored caribou of gas facilities, linear features, cutblocks, and fires. This population of caribou lost 66% of “very high quality” habitat over the 22-year modelling period.

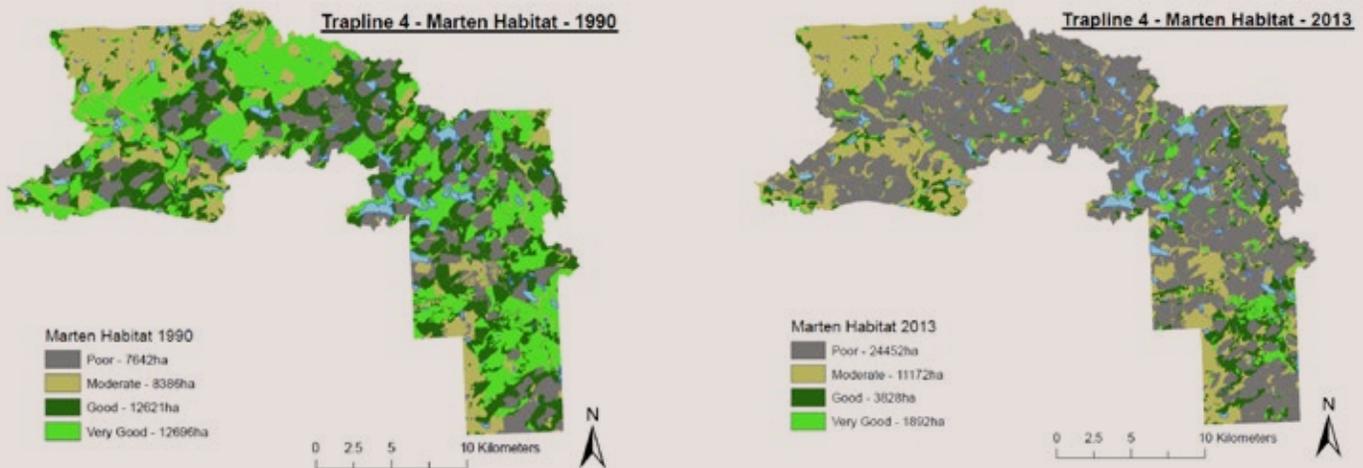


Figure 2: Progressive forest harvesting and habitat change, 1990 to 2013, for American marten found across a trapline in central BC⁴. The model was constructed from the expert knowledge of 10 trappers and 10 furbearer biologists. Marten in this area lost 85% of “very good” habitat over the 23-year modelling period.

Conserving and Managing Wildlife Habitat

the highest quality habitats of American marten and fisher have nearly disappeared (Figure 2). As with woodland caribou, this isn't just a story of changing habitat. Trapping success is declining suggesting a reduction in the abundance of marten. One only needs to consider the massive area of forest harvesting (Figure 2) and the resulting transition from old to young forest, to understand that there will be negative impacts of these activities for BC's wildlife.

For many in the policy and decision-making arena, cumulative equates with additive. Thus, one cutting permit might not be a problem for a species dependent on old-forest conditions, but many cutting permits could result in impacts that lead to a change in the distribution or abundance of that species. The problem becomes much less tractable when considering the impacts resulting from multiple resource sectors working on the same land base. How does one consider the habitat implications of an 80-year rotation period with concurrent increases in agriculture, the construction of several pipelines to export hydrocarbons, and the expansion of wind energy and coal mining? This is not a hypothetical scenario, but the reality of the South Peace region of BC where some caribou populations are demonstrating an unprecedented rate of decline⁴. And of course we are assuming that these activities will lead to incremental change. The cumulative impacts of cross-sectoral developments can be synergistic and nonlinear resulting in a highly challenging environment for natural resource professionals that are attempting to respond to changing ecosystems, including difficult to predict declines in wildlife populations.

The loss of habitat is not just the concern of the wildlife ecologist or the conservation biologist. Cumulative impacts are now the responsibility of natural resource professionals of all stripes, and of higher-level decision makers attempting to balance resource development

with commitments under the *Species at Risk Act*, the needs of vocal hunting and trapping organizations, and the treaty and constitutional rights of First Nations. Currently, the provincial government is facing a court challenge from the Blueberry River First Nations that alleges that the cumulative impacts of industrial development have violated the province's obligations under Treaty 8⁵. According to the claim, provincially authorized developments have infringed on the First Nations' ability to meaningfully exercise treaty rights. There is a similar case in Alberta, where cumulative impacts again are invoked as the cause of treaty violation (Treaty 6 - Beaver Lake Cree Nation). Where cumulative impacts were once relegated to the application of EA legislation, the evolving rights of Aboriginal participation in natural resource management suggests that the province will have no choice but to confront the cumulative impacts of past, present, and foreseeable future land-use decisions.

Recognizing the urgency of cumulative impacts as an ecological and policy driver, the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is working to develop a Cumulative Effects Assessment Framework. With the goal of tractability and prioritization, the framework is focused on key values, many of which are “Priority Fish and Wildlife Species.” Recently, however, the BC Auditor General reported that FLNRO was not adequately addressing cumulative impacts (Skeena Region) and the full implementation of the framework should be accelerated to exceed the distant completion date of 2021⁶.

Much of the province's efforts to address cumulative impacts appear to be focused on decision support tools, including data collection and monitoring. Based on my research, just trying to quantify the footprint

Fraser Valley Family Exemplifies Woodlot Values

CHRIS GRUENWALD HAS TREMENDOUS RESPECT FOR HIS COLLEAGUE, CAL. Known as a hands-on, versatile woodlotter, Cal has earned a reputation for integrity in his community, among colleagues and with government agencies that provide regulatory oversight on his woodlot.

“It’s just that he really cares about doing a good job,” says Gruenwald, a Registered Professional Forester and Cal Carter’s technical advisor on Woodlot #W0043.

Given the circumstances, that’s no small task. The woodlot is located in the Fraser Valley, one of the most intense regions for urban interface, hence subject to high levels of public use and scrutiny.

Within the confines of the Carters’ 416 hectare parcel (400 ha Crown-owned, 16 ha private) you’ll find First Nations territory, a federal prison camp, BC Hydro power lines, wildlife habitat, small lakes and streams that make up a community watershed, not to mention hikers, hunters and other recreational users, as well as some permanent residents on the shores of Echo Lake.

While honouring the needs and rights for this larger-than-average group of special interests, Cal must somehow find a way to exercise his right to draw value from the timber. He does so by carefully planning small, selective cutblocks — usually two or three hectares. He takes cues from the market to decide whether he’ll extract cedar, fir or hemlock from his block and he takes cues from nature (and, of course, provincial guidelines) to decide which trees come down and which ones stay.

It’s his practise to target the trees in the poorest health and avoid large patches of old growth. Interestingly, the towering old growth trees are worth very little as timber; their value is in their role as part of the ecosystem. And Cal manages accordingly, with the guidance of his professional forester.

For the past 28 years Cal has taken pains to not only follow woodlot license regulations to the letter, but to also honour his responsibilities to his neighbours and the community at large.

“This woodlot is a complex environment,” says FLNRO’s woodlot forester John Stevenson. “Cal has to manage social expectations on top of the environmental imperatives. It’s challenging.”

But FLNRO is confident that he makes a concerted effort to meet — and often exceed — all the regulations, as well as the needs of the community.

This piece of land has been under the care of the Carter family since Cal’s father, Herb, acquired the woodlot license in 1986. A third

generation logger, Cal wears many hats on the woodlot and is passionate about his profession. “Cal does it all,” says Chris. “You’ll see him jumping from machine to machine while we’re logging.”

Originally the family ran the woodlot by themselves, but as environmental and harvesting regulations evolved they consulted RPFs to help them interpret, navigate and conform to the rules. It’s an ongoing and

fluid process, but Cal keeps an open mind and open ears, ready to adapt to changes in environmental, social or economic regulatory conditions.

Case in point: they’re currently addressing a potentially sensitive cluster of trees around Echo Lake that some stakeholders consider a special habitat for bald eagles. Cal and Chris have been working closely with biologists, the ministry and the environmental group who alerted them to the issue, collaborating to ensure none of his logging practices will negatively impact these abundant raptors.

“I’m always open to hearing people’s concerns, and will always seek out the facts to be sure I’m following the rules,” says Cal. He’s been transparent with his community in

the past, taking time to visit any neighbour who might be impacted by future harvesting activities on his woodlot. Over the years he’s received endorsement letters from neighbours, and was honoured with the Ministry of Forest’s Stewardship Award in 2001.

Despite the hurdles he faces on a daily basis, Cal is unwavering in his support of the woodlot program and his passion for forestry.

“I love the Woodlot Program,” says Cal. “There should be more woodlots, they’re a great model for small-scale forestry that’s good for the province and for woodlotters. I go to sleep at night knowing I’ve done something good for the community.”

With his 20-year-old son, Lee, taking on greater responsibilities on the woodlot, it looks like this particular section of our province’s forests will continue to be cared for. 🌲



Sara is a professional writer and editor who's worked with dynamic businesses across a wide range of sectors: high tech, fine arts, medicine, manufacturing, non-profit, start-ups, human and natural resources. She's worked with stakeholders in the forestry sector for over a decade, has been a writer and photographer for the Federation of BC Woodlot Associations and the Woodlot Product Development Council since 2010, and most recently joined the Council of Forest Industries.



Interest

By Sara Grady



This page and Inset photo : Sara Grady

Introducing This Year's ForesTrust Scholarship Recipients

ForesTrust is the ABCFP's registered charity and through it the ABCFP is able to create endowments at post-secondary institutions across the province. Forestry students around BC are the ultimate beneficiaries of these endowments, so your donations directly fund the sustainability of professional forestry practice in the province!

Forestry's Next Generation



Ross Marchant

Thompson Rivers University
Natural Resource Science
Award amount: \$1,000
Hometown: Kamloops

Tell us about an influential mentor you've had.

My most influential mentors were my parents. Both were in the forestry/biological fields and had great careers in their lifetime. Alan Jacobs, RFT, is also a great friend of mine and wonderful mentor who worked with me a significant amount in my career so far.

How do you think forestry will look like in the next five years?

There are some major challenges that the forest industry will face in the upcoming years including timber supply and the remnants of the mountain pine beetle epidemic. I believe that we will see a lot of innovation in regards to utilizing as much timber as possible. I also am curious to find out how companies will manage with a significant number of forest professionals approaching retirement age. There may be a large influx of new employees into the sector.



Julie Marika Sheppard

University of British Columbia
Forest Sciences
Award amount: \$600
Hometown: Burns Lake

What is your dream job?

I don't exactly know what my dream job is yet because it either doesn't have a title yet or I just haven't found it. I do know that it involves working outdoors in some capacity and working with people. I'd like to explore as many forestry-related jobs as possible.

What would you say to a young person thinking about pursuing forestry but is just not sure yet?

I would tell them that forestry is a lot more than you might think it is. My friends always joke about what it is we do in forest — "Do you just look at leaves and wear plaid and learn about lumberjacks?" Forestry can be anything you want it to be from molecular physiology to economics to biochemistry or wildlife management. There really is no limit and once people see that they start to understand just how many opportunities this field offers.



Danny Merth

University of British Columbia
Sustainable Resource Management
Award amount: \$1,000
Hometown: Port Moody

What initially motivated you to study forestry?

My passion for the outdoors! I have always loved working in an outdoor environment. I'm an avid fisherman and work as a guide in Northern BC at Haa-Nee-Naa Lodge during the summer months. I have guided at the lodge for the past five seasons and really enjoy doing it; however, I have never really had a job outside of the fishing industry so I wanted to try something new in the off-season. I know so much about the water and everything that swims in it, thought I should know more about the land and what grows on it!

What was your reaction when you found out you won the award?

Either they have the wrong person or someone is playing a joke on me! But I was extremely honored and excited to be recognized for this great award.



Calvin Lee

University of British Columbia
 Forest Resource Management
 Award amount: \$1,000
 Hometown: Vancouver

What is a piece of realistic advice you would give a young person who is currently contemplating a career in forestry?

Think about relocating. You have to be willing to relocate, it's not often that forestry jobs are in big cities.

Share your favourite forestry experience so far.

On my co-op work term in northern Alberta, there was a day where we got to work on a couple permanent sample plots near the Rockies. We were lucky that the plots were helicopter accessed so we got a nice view of the Rockies from high above that day. On that same day we managed to finish work early so we got to hang out by the river and go on a little adventure for a few hours looking for fossils and interesting trails before the helicopter came to pick us up.



Ashley Sutherland

College of New Caledonia
 Natural Resources and Environmental Technology
 Award amount: \$1,000
 Hometown: Prince George

How do you feel about your decision to pursue forestry and why?

I feel excited about deciding to pursue a career in forestry, as well as a high level of motivation to make the most of the experiences presented. There seems to be a crazy amount of opportunity in the sector, and every day is an adventure!

What is your favourite area of study and why?

Habitat management has been a favourite so far. I love that the focus is on mitigating the impacts of forest operations on wildlife. Forest measurements and engineering were pretty cool too, mostly appreciated for their breadth of material and sometimes challenging concepts, respectively.



Devin Dake-Outhet

Selkirk College
 Forest Technology
 Award amount: \$1,000
 Hometown: Castlegar

What initially motivated you to study forestry?

I worked for a small forest consulting company called Pioneer in Golden for 3 years. I loved the job and wanted a career in forestry so school was the next step to further my opportunities in the future.

Tell us about an influential mentor you've had.

I'd like to give a shout out to Ryan and Trent at Pioneer. They are both senior RFT's and taught me a lot about forestry during my first few years. If I hadn't worked with them I doubt I would be pursuing a career in forestry right now.

What is your dream job?

My dream job would be a professional hockey player but since that isn't going to happen I'll say being a forest professional that has a positive impact on the forest industry.

How to Support ForesTrust

Make a Cash Donation

Besides donating to or purchasing an item from the silent auction during our annual conference, you can support ForesTrust by making a tax-deductible cash donation. Donations can be made by cheque, money order, Visa or MasterCard and can also be made in memory of a colleague.

Estate Planning

It is possible to designate a portion of an estate to a charitable organization like ForesTrust. Your estate planner can assist with making those arrangements.

Do We Have the Public's Trust?

DO WE HAVE THE PUBLIC'S TRUST? THE STRAIGHT ANSWER IS: "YES, OF course we do." But is this the answer of complacency or confidence? In reality, the profession and the professional interact with the public on multiple levels. When we work down to the one-on-one interaction level, then the question is more difficult to answer. So much depends upon the individual professional, the member of the public and the circumstance. Whatever the public experience, the profession is viewed as a whole. In this sense, individual professionals can have a huge impact on how trustworthy the public deems the profession.

'The public' isn't one homogenous group of people with identical thoughts, ideas, values and wishes. The world would be a very boring place if this were true! In addition, the public's interests are ever-evolving — priorities, objectives and values change based on time and geography. What was important in 1980 in Prince George is not the same as what's important today in Nanaimo.

According to a recent white paper by the Professional Associations Research Network, or PARN, (The professional body sector contribution to social infrastructure by Andy Friedman, 2015), while people may not be able to determine and/or define what standards enhance public trust, they do have a good enough understanding of the standards to be disappointed when those standards are not delivered as expected.

Because of the diversity of thought and the evolving nature of trust, we are constantly measuring whether or not we have the public trust through tools that gauge the profession as a collective (e.g. surveys, feedback). Public trust through individual professional actions is also monitored through our complaints and discipline process as well as issues picked up by the media.

Here's a quick checklist of attributes that will help you judge whether or not you have the public's trust. If most of these attributes are present in your practice, you are probably doing a great job of earning the public's trust. If you only have one or two attributes, start working on this area and consider why it is the case.

- **Consult proactively:** Don't wait for a concerned citizen to call you — do your best to reach out to stakeholders and First Nations early in the planning process. Listen actively and consider all input and be responsive to concerns. Consider whether consensus is possible — it isn't always but you can still maintain a relationship by ensuring that you listen to all concerns.
- **Communicate clearly:** Even the most knowledgeable member of the public does not know as much about forestry as you do. But they do know their concerns. So, be sure to explain your plans and procedures in clear language and drop the forestry jargon.
- **Establish and nurture good relationships:** Relationship building can take many months or years but the effort required is always worth it. Once you get to know a group (such as a local bike or ski club), they

will learn that you're a trustworthy individual and will come to you with questions. Then if you have to go to them with unpleasant news (your employer's logging plans will destroy their trails), they will be more likely to want to work with you rather than against you. Be sure to maintain contact to develop credibility and trust. Also maintain a strong network of professionals outside forestry (e.g. archaeologists, biologists, engineers, etc.). These experts can help answer your questions and ensure your projects are completed adequately.

- **Know your community:** Be aware of current events and social, political, cultural and economic directions. If you live in the community, chances are, you're already knowledgeable about it. If not, learn about what the community values about the forest. Is there a tourism operator that employs half the town? Maybe maintaining viewsapes is more important than mill jobs. Read your local papers, engage with your local chamber of commerce and other business gatherings.
- **Prioritize values in your region:** ask the engaging questions to seek out the values (e.g. karst management, harvesting mountain pine beetle wood in a short timeframe to ensure timber value, etc.). Engage local First Nations and stakeholders, talk to colleagues (which may include natural resource professionals outside the forestry profession).
- **Document accurately and frequently:** The majority of your work will be at the forefront of project planning (asking the right questions, risk managing hazards and engaging the right natural resource professionals). Project plans should be monitored and adjusted for unanticipated issues and incorporate new information; this will help achieve target end goals (one of which should be to maintain public trust).

The PARN white paper also stated that trust fulfilled reinforces future trust in that individual/profession. In other words, if you demonstrate trustworthy behaviour, people will assume that you will continue to be trustworthy.

The behaviour of individual members affects the perception of the entire profession. Some professions are considered more trustworthy than others because most of the members of that profession are considered trustworthy.

The ABCFP can help to enhance trust by providing balanced information on forestry, by ensuring competent professionals are practicing and by dealing with incompetent members quickly and comprehensively.

Results of our public opinion polling, which is conducted every couple of years, shows that both RPFs and RFTs are trusted by the public. We can't rest on our laurels, though. It is important that all members work hard to pursue public trust by practising the attributes of a trusted professional. 🐾



Special Feature

By Mike Larock, RPF, director of professional practice and forest stewardship; and Megan Hanacek, RPF, RPBio, forest stewardship specialist



Photo: goran&kasa - Fotolia



Drone Technology Taking Off in Forest Management

ASK ANY FOREST PROFESSIONAL ABOUT FREE-TO-GROW (FG) SURVEYS AND they can probably tell you a horror story or two. Slips, trips and falls are the most common injury in the forest, due to thick brush, steep and uneven ground and decaying slash. Regenerating trees are often so dense that a bear could be metres away and neither the bear nor the forest professional know it. To combat these safety issues, our company, SuavAir, began experimenting with using drones, also known as unmanned aerial vehicles (UAVs), in 2014. We quickly realized their potential for improving the safety of FG surveying. The production benefits are also significant, as well as the ability to review field decisions from in the office.



UAVs can fly above hazards to give an overview of the block to quickly identify any issues, such as mortality, brush issues, landslides or areas of low stocking. The UAV can then fly within two metres of the trees to check the species, heights and if there are any damages caused by disease or pest. Our Transport Canada-approved pilots are also RPFs, so we can identify issues as we see them. As we are already on site, it is easy to have the forest professional investigate issues on the ground. Heights are also easily verified by the ground crew to calibrate the pilot's eye.

As professionals, documentation is a key part of our jobs. Providing records of what is in the field is important for good forest management. UAVs take high resolution photos and can shoot 1080p or 4k video. All footage is being seen in real time by the forest professional and decisions can be made in the field. This imagery is all recorded, georeferenced and can be placed in Google Earth to show flight and photo locations.

Tough decisions can be reviewed back at the office or shown to a supervisor for clarification, as good forest management is often done through collaboration. Multiple professionals can review the footage to decide upon the best management strategy to get the desired results. Imagery can also be examined in contract negotiations.

One negative aspect of doing visual surveys with the UAV is that we don't get hard numbers or statistics that one gets from doing plot sampling. The inventory and silviculture labels are generated using ocular estimates, previous survey data and information that we collect

while on site. Visual assessments are acceptable under the Ministry of Forests, Lands and Natural Resource Operations' Silviculture Surveyors Procedure Manual, but only when the outcome is obvious. As such, there are rare times when the UAV flight is inconclusive and ground plots must still be done. However, much can be seen from the air that is often not visible from the ground. Finding areas of not satisfactorily restocked (NSR), landslides, and treatable brush are much easier to see from the air. Stratification of areas is also easier from the air.

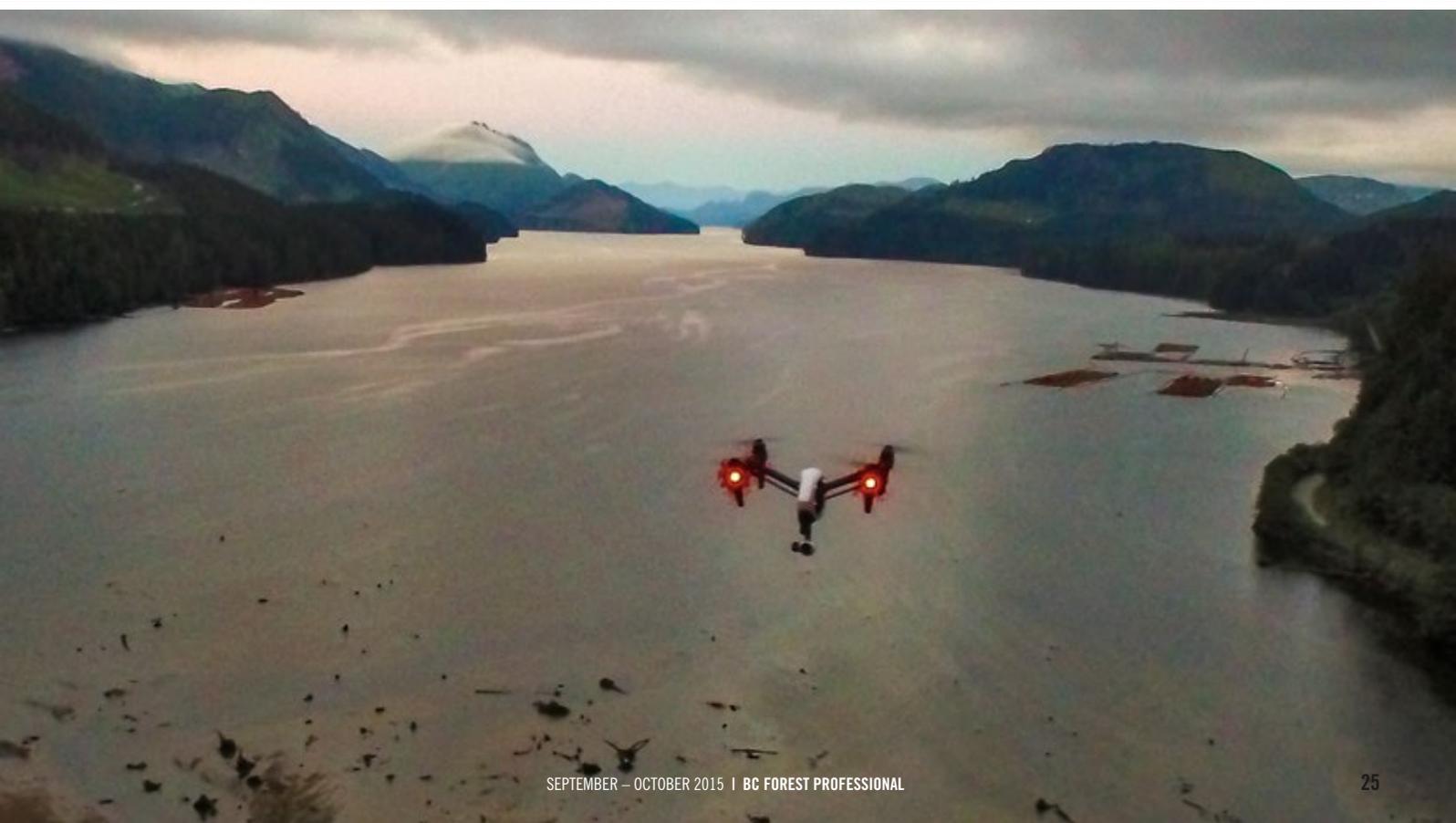
To generate statistics in those marginal visual stands, there is 3D modelling software to model the young stands. The software stitches hundreds of photos together and uses stereoscopy to make a point cloud with x,y,z coordinates, similar to LiDAR. A map is produced and plots can be carried out on a standard grid system. The species and height of each stem can then be determined, as well as the density for each plot. The downside is that the 3D modeling is currently a very manually intensive and time-consuming procedure, and there is still the occasional glitch. However, the software is only getting more advanced each year and it ultimately could change the way FG surveys are done. In the future, it could be possible to have complete data on the whole cutblock, rather than just a small population sample. LiDAR sensors are continuously getting lighter in weight and will be economically feasible for UAVs in the near future.

While we have mostly been using the UAVs for silviculture and engineering, the applications in forestry do not stop there. Having an eye in the sky can be extremely useful and other applications that have been successfully tested include:

- High resolution ortho maps that can be put into Google Earth or ArcGIS
- As-built road surveys
- Landslide mapping and assessment
- Post-harvest assessment
- Danger tree assessment
- Accident Scene Investigation
- Checking the 600m blasting zone
- Eagle nest identification
- Timber recce

UAVs have a definite place in forestry as they can improve safety and increase efficiency. They can acquire better data that is used in improving forest management decisions. There will always be some requirement for boots on the ground in forestry but UAVs can help streamline some processes. Technology should be embraced for its ability to improve our management of forests in BC and UAVs have the potential to be a great tool to help. 🐼

Colin received his BSc.F from the University of New Brunswick in 2010 and has been employed on the BC Coast ever since. Finishing his MBA from the University of Victoria in December, he is excited to continue to explore how UAVs will play a role in forest management. You can reach him through email at Colin.Filliter@suavair.com or 250.830.8849.





Dodge the Bullet but Get Hit by the Train

Why it's Critical to Manage Your Scope of Practice and the Limits of Your Professional Service

FOREST RESOURCE MANAGEMENT IS A DYNAMIC FIELD AND AN EXCITING place to spend a career. Forest professionals have a unique right to practise in BC and have the freedom to put a fascinating range of skills on their resumes while completing work that is rewarding and multi-faceted. People in other walks of life cannot always find this diversity in their work and we see some of these people coming to forestry to pursue a new career path. That is good news for the forest sector and a reminder that the grass is not always greener, in spite of some hard times we have all faced in this business. The diversity of our work; however, can also create challenges and get us into trouble.

Consider how many different tasks, processes and situations you currently manage. You are probably doing a wider variety of work today than you were five years ago. The forestry mantra for many years has been to do more with less, leaving each of you with more responsibility and yet perhaps fewer resources at hand. This may equate to fewer support staff, a smaller budget or little to no room for training and professional development. This situation is an important study for all of us who manage resources in the public trust.

You should ask yourself a couple of important questions: how do I define what I am competent at; and how well do you manage the boundaries around what I know and what I do not (or may aspire to) know? Wise and duly diligent forest professionals understand that they simply cannot be all things to all people, regardless of the broad definition of practice that is in our legislation.

Some professions actually formalize this understanding by setting limitations on the services that they can render to their clients or employer. For instance, the BC Law Society expects its members to sign a retainer letter with clients in order to provide a definition of what terms they are working under. While this may sound formal for some of the work that you do, it provides assurance to both parties that the appropriate work will be completed. You may already have a contract in place with your client(s) and most employees have a job description that describes their responsibilities; however these documents are usually not explicit regarding the scope of professional services. Rather, these documents can easily allow professionals to be asked to do work that exceed their real competency boundaries.

A written agreement between you and your employer or client serves multiple purposes, in addition to simply respecting the boundaries of

scope. This document provides you with a means to exclude certain activities from your purview — making it clear that other professionals may be required to complete all the required phases of work. Furthermore, such a document sets clear boundaries around responsibility, which provides assurance to the public that the right people are doing the right work on our public or private lands and infrastructure.

A recent discipline case (2015-02) highlights the gap that forms when a professional and a client do not seek terms around who is responsible for what. In this particular case, the ABCFP could not exact any disciplinary action for an inadequately designed and installed forest road crossing because the bridge work was not specified in the scope of the professional work. In this case, a road construction/logging contractor appears to have been responsible for the construction work — a step that should have required an RPF and perhaps an engineer. This is not to advocate for increasing your personal or professional liability; however, it is simply a means to define who is responsible for what. This definition of responsibility is surely what the public expects from us and is consistent with the ABCFP's bylaws and standards of professional practice.

Finally, a scope of service agreement creates an important opportunity to have a conversation with your supervisor or client regarding your own professional comfort zone. Some forest professionals aren't sure how to approach this issue, leaving them vulnerable to the pressures of the workplace and the need to manage costs and deadlines.

The modern work environment often leaves little time for these important conversations which can lead to individuals taking on more than they are either capable of or qualified to manage. It is important to take responsibility for what you know and allocate the responsibility elsewhere when necessary.

It is also important to recognize the greater public perception and the potential for damage to our collective reputation when the responsibility for our work cannot be properly determined. How, in such circumstances, can we expect the public to

continue to trust us to manage such an important resource? A lack of clarity for professional responsibility might allow you (or your client or employer) to dodge a bullet in a specific circumstance; however, it cannot stop the train that will hit us all instead. 🐘

Retainer letters or agreements should include reference to the following:

- Identity of the lawyer and the client
- Scope of service (is your work to be limited in any way?)
- Obligations of client
- Delegation of work
- Expected chronology
- Fee arrangement
- Billing format
- Rate changes
- Withdrawal or termination of services
- Conflicts of interest

The Story of Contract A and Contract B and the BCTS Tender Process

Clients who participate in the BC Timber Sales program (BCTS) are sometimes surprised to learn that the moment they submit an application for a BCTS timber sale licence (TSL) in response to an invitation for applications, they have entered into a contract with BCTS. This contract is not the TSL itself but, like any other contract, it does include legally enforceable rights and obligations as between the contracting parties.

The well-known 1981 decision of the Supreme Court of Canada in *Ron Engineering & Construction (Eastern) Ltd. v. Ontario* (Ron Engineering) and subsequent Canadian judicial rulings establish that any tender process involves the formation of two contracts. A recent decision of BC's Supreme Court in *M.G. Logging & Sons Ltd. v. British Columbia* has confirmed that the analysis from Ron Engineering applies to BCTS timber auctions.

The first of the two contracts contemplated in the Ron Engineering analysis (referred to as "Contract A") is formed between the party who calls for tenders (the "Owner," for sake of terminological convenience), and each party who submits a bid that conforms with the conditions of the tender. A foundational principle of contract law is that "consideration" (that is, some form of benefit) must flow to each party for a lawfully enforceable contract to come into existence among those parties. In the case of a Contract A, the consideration that flows from the Owner to each party who submits a conforming bid to the Owner is to evaluate all conforming bids strictly in accordance with the conditions of tender, and to treat conforming bids even-handedly. The consideration that flows from conforming bidders to the Owner is a commitment to enter into the contract for the goods or services that are the object of the tender process if a bidder is the successful bidder. This second contract formed between the Owner and the successful bidder is referred to as "Contract B" in this analysis.

In the case of a BCTS auction, a "Contract A" is formed between BCTS and any eligible BCTS participant who submits an application for the TSL in conformance with the invitation to do so. "Contract B" is the TSL itself. While the Contract A does not assure the bidders of any harvesting rights, it nevertheless does impose legally enforceable obligations upon each of the conforming bidders and BCTS.

To illustrate, if BCTS were to award a TSL in a BCTS timber auction contrary to the terms and conditions of the invitation for applications or not otherwise in an even-handed manner (for example, if the successful bidder was ineligible, did not submit the highest bonus bid or

bonus offer, or did not submit its application before the submission deadline), then BCTS would breach the Contract As formed with all other conforming bidders and may become liable to an award of damages in favour of the conforming bidder whose application included the highest bid or offer. As a starting point, the quantum of damages could approximate the profits that the aggrieved bidder would have earned on the Contract B (that is, the TSL) but for BCTS' breach of Contract A.

In the normal course on the other side of the equation, if a participant submits the successful conforming bid in a tender process, but does not enter a Contract B with the Owner, that person could become liable to the Owner for damages that the Owner would suffer due to the fact that the Owner would not enjoy the benefit of the successful bid (and, presumably, would have to go with a more expensive option). In the context of a BCTS auction, however, the remedies available to BCTS upon the failure of a successful applicant to enter a TSL with BCTS are outlined in the *Forest Act* and regulations prescribed thereunder. These remedies would include forfeiture of the applicant's bid deposit to the Crown, suspension from the BCTS program and increased deposit requirements imposed on the applicant upon re-entry into the program. Nevertheless, these are remedies available to BCTS for a breach of "Contract A," a separate Contract from the TSL (or the "Contract B").

Jeff Waatainen is an adjunct professor of law at UBC, has practiced law in the forest sector for nearly 20 years, and currently works in the Forestry Law Practice Group of DLP Piper (Canada) LLP's Vancouver offices (formerly Davis LLP).



Jeff Waatainen

Associate

P 604.643.6482

M 250.618.5776

F 604.605.4876

jeffrey.waatainen@dlapiper.com

Forestry Law Group

The DLA Piper (Canada) LLP Forestry Law Group advises and represents clients across Canada and abroad on virtually all issues affecting the forest sector.

Effective April 17, 2015, Davis LLP combined with DLA Piper LLP, and adopted the name DLA Piper (Canada) LLP.

Continued from Page 17

of past and present human and natural disturbance, I agree that there is much work to be done on that front. However, this is just the start — the challenge is in taking action when we realize that we have exceeded some threshold in landscape change and the result impacts a threatened or high-value species. How and when do we decide that forest harvesting or the development of natural gas reserves must slow down to accommodate other environmental and cultural values?

The solutions for addressing cumulative impacts are not easy or simple. If forest management, or more broadly land management, is to be sustainable, then we need to recognize the inevitable trade-offs between developing BC's natural resources and our expectations for maintaining biodiversity, ecosystem services and the health and prosperity of communities. As a starting point, we must move beyond cumulative impacts as one component of an environmental assessment. Most regulators and natural resource professionals now accept that reality. Moving forward, we must engage in a broader conversation that exceeds the technocratic realm and requires participation from local communities, First Nations, industry and governments. Such conversations will be guided by a vision of how much future development is needed to provide jobs and tax revenue while recognizing the current and future impacts of past and present decisions. As noted by Bardecki some 25 years ago, "Assessing and managing cumulative impacts is planning." If we are serious about confronting cumulative impacts then perhaps it is time to dust-off our well-worn planning hats. In BC, we have an impressive legacy of strategic planning that might be redirected at cumulative impacts, one of the greatest challenges facing natural resource and conservation professionals across much of North America. Data and models can inform such planning processes, but will not provide societal input and ultimately decisions for maintaining the diverse flora and fauna we find across BC's landscapes. 🐾

Chris Johnson is a professor in the Ecosystem Science and Management Program at the University of Northern BC. His research is focused on how human uses of landscapes influence the distribution and population dynamics of terrestrial wildlife. In addition to empirical studies, Chris' research considers the limitations and areas of improvement of policy, legislation, and practise designed to assess and limit cumulative impacts.

Footnotes

- ¹ Duinker, P.N., and Greig, L.A. 2006. The impotence of cumulative effects assessment in Canada: ailments and ideas for redeployment. *Environmental Management* 37:153-161.
- ² Halseth, G., Gillingham, M.P., Johnson, C.J., and Parkes, M. 2015. The Integration Imperative - Cumulative Environmental, Community and Health Impacts of Multiple Natural Resource Developments. Springer. In Press.
- ³ Johnson, C.J., Williamson-Ehlers, L., and Seip, D. 2015. Witnessing extinction – Cumulative impacts across landscapes and the future loss of an evolutionarily significant unit of woodland caribou in Canada. *Biological Conservation* 186:176-186.
- ⁴ Bridger, M., Johnson, C.J., and Gillingham, M.P. 2015. Assessing cumulative impacts of forest development on the distribution of furbearers using expert-based habitat modeling. *Ecological Applications* In Press.
- ⁵ See: http://www.ratcliff.com/sites/default/files/news_articles/2015-03-03_Note_of_Civil_Claim.PDF
- ⁶ See: <http://www.bcauditor.com/pubs/2015/managing-cumulative-effects-natural-resource-development-bc>



Join us. Give today.

For a community to be great, it has to be great for everyone. Help build strong, healthy communities.

Together, we are possibility.

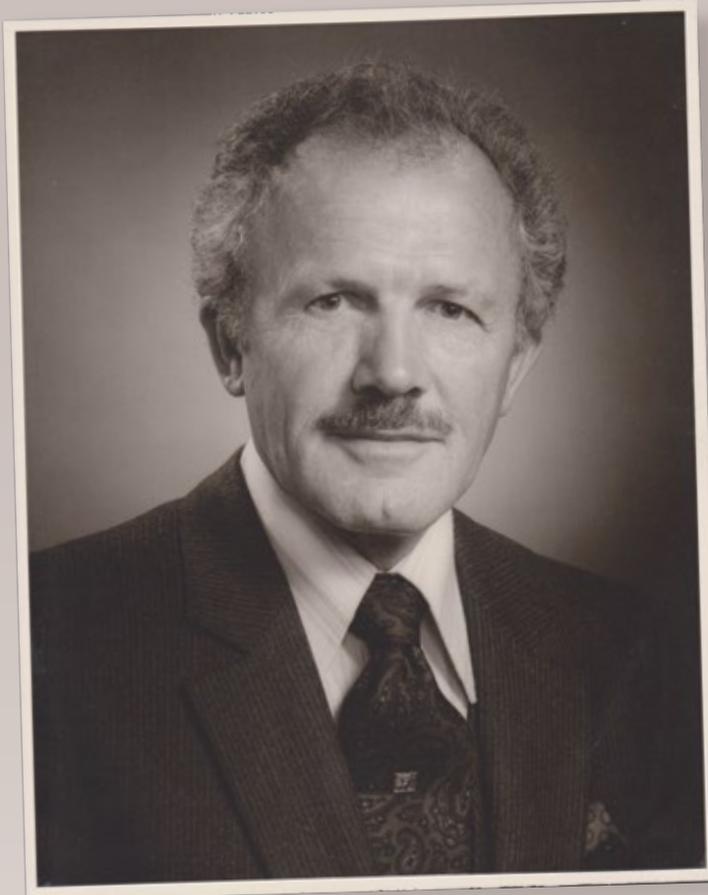


United Way
Lower Mainland
uwlm.ca



In Memoriam

It is very important to many members to receive word of the passing of a colleague. Members have the opportunity to publish their memories by sending photos and obituaries to editor@abcfp.ca. The association sends condolences to the family and friends of the following member:



Elbert Stanley Reid

RPF #346

1923 – 2015

Bert Reid passed away peacefully on July 5 in Duncan, predeceased six months earlier by his wife of nearly 70 years, Edith. He is survived by daughters Elizabeth and Margaret, and sons Doug, David and Dick.

Born in Chilco, Bert attended school in Vanderhoof, graduating in 1941. He joined the Royal Canadian Air Force and was assigned to the Pathfinder Squadron, leading bombing missions over Europe. In 1945, Bert enrolled in Forest Engineering at UBC and, after obtaining his degree, started a career in forestry consulting at T&H Engineering and Forestry in Vancouver. Under Bert's guidance, T&H carried out two of the largest industrial forest inventories undertaken in BC — one in the Kitimat area that pioneered the use of helicopters to transport and re-supply field crews.

In 1961, Bert and Jim Collins (BASc'52 UBC, RPF) partnered to found Reid, Collins and Associates (RCA). The first years for the fledgling company were tough, with few local projects coming through the doors, so Bert accepted a long-term secondment

to a UNDP/FAO tropical forestry study in Ecuador. Bert uprooted his family for a five-year sojourn in Quito while RCA, under Jim Collins, expanded its domestic consulting capabilities. Returning to RCA in 1969, Bert focused on international business development and project management. When he retired in 1985, RCA had grown into one of the largest forestry consulting companies in the world. That same year, Bert became president of the UBC Alumni Association after serving as vice-president in 1984-85. Bert continued independently consulting until the mid-1990s.

Bert had a courteous and easygoing personality and a fine sense of humour, and was not above playing a gentle prank on his colleagues. His business dealings were always honourable and fair; in a word, to those who knew him, he was a gentleman.

Submitted by Melva and Gordon Bradshaw, Gary Kenwood, RPF(Ret), with contributions from the Reid family.

Membership Statistics

ABCFP — June 2015

NEW REGISTERED MEMBERS

Alana Rae Brown, RFT
Jarmo Aulis Laitinen, RFT, ATC

NEW ENROLLED MEMBERS

Jenny Lee Allen, TFT
Karen Louise Anderson, TFT
Annik Rachel Aubin, TFT
Douglas Edward Beattie, FIT
Blair Robert Belton, TFT
David James Bridgeman, FIT
Nyla Dawn Burnside, FIT
Heather Anne Colterman, TFT
Steffi Marlee Cornwallis-Bate, TFT
H.Nicholas Dormaar, FIT
Adam John Flintoft, TFT
Sarah Sharon Germain, FIT
Michael John Grebinski, TFT
Marisa Karen Paige Leung, FIT
Takamitsu Mamashita, FIT
Joel Thomas McLay, FIT
Jacquelin Elaine McNicol, TFT
Janel Patricia McNish, TFT
Tommy Micheal James Nicholson, TFT
Nathan Michael O'Reilley, TFT
John Paul Oster, TFT
Curtis Benjamin Paul, FIT
Timothy Kent Pritchard, TFT
Victor Inocencio Serrania, TFT

Janice Marie Stadey, FIT
Noah David Steinberg, FIT

NEW ASSOCIATE MEMBERS

Patrick William Dalton, ATC
Tyler Gordon Grant, ATC

REINSTATEMENT (REGISTERED MEMBERS)

James M. MacMillan, RPF

REINSTATEMENTS FROM LOA (REGISTERED MEMBERS)

Brandon William Carter, RFT
Albert Leopold Vandenberg, RPF
Angela J. White, RPF

TRANSFERING FROM TFT TO FIT

Cara Leigh Guimond, FIT
Allan Michael Knapp, FIT

DECEASED

Calvin O. Bardal, RPF(Ret)
Alan R. De Lisle, RPF

ABCFP — July 2015

NEW ENROLLED MEMBERS

Cassandra Michelle Bott, FIT
Kaitlin Ashley Conroy, TFT
James William Hunter, FIT
Matthew David Landsborough, FIT
Nicholas Dean Turner, TFT
Luke Ferris Weyman, FIT

REINSTATEMENT (REGISTERED MEMBERS)

Brian A. McIntosh, RFT

REINSTATEMENT FROM RETIREMENT

Denis Gerald Gaudry, RFT

REINSTATEMENTS FROM LOA (REGISTERED MEMBERS)

Shawn M. Meisner, RPF

DECEASED

Victor M. Young, RPF(Ret)

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

NEW RETIRED MEMBERS

Douglas Lorne Russell, RFT(Ret)

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

RESIGNATION (ENROLLED MEMBERS)

Samantha Christina Griffore



Compilation software by Advent Technologies Ltd.

Compilation software from the developers of *CruiseMate* and *CheckMate*

Compile all your cruises easily and quickly with **CompMate**

For a demo, details and pricing please contact:
Els Armstrong, RFT, ATE
CELL (text or call) 250-819-4648 • OFFICE 250-372-0604
Infinite Forestry Solutions Ltd.

TD Insurance
Meloche Monnex

Get **preferred insurance rates** today!

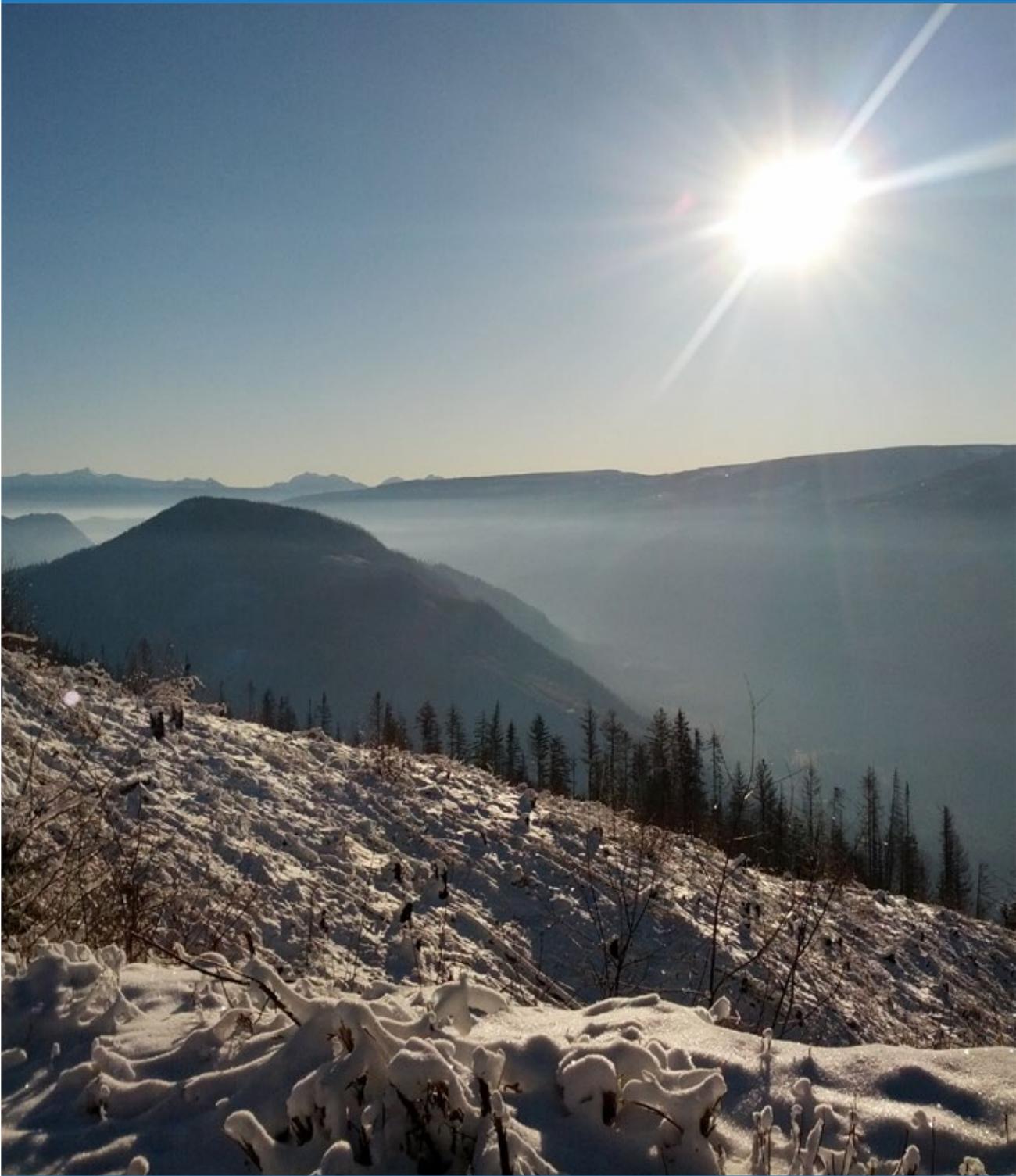
1-866-269-1371
melochemonnex.com/abcfp



The TD Insurance Meloche Monnex program is underwritten by SECURITY NATIONAL INSURANCE COMPANY. It is distributed by Meloche Monnex Insurance and Financial Services Inc. in Quebec, by Meloche Monnex Financial Services Inc. in Ontario, and by TD Insurance Direct Agency Inc. in the rest of Canada. Our address: 50 Place Crémazie, Montreal (Quebec) H2P 1B6.
© The TD logo and other TD trade-marks are the property of The Toronto-Dominion Bank.

A Moment in Forestry

Submit your Moment in Forestry photo or artwork to Doris Sun at: editor@abcfp.ca



A Vantage Advantage

Submitted by Andrew Young, TFT

Soaring above the mountains at North Adams Lake near Chase, a clear and cold morning is witnessed in all its glory.

Paper-Free Forms for your Operation!

Let us modernize your paper checklists, inspections, and audits!



Smart Devices

Ready to run on your iPads and iPhones or Android devices.

Cloud Syncing

Deploy forms for mobile employees and sync data seamlessly without a trip to the office.

Complete Data Collection

Enhance your forms with photos, voice clips and GPS coordinates.

Works Offline

Ensure accessibility of your forms without internet connectivity.

TESTIMONIAL

"In the field SNAP has saved us time and simplified field surveys by summarizing sampling data and calculating confidence levels. In the office it has saved us a significant amount of staff time through its ability to summarize and compare data, generate reports and transfer and compile information from other district offices."

Ricardo Velasquez,
District Silvicultural Forester
Ontario Ministry of
Natural Resources

Call today or visit us online for more information or to schedule your **free** demo.

Toll Free 1-800-535-2093 · www.snapdcs.com

