JULY - AUGUST 2012

BC Forest PROFESSIONAL

VIEWPOINT
Tree Genetics and Forest Health

Make a Pledge:
Bullying Stops Now!

ForesTrust:
Supporting Future Forest Professionals

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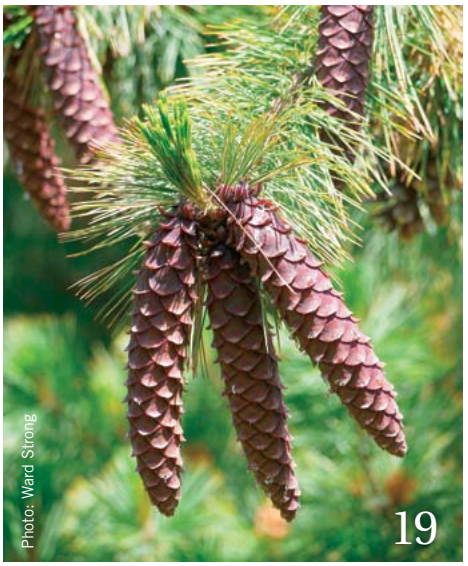
BC FOREST PROFESSIONAL | Volume 19 Issue 4

Viewpoints

Index Photos: Ward Strong

Cover Photo: Ward Strong



Interest

Special Feature

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Letters

Letter of Apology Regarding Complaint #2009-05

I, Robert Gregory Lay, RPF #1173 recognize that during 2008/2009, while providing volunteer oversight on a fuel management project on municipally owned property zoned for residential development, I acted incompetently as an RPF in breaching ABCFP bylaws 11.3.1, 11.3.3, 11.3.5 and 11.4.1.

"I humbly apologize for the grievous embarrassment this has brought on the ABCFP."

I now recognize that I mistakenly placed a much higher value on the safety and protection of the citizens of my community who are significantly endangered be future catastrophic wildfire event such as the one which occurred in 1908.

Despite the fact that the basal area in the riparian area was not altered and no actions were taken which would have caused any form of soil sediment to reach the river channel, the removal of coarse woody debris, removal of ladder fuels and pruning have significantly altered the nature of this future residential area. Danger trees removed as required by WCB regulation have forced cavity nesting birds, which occasionally used the treatment area on the north side of the stream, to now use the untreated area on the south side of the stream. The treated area has also created serious habitat problems for bears, cougars and deer who used the area because it provided significant hiding cover in the centre of the community. The animals are now forced to use Crown lands adjacent to the municipality.

I am now committed to undertaking more balanced forest management actions which will protect the public from the forthcoming catastrophic wildfire events which will impact their homes and properties WHILE ensuring forest ecosystems are maintained as required by regulation and legislation.

With Regret,
Greg Lay, RPF #1173
Kaslo

Put in Your Two Cents

The **BC Forest Professional** letters' section is intended primarily for feedback on recent articles and for brief statements about current association, professional or forestry issues. The editor reserves the right to edit and condense letters and encourages readers to keep letters to 300 words. Anonymous letters are not accepted.

Please refer to our website for guidelines to help make sure your submission gets published in **BC Forest Professional.**

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RPF vs RFT: Are They Really Equal?

In the May-June issue of **BC Forest Professional**, in the ABCFP Awards article, "Forest Technologist of the Year Award," I have some concerns regarding the statement, "Professionally, he was instrumental in ensuring RFTs were accepted into the ABCFP as equals."

I have several concerns with this statement. The Scope of Practise Guidelines for RFTs (the scope) basically makes a RPF and RFT equal, except for some minor differences which are not really applicable in typical public service, consulting or industry positions. But are they truly equal? A two-year technical diploma is not equal to a university undergraduate degree. The ABCFP has taken members from completely different educational backgrounds and made them equal under the scope.

Secondly, my undergraduate degree and my RPF designation have been de-valued to the level of a two-year diploma and RFT designation due to this arbitrary equality. Do I receive any compensation for this? No, even though I sacrificed more to pursue the undergraduate degree option in an effort to obtain greater job security.

Thirdly, in my opinion with this 'equality' of RPFs and RFTs, the ABCFP is on a downward spiral by lowering the professional practise standards. This comes at a time when most associations both provincially and nationally are increasing their professional standards for membership. I believe this path the ABCFP has chosen will quickly erode public confidence in the profession. Are we sacrificing standards for the sake of increasing memberships? How is this affecting our national accreditation?

I feel the ABCFP should survey the membership, in particular the RPFs, to gauge this 'equality' and the lowering of professional standards. It is time to rethink this 'equals' concept. No member wants to lose the public confidence as this will further de-value any member's designation whether this member is an RPF or an RFT.

Albert Vandenberg, RPF
Burns Lake

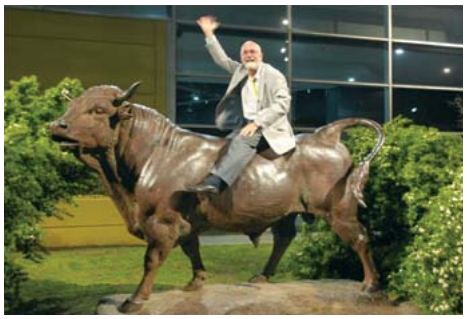
Response to Vandenberg Letter

From Randy Trerise, RPF, registrar and director of act compliance

The *Foresters Act* is does not assign a hierarchy to ABCFP membership types. Under the Act, RPFs and RFTs are equal members in the association but that does not mean they have the same practice rights. RFTs and RPFs have different educational backgrounds which leads to different skill sets. Forest technologist college programs focus on work at the site level while forester degree programs provide landscape, forest estate and site level instruction. As a result, RPFs and RFTs bring different skill sets to the forestry team. RFTs and RPFs are different but equal at the ABCFP.

President's Report

By Steve Lorimer, RPF



What's Happening at the ABCFP:

Timber Supply Hearings, New Lay Councillor, Forest Road Guidelines and the Loss of Two Well-Known Members

While summer is a season of growth and often brings a sense of optimism, for some this summer continues to be a rather bumpy ride—kind of like riding a bull? This is especially true for many from the central Interior who are wondering about what the future may bring to the forest sector as a result of the impact of the mountain pine beetle. What options are available?

There are difficult choices to be made when considering the environmental, social and economic impacts and in trying to bring balance to these important issues. In an effort to address the question, the provincial government on May 16th announced the establishment of a Special Committee on Timber Supply. This committee is made up of seven MLAs from both the NDP and Liberals and is supported by technical advisors, Larry Pedersen, RPF, and Jim Snetsinger, RPF, both former Chief Foresters.

The committee has been meeting with stakeholders in many communities which have been dealing with the after-effects of the mountain pine beetle. The ABCFP had the opportunity to meet with the committee on July 9th. The government is looking for a report by August 15th so the community consultations are virtually done.

For more information on this important issue, go to our website at www.abcfp.ca and click on the mid-term timber supply banner.

New Lay Councillor

The ABCFP council is composed of 10 elected members from within our membership of RPFs and RFTs and two lay councillors appointed by government. I'm pleased to report that we now have our final lay councillor position filled. Your governance committee had the opportunity to interview four individuals who had expressed an interest in becoming a lay councillor. By Order in Council, Scott Manjak was appointed a lay councillor on May 30, 2012. Scott is a former Mayor of Cranbrook, current Chair of the Regional District of East Kootenay and brings a wealth of experience to our council. Welcome Scott!

Forest Roads Guidelines

Beginning in 2008, the Joint Practices Board of the Association of Professional Engineers and Geoscientists of BC (APEGBC) and the ABCFP have completed the *Guidelines for Professional Services in the Forest Sector – Forest Roads*. This co-operative project is intended to help to clarify the overlapping issues between the two professions, provide direction and assist members in fulfilling their obligations by providing guidance for professional involvement in forest road activities. This document has been reviewed by experts in the field and was made available to members for review, resulting in revisions and improved re-drafts. This guidance document will soon be available for members on our website.

Loss of Two Well-Known Members:

In April of this year, we lost a prominent forester, Ike Barber. Perhaps best known for the formation of Slocan Forest Products at the age of 55, Ike graduated from the Faculty of Forestry at UBC in 1950 and worked for several years for MacMillan Bloedel and Triangle Pacific. Over the years he contributed in a substantial way to forestry education and research in British Columbia and, through his philanthropy, has left a legacy that will benefit British Columbians for years to come.

One of our former association presidents passed away in May of this year and his contributions to forest history, education and the profession will be dearly missed. Vern Wellburn was president of the association in 1973, and a member of the association for some 57 years. He worked in industry, as a special instructor at UBC, at FERIC and in recent years he was an honourary member of the board at the BC Forest Discovery Centre. He had a wealth of knowledge and could explain the workings of virtually any piece of antique logging equipment. Vern wanted his service to be a celebration so prior to his passing he instructed his son Gerry Wellburn, RFT, that he wanted to buy everyone at his service a beer! So everyone at the service received a beer (or other beverage) and enjoyed the many tributes and stories from friends and family. Cheers Vern!

More information on Ike and Vern is available in the Member News section of this issue.

CEO's Report

By Sharon L. Glover, MBA

Taking a Stand on the Mid-Term Timber Supply

By now I hope you've heard about our work on the mid-term timber supply issue. While it has been a hot topic in the news since the tragic fires in Burns Lake and Prince George, the ABCFP has been aware of and working on the issue for over a year. We wrote a report on the mid-term timber supply after extensive consultation with members and released it last November. The report was then updated in January.

We initiated a publicity campaign when the government began to look, in earnest, at the mid-term timber supply after the mill fire in Burns Lake. One of the main questions they were asking was: "Is there enough timber to make it economical to rebuild the mill?" A leaked Cabinet Submission outlined a few worrying options requesting Cabinet consideration: that areas previously conserved from harvesting (such as Old Growth Management areas and wildlife habitat) were going to be opened up for harvesting with no consultation; and, that provisions for the Chief Forester to set the annual allowable cut and the ability to make license apportionment decisions in the *Forest Act* be altered or suspended.

We were concerned that our members and the communities were being left out of the process. Certainly some members who worked for the provincial government had the opportunity to contribute; however, the majority of members—as well as other resource professionals, community representatives, and stakeholders such as First Nations—had not been consulted.

We were also concerned that the government's focus on the health of the forest had been lost. One of the association's objects in the *Foresters Act* is to advocate and uphold principles of stewardship of forests, forest lands, forest resources and forest ecosystems. It is because of this mandate that the association has been advocating the message of good forest stewardship throughout this debate.

We initiated a publicity campaign, and since the start of our campaign, we've created a new page on our website to educate the public; filmed a video featuring president Steve Lorimer, RPF, talking about the importance of reserving some areas from harvesting; run print ads in the communities most affected by the mountain pine beetle; met with government officials; used our Facebook page and Twitter feed to promote the idea of public consultation; and sent our members information on how they can get involved.

Our main goal with the publicity plan was to encourage the government to hold open and wide-spread consultations that would address both the short-term economic issues such as jobs, as well as the long-term environmental impacts of accelerated timber harvesting.

We are very happy that the government listened to the ABCFP and the other many calls for consultations and convened a legislative committee in May that is conducting a series of public consultations.

The Special Committee on Timber Supply includes MLAs from the epicentres of the mountain pine beetle infestation including John Rustad (Nechako Lakes), Chair of the Committee and Donna Barnett (Cariboo-Chilcotin) as well as Opposition Forest Critic Norm Macdonald (Columbia River-Revelstoke) Deputy Chair of the Committee; Deputy Opposition Forest Critic Bill Routley (Cowichan Valley) and Eric Foster (Vernon-Monashee). Although there are no forest professionals on the committee, it has retained former Chief Foresters, Larry Pedersen, RPF, and Jim Snetsinger, RPF as technical advisors.

Shortly after the Special Committee was announced, Steve Lorimer, RPF, and I met with Minister Steve Thomson. He urged us to support the Special Committee and we agreed because we believe community engagement is the right thing to do. Sixty years from now future BC citizens will reflect upon these defining moments and ask what did the profession do during this difficult period? The health and welfare of our communities is dependent upon the health of our forests. And the future health of BC forests is dependent upon the profession's commitment today to speak on behalf of forests and to ensure there are forest professionals who can sustainably manage our most important renewable resource.

If you live or work in mountain pine beetle affected areas we urge you to get involved in the committee hearings. The message of good forest stewardship must be the lens through which all decisions about the forests are made.

Get involved and let the committee know what's important to you as a forest professional.


Photo: iStockPhoto

Member Contest: What Is Your Favorite Spot in BC?

The ABCFP will be filming two recruitment videos this summer. The videos will be used on our website, at classroom presentations and as a part of our career fair booth. The videos will show members working at their jobs and talking about forestry careers. We also want to feature two fantastic spots of the province where our members live and work so we need you to tell us where you think we should film. We're looking for one location on the coast or on Vancouver Island and one location in the Interior. Drop Amanda Brittain (abrittain@abcfp.ca), director of communications, a quick e-mail to tell us why we should film in your favorite spot by July 15th. Beginning on July 20th, you can cast your vote for the final locations. While we would love for the winners to be in the video, there is no obligation to do so if your favorite spot is selected.

Policy Review Seminar Coming in September

As we did last year, the annual ABCFP Policy Review Seminar with be held in-person on September 6th and 7th in Kamloops at Thompson Rivers University. The session will also be broadcast live online for those not able to attend in-person. Online participants will be able to ask questions and have them answered in real time. To register or for more information, please visit our website: www.abcfp.ca

Forest Legislation and Policy Reference Guide Available in Mid-July

The forest legislation and policy reference guide is updated annually by forest management experts and summarizes important and relevant forest policies that affect the practice of forestry in BC. It can be used as a reference for those studying to write the ABCFP registration exams or for any forest professional wanting to increase their policy knowledge. Look for more information on the Policy Seminars page of the website and in **The Increment**.

ABCFP Online Workshops Available for 2012

Professional Reliance Workshop: Is It Working? How Should It Work.

This online workshop explores what professional reliance means to participants, its legal foundation and its definition, how it compares to professional deference, how it is related to professional accountability, how to carry out a professional quality assessment and provides scenarios for discussion.

Professional Ethics and Obligations Workshop

This online workshop addresses participants' professional obligations in a variety of situations through interactive content using realistic scenarios and is applicable to both technologists and foresters.

Writing the Best Exam Possible Workshop

In this online workshop, you will learn practical tips for not only surviving but passing the exam with the highest score possible.

To register or for more information, please visit our website: www.abcfp.ca and click on the workshops icon.

By Brenda Martin

Photo: Ward Strong

Tree Genetics and Forest Health

Tree genetics and forest health is a broad topic and we address it with a variety of articles focusing on key issues from across the province.

From a historical perspective, Jack Woods, RPF, gives a great overview of forest genetics and tree improvement in BC. And then David Reid, RPF, focuses more specifically on the history of white pine tree seed production and blister rust resistance. Both these articles show the evolution of tree breeding in BC.

From a research perspective, Joerg Bohlmann, PhD, and his team tell us about the genomic research they are doing to better understand and fight the mountain pine beetle epidemic. As well, Kathy Lewis, RPF, PhD, and Christopher Wallis, PhD, share their research on lodgepole pine's susceptibility to pests and how it varies with provenance.

From an on-the-ground perspective, John King, RPF(Ret), and René Alfaro, PhD, argue that as breeding weevil resistance has been successful, it's time to start planting Sitka spruce on the coast once again. John Russell, PhD, RPF, makes a similar argument about planting western redcedar. He and his team have developed a browse resistant western redcedar that can reduce the costs involved in getting the trees to free growing as they are less likely to be browsed by deer. Finally, Guy Burdikin, RPF, explains how he has put improved seed policy into practice and encourages other forest professionals to do the same.

Above this introduction, you'll see pull-out box titled, "Applying the Principles of Forest Stewardship to Tree Genetics and Forest Health." In the last several issues, the ABCFP's stewardship committee has written a summary about how the Viewpoint theme applies to the ABCFP's forest stewardship principles. Please take a moment to read this summary and refresh your knowledge of the related stewardship principles.

Also in this issue, we have our ForesTrust special feature where we highlight forestry students who have won ForesTrust scholarships and bursaries. ForesTrust is the ABCFP's registered charity and oversees 13 endowments at nine post-secondary institutions. Income earned on these endowments is used to grant scholarships and bursaries to forestry students—individuals who are the future of the forestry profession.

Finally, I'd like to thank Ward Strong, PhD, PAg. Ward is a research entomologist at the Kalamalka Forestry Centre and a brilliant photographer. He generously allowed us to use his exquisite photographs in this issue. Thank you, Ward.

Applying the Principles of Forest Stewardship[1] to:

Tree Genetics and Forest Health

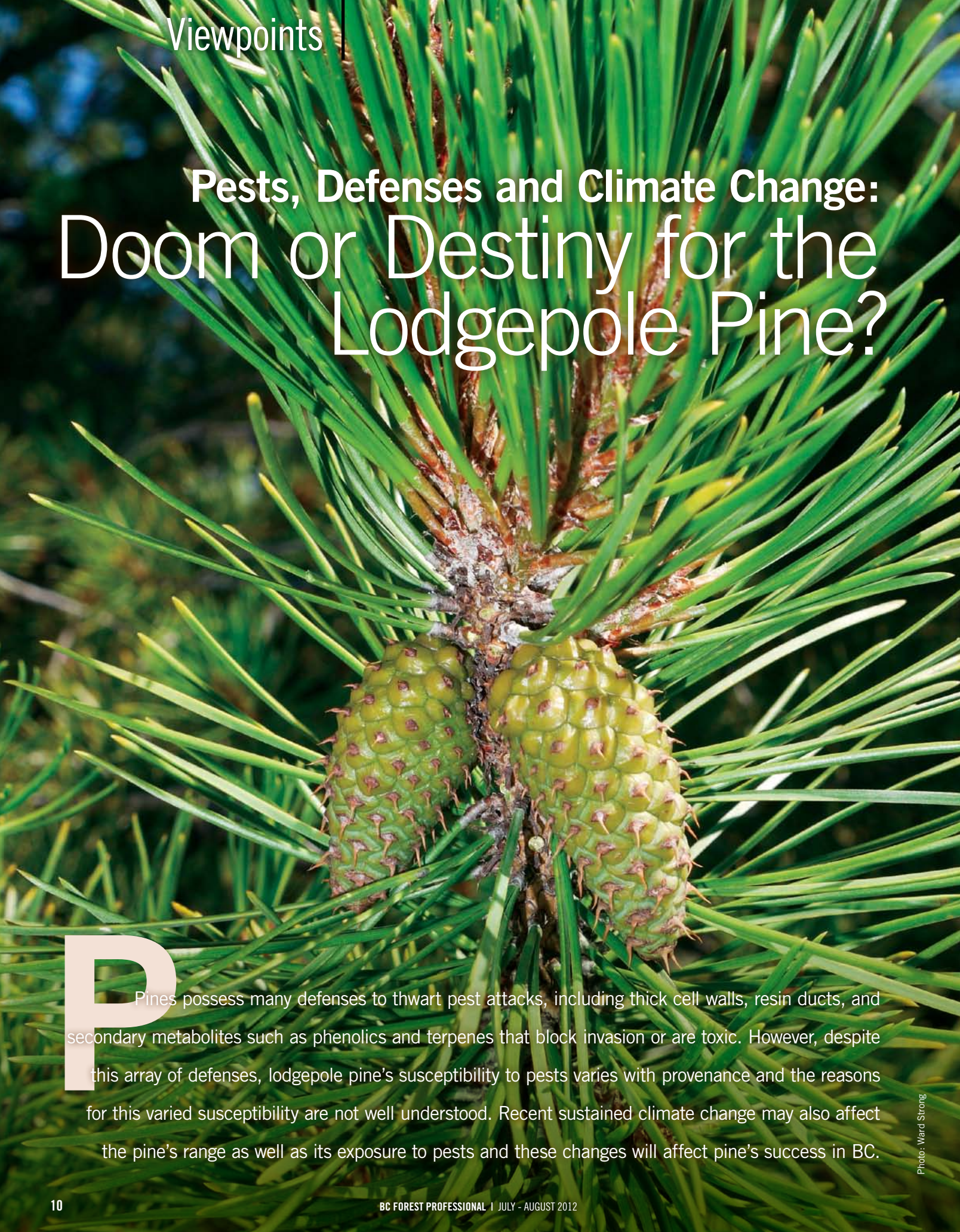
The ABCFP's Forest Stewardship Principles are applicable to all aspects of forest management. Tree genetics and maintaining forest health is directly linked with the **Information and Understanding Principle**; where professionals require *'a science-based understanding of how ecosystems function and change over time.'* Forestry research often involves collaboration between academics, policy-makers and practitioners, where new findings and ideas make their way from the lab to the field site. This exchange of information is critical to our understanding of how ecosystems function and how they may change or be influenced over time, in response to different factors and inputs.

Consistent with this reasoning, it is important that forest managers and researchers also consider **Temporal Options** when exploring how to apply new findings. This principle is designed to ensure that management strategies *'deliver benefits for today's society without risking options for future generations.'* The practice of tree improvement in forest genetics has a long history of success in BC (a good example being the development of blister rust-resistant white pine seedlings) and is an excellent model of how these principles have been applied to the benefit of future generations.

[1] The forest stewardship principles document can be seen at http://abcfp.ca/publications_forms/publications/committee_reports.asp

Pests, Defenses and Climate Change:

Doom or Destiny for the Lodgepole Pine?



Pines possess many defenses to thwart pest attacks, including thick cell walls, resin ducts, and secondary metabolites such as phenolics and terpenes that block invasion or are toxic. However, despite this array of defenses, lodgepole pine's susceptibility to pests varies with provenance and the reasons for this varied susceptibility are not well understood. Recent sustained climate change may also affect the pine's range as well as its exposure to pests and these changes will affect pine's success in BC.

Photo: Ward Strong

Viewpoints

By Kathy J. Lewis, PhD, RPF and Christopher M. Wallis, PhD

We examined the defense role of secondary metabolites in lodgepole pine by assessing the variation in disease susceptibility as well as the foliar and bark defense compounds among 13 pine provenances at a Prince George seed orchard. This seed orchard had naturally occurring *Lophodermella* needle blight and *Elytroderma* needle cast as well as western gall rust. In addition, by sampling wild pine populations, we explored the hypothesis that trees grown in areas likely under pressure from foliar disease or abiotic stressors produce more defense-related secondary metabolites in foliage than pines not subject to these factors.

Foliar Defenses

Trees whose parents originated from the wet ICH (interior cedar hemlock) and moist SBS (sub-boreal spruce) zones were consistently more resistant to foliar diseases than trees from the IDF (interior Douglas-fir), ESSF (Engelmann spruce sub-alpine fir), and SBPS (sub-boreal pine spruce) zones. We also found that trees from the SBS, CWH (coastal western hemlock) and ICH zones often had greater foliar secondary metabolites levels than trees from other zones. The CWH and ICH zones are both defined as rainforests with relatively long growing seasons and reduced drought stresses which could enable additional resources to be invested in secondary metabolism. Furthermore, these moist ecosystems are more favorable to foliar and rust diseases which could apply selection pressure on pines to produce more defense-associated compounds in their foliage.

We found a strong link between foliar disease susceptibility and foliar secondary metabolites. Higher levels of phenolic polymers (lignin and condensed tannins), phenolic acids, lignans, flavanols, monoterpenes and diterpenes were associated with greater resistance to foliar diseases. Phenolic and terpene-based compounds have been shown in other conifer pathosystems to increase in response to infection or to be directly toxic to pathogens. Thus, it seems reasonable that increased production of these secondary metabolites results in greater overall tree health by protecting the needles from the effects of foliar disease.

In contrast to the other secondary metabolites, levels of lignin were highest in the boreal BWBS (boreal white and black spruce) ecosystem type whereas the other metabolites were often at the lowest levels in trees from that zone. Lignin is involved with cell wall thickening and strengthening and may be related to cold temperature tolerance. However we did not find a significant relationship with lower winter temperatures. Similarly, our attempts to form testable regression models using geographic and climatic variables to predict foliar secondary metabolite levels were unsuccessful. This is likely because of the inter-relatedness among the variables, and the potential role of physiological and genetic factors in metabolite production.

Bark Defenses

In contrast to foliar diseases, provenance origin by BEC (biogeoclimatic ecosystem classification) zone did not affect bark chemistry or resistance to bark disease. However, higher mean summer temperatures at a provenance's original location were associated with less western gall rust. But the presence of western gall rust was not associated with any changes in secondary metabolites in the bark, with the exception of cis-beta-terpineol. Pines rely heavily on physical defenses, such as thick bark, to protect their stem and branch tissues from attack. Therefore, unlike in the needles, trees may have more time or capability to respond with induced defenses to resist pests invading their woody tissues than those attacking foliage thereby reducing the need for pre-existing chemical defenses in the bark.

Climate Change

Climate change is predicted to increase both biotic and abiotic pressures on pine populations. For example, bark beetle populations are predicted to increase and, coupled with changes in temperature and rainfall patterns, could force pines northward and to higher elevations. Due to enhanced defense compounds in wetter and warmer low-elevation ecosystems, pines from these ecosystems would be expected to have a fitness advantage over native pines when insect and pathogen outbreaks expand into new areas.

Despite the above, we caution the use of assisted migration to mitigate the effects of climate change. When grown in the same location, pines originating from different regions and ecosystems retain their long-evolved variance in both secondary metabolite levels and pest resistance. Therefore, in some cases, assisted migration of pine populations could result in maladaptation to biotic and abiotic stresses. Seed from areas with historically low levels of disease outbreaks and/or low production of defense-associated compounds should not be moved to areas with higher foliar disease activity because the trees would likely be constantly and severely affected by pathogens. Foliar levels of key defense-associated compounds should be considered during selection of provenances for assisted migration efforts.

It is also necessary to consider the impacts of climate change on disease-causing organisms themselves. Shorter generation cycles of the pathogens could result in greater capacity for pathogens to adapt under changing conditions, than for their hosts.

Lodgepole pine is considered a highly resilient species because it is a pioneer, grows fast, and possesses an ability to thrive in many diverse ecosystems. However, to be successful lodgepole pines must overcome constant threats from foliar and stem pathogens, both of which it possesses defenses against but, due to pathogen evolution, could overwhelm host populations. Changes in climate affect not only host range, which lodgepole is well suited to accommodate, but also the exposure to pests. Depending on defense capacity of the particular lodgepole pine provenance, climate change may enhance pine productivity or alternatively lead to its regional demise due to it causing increased abiotic stresses and disease/insect pest pressures.

Kathy Lewis, PhD, RPF, is a forest pathologist with research interests in the role of pathogenic fungi in natural ecosystem processes and the long-term effects of forest practices on forest health. She is also an associate professor at the University of Northern British Columbia.

Christopher Wallis, PhD, is a broadly-trained plant pathologist with experience in examining the role that secondary metabolites play in host resistance to diseases and insects, including Pierce's disease of grapevines, zebra chip disease of potato and a variety of pine diseases.

By Joerg Bohlmann, et al.

Using Genomic Data to Understand the Mountain Pine Beetle Epidemic

The Tria Project has produced new genomic data for the three interacting biological components in the mountain pine beetle disease system—the insect itself, the pathogenic fungi and two of their host pine species. We are using the genomic data to uncover new information about the molecular underpinnings of each component's unique biology and the interactions between these organisms.

For the mountain pine beetle we have developed a complete draft genome sequence assembly and identified most of its actively expressed genes. We have also developed detailed maps of the beetles' gene expression profiles— which genes are 'turned on or off'—under different environmental conditions and during most of the beetles' life cycle.

In addition to that, we have developed complete genome sequence assemblies of mountain pine beetle-associated fungi, and we have mapped expressed genes in lodgepole and jack pines under different environmental conditions and during tree interactions with beetles and fungi.

This research has let us learn: how trees can defend themselves; how the fungus and the beetle kill their host trees; how the beetle makes its aggregation pheromone; how the mountain pine beetle survives in the winter; and how the infestation spreads.

How Trees Defend Themselves

When the beetles attack pine hosts, trees defend themselves with variable levels of success by increased production and mobilization of chemical and physical defenses in the form of oleoresin. Our work has developed a better understanding of the molecular mechanisms of production of defensive chemicals. We now know a substantial set of the genes, and associated enzymes, that are responsible for the biosynthesis of important resin components. We also have a better understanding of what factors trigger the expression of those genes.

How the Fungus and the Beetle Kill Their Host Trees

Much of the success of the mountain pine beetle is due to their ability to overwhelm the defensive mechanisms of the host tree by organizing a mass attack. The mass attack is coordinated by chemical signals, called aggregation pheromones, released by the beetles. Through our genomic analysis of the mountain pine beetle we have identified genes involved in pheromone formation.

Olfaction also plays a large role in finding and attacking a host and we have identified genes that are turned on in the antenna. We are now working to understand their roles in the beetles' sense of smell.

The blue staining fungi that the beetles vector into the pine synergistically work with the beetle to kill the tree. The fungi have genes that allow them to remove toxins from their cells to transform the chemicals into less harmful metabolites. In fact, the fungi can use some of the tree-produced oleoresin toxins as a food source to help them to grow through the host tree's tissues.

How the Beetle Make Aggregation Pheromone

Many of the components of the mountain pine beetles pheromone blend are very similar to tree resin compounds. The insects are able to make some of these pheromone components using their own metabolism. But they are also able to turn the tree's defenses against itself by modifying resin compounds to make other pheromone components. We are developing a better understanding of gene expression related to pheromone production and now have a better picture of the contribution from the insect and from the tree for pheromone biosynthesis.

How the Beetle Survives the Winter

Mountain pine beetles overwinter as young larvae in the bark of host trees. Their ability to survive low temperatures plays a major role in population size and outbreak success. We now know which genes are likely responsible for the production of antifreeze compounds and we are studying internal and environmental conditions that control the activity of these genes at the right times. It seems that the amount and quality of food that a larva can consume from its host during the late summer and early autumn is critical for survival during the winter because the antifreeze compounds are derived from important energy stores in the overwintering insects.

How the Infestation Spreads

Many genes or other features of the DNA can also be powerful markers of current and historic population movement. Genomics research helps us understand past movement and allows us to predict the future spread of the infestation. These predictions can inform current management strategies. By tracking population-specific genetic markers across most of BC and the newly-infested portions of Alberta, we now know that northern BC populations of the insects are responsible for the eastward spread of the infestation into the jack pine forests of Alberta. We have also shown that the migration of the fungus closely mirrors the spread of the beetle and that geographic barriers, such as mountain ranges, play a role in

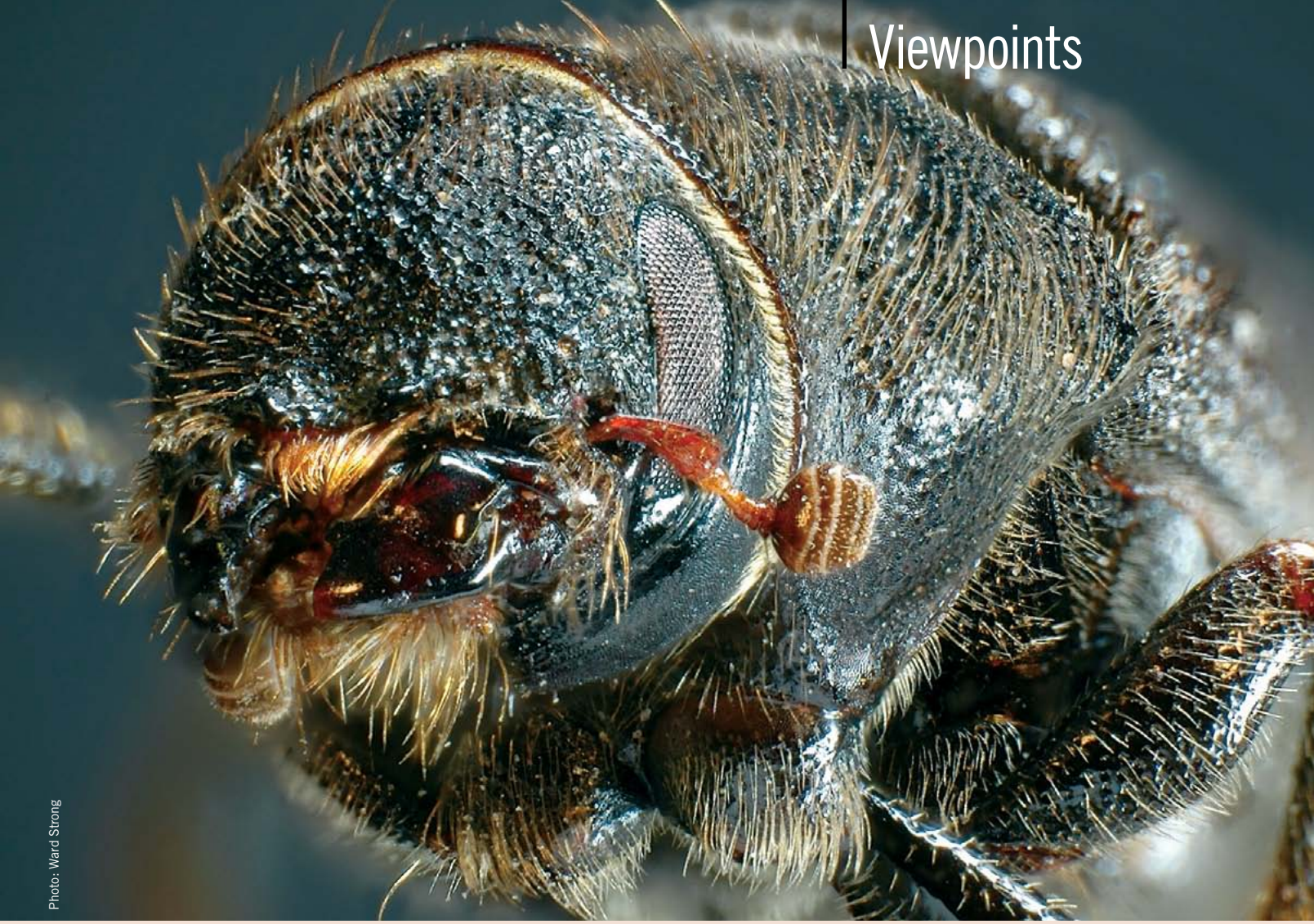


Photo: Ward Strong

The Tria Project has identified the genes turned on in the mountain pine beetle's antenna and are now working on understanding those genes role in the beetle's sense of smell.

where and how the infestation spreads. This work has allowed us to develop improved models for prediction and management of bark beetle infestations and potentially forest insect pests in general.

Other Operational Developments

Besides improving models and forecasting for bark beetle epidemics, our results have the potential to be used in other operational settings. For example, we have developed methods to test for particular DNA markers that could be adapted to quickly identify the pathogenic and non-pathogenic fungal associates of mountain pine beetles. Tools like these can be particularly important for resolving quarantine and trade issues.

In a larger context, the work that we have been doing is also applicable to other bark beetles in British Columbia and beyond. The tripartite nature of the infestation—insect, pathogen and host—matches that of closely related spruce beetles and Douglas-fir beetles. It is also mirrored in other forest insect pest systems and even human diseases such as malaria. With ongoing climate change and upcoming challenges to our timber supply, our work sets a strong foundation for understanding the potential spread of this insect, or others like it, into new areas.

Joerg Bohlmann, PhD, is a professor and distinguished university scholar in the Michael Smith Laboratories and in the Departments of Forest Science and Botany at the University of British Columbia. He is a project leader of the Tria Project, and has also been leading other genome projects including the Treenomix Project and the SMarTForests Project, which is sequencing the white spruce genome.

Colette Breuil, PhD, is a professor at the Faculty of Forestry at the University of British Columbia, with a long-term research program and major career achievements focusing on wood and tree inhabiting fungi. She has been leading research that resulted in the first genome sequencing of a MPB-associated blue-staining fungus.

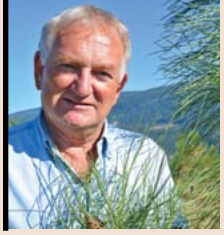
Richard Hamelin, PhD, is a senior research scientist at Natural Resources Canada and a professor in forest sciences at the University of British Columbia. He is an expert in plant pathology.

Dezene Huber, PhD, is an associate professor and Canada research chair in the Ecosystem Science and Management Program and the Natural Resources and Environmental Studies Institute at the University of Northern British Columbia.

Christopher, I. Keeling, PhD, is a research associate in the Michael Smith Laboratories at the University of British Columbia where he studies the chemical ecology of plant-insect interactions in conifer forests.

Brent Murray, PhD, is an associate professor in the Ecosystem Science and Management Program and the Natural Resources and Environmental Studies Institute at the University of Northern British Columbia.

By David Reid, RPF



1910-2012:
White Pine Tree Seed Production in British Columbia

Western white pine was once a very widespread and valuable component of forests in British Columbia and the Pacific Northwest, so much so, that many sawmills solely produced white pine lumber. In the early 1910s, introduction of the deadly white pine blister rust on seedlings transported from Europe to many locations along North America's west coast caused the rapid eradication of the species. By the mid-1940s, mills were closing.

Efforts to re-establish this species by breeding white pine with tolerance to the disease began in the United States in the 1950s. While research into the resistance and breeding of selected parent trees did not begin in BC until the mid-1980s. This BC research was a joint effort between the federal and provincial governments, with the program divided into coastal and Interior components. While the inheritance mechanisms of tolerance to the blister rust have been proven to be very complex, with cooperation between the Canadian and American programs, sufficient progress was made in the early 1990s for many agencies to justify establishing seed orchards.

On the coast, from 1990 to 1996, Canadian Forest Products, Pacific Forest Products (later acquired by Western Forest Products), Timberwest and the then Ministry of Forests all established white pine seed orchards to meet the seedling demand for this species. The four seed orchards had 2,055 seed producing trees from 262 parents (with some from the US breeding program at Dorena, Oregon) on 5.73 hectares and were sized to meet the entire coastal white pine seedling need, estimated to be around 1.5 million seedlings annually. Since 1996, these orchards have produced enough seed for over six million seedlings of which 1.7 million have been planted.

In the 1990s, the white pine seed was much anticipated due to the species' natural resistance to laminated root rot. This resistance meant that white pine could be a substitute species for Douglas-fir in those infected areas. Today, coastal demand is estimated to be around 600,000 seedlings per year though recent years' sowings have been less than that. This can most likely be attributed to the recent economic situation, harvesting locations and reforestation practices.

In the Interior, only the Ministry of Forests established white pine seed orchards—a 650 tree orchard at the Skimikin site with material from the Moscow Idaho Breed Arboretum in 1980-81, a 2,388 tree orchard in 1994 at the Bailey Road Seed Orchard site and, in 2008, a 900 tree orchard also at Skimikin to start replacing the 1980 orchard. The two older orchards have produced enough seed for 8.4 million seedlings with over five million already planted to date, and annual demand for the Kootenay/Quesnel seed planning unit is estimated to be 1.5 million seedlings.

Surplus white pine seedlots are listed in the Ministry's Seed Planning and Registry (SPAR) system with a genetic worth rating for resistance and not volume growth. A genetic worth rating is developed by testing individual parent trees against average trees from natural stands to determine a breeding value. A weighted average collection of breeding values from parents in a seed orchard that contribute to a seedlot constitutes that seedlot's genetic worth—which is thus a measure of the genetic quality of that seedlot for a specific trait, such as growth or blister rush resistance, relative to natural populations from the same seed planning zone. A seedlot with a genetic worth for volume growth of 20 essentially means that those trees will have 20% more volume at rotation age than a natural wild stand at that age.

Current seedlots are registered with either an R (resistance) value or MGR (major gene resistance) value which is determined by which parents produce the seedlot. The difference between these two registrations is that the R value seedlots will not have as much of the MGR resistance mechanism in it as compared to a MGR seedlot which is produced specifically with that resistance mechanism. Research scientists have determined that multiple mechanisms contribute to blister rust resistance—such as major gene resistance (MGR), slow canker growth (SCG) and age related resistance (ARR). Seed orchards contain many different parents that may individually have one or more of these resistance mechanisms in them.

Research scientists estimate that the current resistance value of seed coming from our seed orchards is 75%—meaning that 75% of the seedlings grown will survive the blister rust through to rotation age. In comparison plantations, wild stand seedlings generally have 100% mortality by age 10. Thus, tree improvement efforts are successfully re-establishing this wonderful tree species back into our forests.

David Reid, RPF, is manager of seed production in the Tree Improvement Branch of the Ministry of Forests, Lands and Natural Resource Operations. He graduated from the University of British Columbia in 1975 with a bachelor of science in forestry. He then went to work for BC Forest Products Ltd. in their tree improvement and divisional operational programs before joining the Ministry of Forests in 1991 as the coast seed production officer and became the manager of seed production in 1997. He is also a graduate of the Silviculture Institute of BC.

Photos: David Reid, RPF

THE SEED GROWING PROCESS

In the seed growing process, seed orchard staff manages the pollen—the male component that goes into making the seed. By carefully selecting a mix of pollen parents, the ripening pollen buds are collected before they shed their pollen. They are dried in a pollen extraction facility and then the pollen is extracted from the buds and mixed into the pre-designed pollen lots. These lots can either be stored in a freezer or carefully applied to the female flowers two or three times during their short receptive period in year one of their two year reproductive process. As each cone can produce up to 100 seeds, this process also maximizes the seed yield from each cone by ensuring that there is sufficient pollen getting into each ovule. Thus, by managing the pollen, separate seedlots may be collected from one seed orchard depending on its parental constitution. As our research scientists identify new parents, through the screening of new crosses made in a breeding program, these trees are added to our orchards and start contributing seed within three or four years of being planted into the orchard.

Above:
Staff pollinating white pine at the Saanich Seed Orchard.

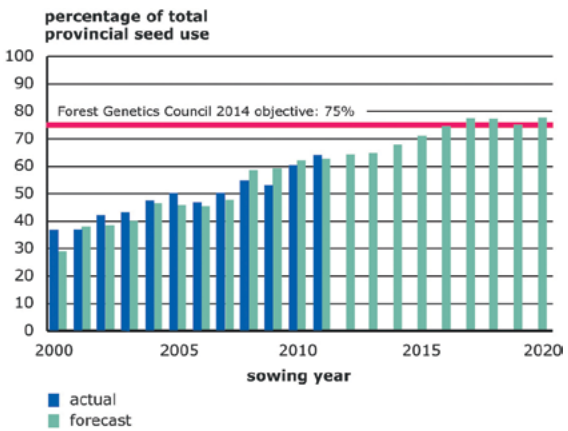
Left:
Trees grown from blister rust resistant seed have a 75% chance at surviving blister rust through to rotation age.

Forest Genetics and Tree Improvement in BC: **Past, Present and Future**

Photo: J. Woods

Viewpoints

By Jack Woods, RPF



Inset Image: *Dr. Alan Orr-Ewing, photographed here at the Cowichan Lake Research Station on southern Vancouver Island (circa 1960), began forest genetics research in BC in the mid-fifties and is considered to be the father of forest genetics in BC. Photo archives, BC Ministry of Forests, Lands and Natural Resource.*

Graph: *Historic and forecast seed use from select seed sources (orchard and superior provenance). Orchard seed is produced in about 100 orchards provincially, representing 10 species and 41 seed planning units. Source: Forest Genetics Council of BC Annual Report for 2010/2011.*

Main Image: *Harvesting lodgepole pine cones for use in the Thompson Okanagan area from a seed orchard operated by Pacific Regeneration Technologies Ltd. in partnership with FGC-owned SelectSeed Ltd.*

Some 55 years of stakeholder cooperation and work by capable people has set the foundation for British Columbia's world-class tree improvement and forest genetic resource management (GRM) program. Key to this success is a large Crown land base that underlies consistent leadership and financial support from the BC Forest Service (BCFS)[1]. While tree improvement programs in some parts of the world more aggressively pursue higher value through genetic selection, none have been as successful as BC at fully integrating tree improvement with genetic conservation, climate-based seed transfer, and an enduring cooperative and business-oriented approach.

Like many other forestry activities, tree improvement takes many years to yield benefits. In BC, forest-genetics research began modestly in the 1950s at the Cowichan Lake Research Station on Vancouver Island. A Scotsman, renowned for both his escape attempts as a prisoner-of-war and his boxing skills, found employment as a scientist with the BCFS and began research on the genetics of Douglas-fir. Dr. Alan Orr-Ewing soon captured the interest of local forest professionals who enthusiastically participated in plus-tree selection and the development of seed orchards. While early efforts focused on Douglas-fir, the program grew in the sixties and seventies to include other species and extensive research on provenance variation in several native tree species. Noteworthy was the establishment of the well-known lodgepole pine provenance trials by Keith Illingworth in the seventies; the largest conifer genecology field trial in the world.

Interior tree improvement programs for spruce and lodgepole pine started in Prince George in the late sixties. This work was moved to Vernon in 1976 with the development of the Kalamalka Forestry Center just south of Vernon and many are now familiar with the breeding arboreta and seed orchards visible from Highway 97. The north Okanagan is well suited to conifer flowering and seed production and the new location allowed Interior tree improvement programs to progress quickly. Accompanying this move to Vernon was the development of other seed orchard complexes in the north Okanagan area, including the large Vernon Seed Orchard Company site that is jointly owned by several forest companies.

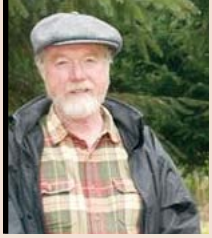
From the early stages of development to the present, GRM activities were planned and coordinated by various cooperative organizations, including the Plus Tree Board, Coast and Interior Tree Improvement Councils, and now the Forest Genetics Council of BC (FGC). The FGC draws membership from the BCFS, licensees, academia and the Canadian Forest Service. In addition to providing strategic planning, business development and policy advice to the provincial Chief Forester, the FGC coordinates stakeholder activities for the efficient delivery of a province-wide GRM program.

A wide range of public funding mechanisms have supported GRM over the years, including, funding through Section 88 of the *Forest Act*, Forest Renewal BC, and more recently the Land Base Investment Strategy. Provincial funding is now directed primarily at tree breeding, technical development, and enhancing the capacity and genetic quality of seed orchards in support of provincial seed use and timber supply objectives. Private and BCFS-owned seed orchards are, however, operated as businesses, with seed-sale revenue covering most costs.

See **Page 25** for **Forest Genetics**

Jack Woods Photo: Sally Aitken

By John N. King, RPF(Ret);
René I. Alfaro, PhD



It is Time to Plant Sitka Spruce Again:

A Successful Outcome to Two Decades of Selection, Breeding and Research into Weevil Resistance.

Sitka spruce has been an important component of the coastal rainforest. Besides its timber value, Sitka spruce is a key aesthetic element of the tall timber forests and the biodiversity of our coastal rainforests. Valued for its strong but light wood it was important during WWII for early aircraft manufacture, such as the de Havilland Mosquito bomber, and the wood is still highly prized for guitars and pianos.

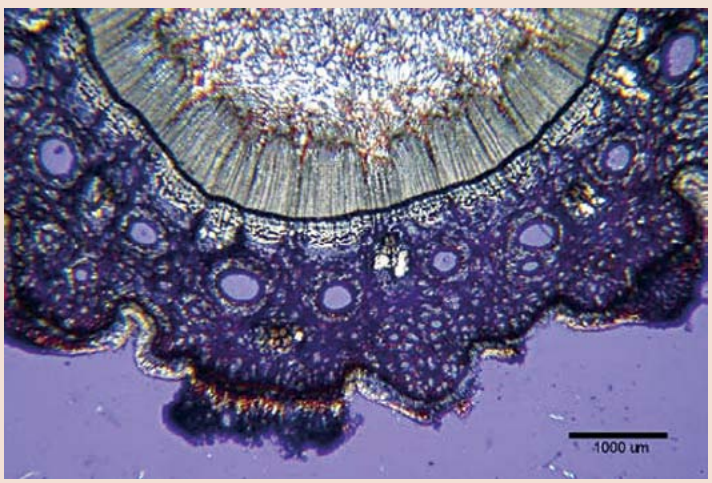
Despite this economic, historical and cultural importance, Sitka spruce has not been a favored species for reforestation where it naturally occurs because of its susceptibility to damage by the white pine or terminal weevil. Although this insect does not directly kill the tree, repeated killing of the leader by the developing larvae prevents upward growth. In severe infestations, attacked trees attain only a shrubby form and the plantation can fail.

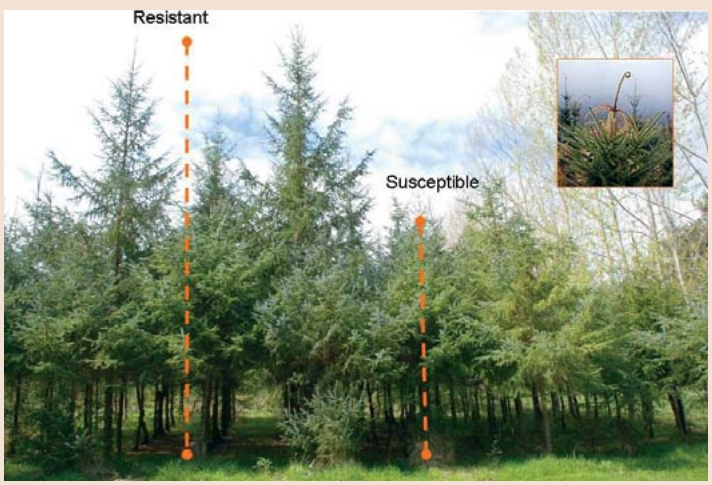
Historical silvicultural control techniques such as spacing, shading, clipping, insecticide use, or biological control do help reduce damage, but have not proven practical. As a result, Sitka spruce plantings in BC have been reduced from a historic level of 10 million to fewer than one million trees annually. Planting has been limited mainly to Haida Gwaii, where there are no weevils, and to some low hazard areas on the mainland and Vancouver Island. Natural defences to this insect pest were discovered in early IUFRO (International Union of Forest Research Organizations) provenance trials and led to the development of a highly successful selective breeding program and a research effort to discover the basis of this weevil resistance. Two important features implicated in this genetic resistance are resin canal cells and sclereid or lignified stone cells.

Both these factors hinder the developing larvae and make trees having these features much less attractive to colonize. These and other resistant factors are now being delivered in the weevil-resistant seed orchards. This has supplanted many of the older and less effective silviculture controls and is now seen as the key to successfully re-introducing this valuable component of our coastal rainforests.

An ongoing breeding program is continuing through the establishment of a new generation of trials. Much of the effort in the future will likely be devoted to finding additional resistant genotypes, understanding the nature of this genetic resistance and better defining weevil hazard regions, in order to adjust deployment guidelines.

See **Sitka** continued on Page **29**





Top Down:
High Density Sclereids, Sample 1229-4, 120µm section

Low Density Sclereids, Sample 1217-2, 120µm section
These are cross-sectional areas of shoots with contrasting intensities of sclereid cells. Sclereids are lignified cells sometimes called stone cells (similar to the grainy cells found when eating pears). Sclereids along with other mechanisms, such as resin producing cells, hinder the developing larvae and are implicated as factors in genetic resistance to weevil.

The impact weevil resistance has on growth is very significant.

By Guy Burdikin, RPF

The Need for Seed:
Putting Improved Seed Policy into Practice

I first encountered genetically improved seed in 1990. The spruce seedlings from Class A type seed were planted at our Quesnel Lake operation and I have been fortunate to see the resulting growth over the last 20 years. Since that introduction, this topic has been a favourite of mine.

In the wake of the mountain pine beetle infestation, silviculture foresters have seen an alarming lack of natural regeneration due to a lack of new cone growth as stands age. The existing cones were losing their seed before harvest which caused our regeneration risk and costs to increase. Also, the higher planting levels required as a result of mountain pine beetle created a greater need for seed.

With some exceptions, the majority of our timber supply area had no lodgepole pine Class A coverage or seed planning zone due to our previous reliance on natural management. Three strategies used to respond to the lack of natural regeneration were as follows:

- to manage for germinants where they presented themselves by protection through harvest;
- to manually treat mistletoe, a vegetative parasite that creates a form issue; and
- to reserve immature green uninfected lodgepole pine stems wherever possible for future seed source potential.

A fourth strategy was to create our own seed source. As a collective of forest professionals, we requested funding from the province's incremental programs. With an approved plan by the Tree Improvement Branch's tree breeder, we proceeded with construction of a test project.

The first step to creating our own seed zone required a test system of scion collection from younger age classes (green) across the B class Big Bar and Chilcotin seed planning zones. To do this we followed the direction of Michael Carlson, RPF(Ret), then a tree breeder for the government's Tree Improvement Branch. We collected 200 plus local sources and established six test sites that represented a geographic approximation of the seed planning zones and BECs (biogeoclimatic ecosystem classifications) contained within them.

The 200 local sources were established in 2002 and tested against A class sources from surrounding seed planning zones. The timeline is ten years plus from establishment so the seed test should be ready by this year or next. The results of this new seed test would be the potential amalgamation of Prince George/Thompson Okanagan A class into Big Bar or Chilcotin B class seed planning zones. This would mean our own improved seed source from families that would represent the local approximation and provide for the lack of natural regeneration.

A fifth strategy explored was the ability to pick from immature stands of lodgepole pine—especially in B plus tested provenance sites. The Tree Improvement Branch provided the Mackenzie, Quesnel and Williams Lake timber supply areas with immature age class maps. These maps have an interactive feature that allows you to identify mortality, existing seedlots and age class. They also provide landscape level information that allows for field identification.

After taking what information we could from the maps, we began field analysis to determine serotiny—not an easy task as 20% of most pine is non-serotinous. The female buds must be identified a season before to ensure cone production will happen. Tree breeders have indicated 20-year-old trees are a good starting point. However, the trees themselves should not exceed five metres tall otherwise picking the cones becomes challenging. This year we have a site near Oie Lake, north of Forest Grove, identified. We know the female buds were there last fall and we plan to pick this summer.

A sixth strategy we investigated was a seed transfer. We wanted to use of Thompson Okanagan seed planning zone seed in high elevation sites.

Our investigation using ClimateBC modelling indicated elevation bands where Thompson Okanagan arid/Thompson Okanagan dry seed planning zones B class pine had similar conditions to climates in Big Bar/Chilcotin seed planning zones in elevation bands—1,400 m elevation in Thompson Okanagan arid/dry is climatically similar to 1,700 m elevation in Big Bar.

The Need for Seed

What Should We Do?

- Pick whatever you can find.
- Mix plant species wherever possible to extend your seed inventories.
- Utilize in-block reserves for seeding potential.
- Manage for residuals, again for seeding.
- Persuade forest managers to allow for total densities as opposed to well-spaced only.
- Manage for forest productivity as opposed to timber supply review assumptions.
- Promote diversity and flexibility under FRPA, as originally promised.
- Practice adaptive management and be prepared to change or improve.

What's Happening?

- Exploring direct seeding on a trial basis.
- Sanitizing for residual managements.
- Harvesting in a systematic manner to preserve existing understory stocking.
- Utilizing amendments to stocking standards to capture the patchy stocking nature of lodge pole pine on the drier BECs (biogeoclimatic ecosystem classifications).
- Looking to superior provenances for picking pine and cone harvesting on immature stands.
- Using other species, such as larch, to replace lodgepole pine.

Further Information:

- The higher elevation sites are turning upwards in green stem percentages of mountain pine beetle mortality which is helpful in a cone supply environment.
- Availability of layer four pine residuals is increasing not in every case but worthy of consideration.

See **Seed** continued on Page **25**

By John Russell, PhD, RPF

Trees That Aren't Tasty:

A New Silvicultural Tool for Minimizing Deer Browse Damage to Western Redcedar

Deer and elk browsing on newly planted western redcedar seedlings can kill the seedling or delay growth. Protecting seedlings using individual tree guards can cost up to $8 a tree to reach free growing. Over $20 million is spent annually in British Columbia in protecting western redcedar from ungulate damage.

Separate from these costs, there are also indirect costs incurred by licensees who avoid planting western redcedar. These costs include maladapted or inappropriate species selection and reduced future manufacturing opportunities.

At Cowichan Lake Research Station (CLRS), we have set out to breed a western redcedar that deer don't like to eat. We've done this through selective breeding for elevated monoterpene concentrations in young seedlings. Monoterpenes are one class of plant secondary metabolites, the chemicals associated with defense against herbivores and pathogens.

From an animal's perspective, plants contain both beneficial and harmful secondary metabolites that impact the taste of the plant. By comparing the flavour of foods with the consequences of eating them, animals learn to prefer beneficial plants and to limit intake of harmful ones. Think back to your first experience with tequila and what you learned to avoid as a result.

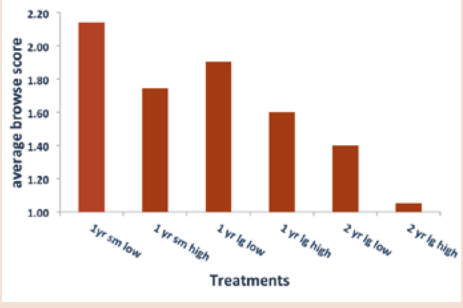
Monoterpenes are regularly encountered by deer and have been shown to influence deer preference. They are ubiquitous and abundant in conifer needles. They also vary considerably among species, populations and individual trees within a population and are under strong genetic control. Heritibilities, the proportion of observable differences between individuals that is due to genetic differences as opposed to environmental influences, is high for monoterpenes—around 50% (compare this to 15% for growth). This means that we have a lot of genetic differences to work with in a selective breeding program.

Planting seedlings that are high in needle monoterpenes alone may not ensure that seedlings will be adequately protected from browse. As mentioned earlier, plants contain both beneficial and harmful secondary metabolites. If high monoterpene seedlings are the only available food source, deer will still eat them and try to find a balance between energy input and cost of detoxification. Deer need to be given a choice. One way to do this it to plant preferred sacrificial seedlings in mixtures with the not-preferred seedlings.

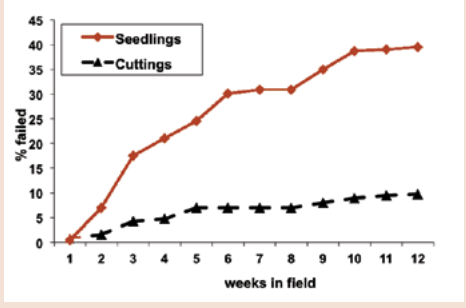
Research has also shown that we have other silvicultural tools available to protect plants from deer browse. Older seedlings are more protected than younger seedlings due to a combination of higher monoterpene concentrations and less juvenile foliage. Cuttings that are taken from older plants and subsequently rooted, have higher foliage monoterpenes and more mature foliage as well. In two separate trials, deer preferred 1+0 (container) seedlings to older seedlings and rooted cuttings.

We are currently producing limited seed from selected parents as well as bulking-up vegetative material for rooted cuttings. This material will be used for trials on the coast in cooperation with the forest industry starting in this past spring. Operational plantings will have mixtures of trees with varying levels of palatability as a result of genetic selection for monoterpenes, different seedling ages, nutritional quality and stocktypes including seedlings and rooted cuttings. The goal is to use different silvicultural tools to develop seedlots with varying degrees of resistance tailored for sites with varying deer pressure.

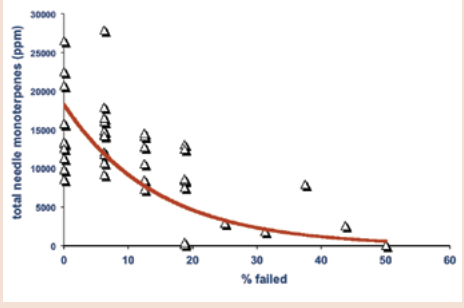
As we change the genetic makeup of our populations, it is important to understand the impact on other important economic and adaptability traits. For instance, current evidence indicates that foliar monoterpenes have a small positive correlation with growth. This means that deer resistant populations should grow, on average, similar to wildstand seedlots.



Deer prefer younger, smaller stocktypes with lower terpenes compared to older, larger and higher terpene seedlings with less needle terpenes



Deer prefer western redcedar seedlings compared to rooted cuttings



Deer prefer western redcedar trees with less needle terpenes

John Russell, PhD, RPF, obtained his bachelors of science in forestry from University of Toronto and graduate degrees from University of California at Berkeley and University of British Columbia. He has worked as a research scientist at Cowichan Lake Research Station for over 26 years.

Interest

By Randy Terise, RPF

Make a Pledge: Bullying Stops Now!

The ABCFP has received a number of complaints recently that include allegations of members being bullied and/or harassed by other members. The allegations describe actions in the workplace such as: yelling, betraying confidences, inappropriate dissemination of information, spreading rumours, spying, public humiliation, interference, swearing, intimidation, criticizing professionals behind their backs, threatening to make a complaint to the ABCFP, telling others not to document decisions and collusion.

It is of great concern to the profession that members feel other members are not treating them with the respect implied and expected under our bylaws and required under our standards of professional practice. We believe that members engaged in the bullying and harassment of other members are not acting with professional integrity and are negatively impacting the public's perception and reputation of the entire profession.

While the Code of Ethics does not specifically address harassment or bullying and breaches of privacy, there is a general expectation that professionals will treat each other with respect and integrity. Bylaw 12, the Standards of Professional Practice, requires members to conduct themselves honourably and in ways which sustain and enhance their professional integrity and the integrity of the profession as a whole. The *Foresters Act* provides the ABCFP with powers to investigate complaints against members whose actions contravene the Act or our Bylaws.

In the workplace there are many instances of one ABCFP member supervising other members. These relationships can lead to disagreements about various matters. The allegations raised in recent complaints to the ABCFP are primarily related to human resource issues and not to technical and scientific aspects of the practice of professional forestry. However, complaints which are severe or egregious or allege professional misconduct may trigger formal action by the ABCFP where our Bylaws or the *Foresters Act* have been breached.

Complaints involving harassment, discrimination, bullying and breaches of privacy are difficult ones for the association's complaints process to deal with as our complaint process is designed to resolve complaints specifically relating to contraventions under the *Foresters Act* and ABCFP Bylaws. It was not designed to assess human rights or privacy issues. These disagreements, while of serious concern to the parties involved, may or may not involve contravention of the *Foresters Act* or ABCFP Bylaws and therefore may be more properly dealt with through other mechanisms. These mechanisms can include union grievance procedures, the BC Human Rights Tribunal, the office of the ombudsman, the Office of the Information & Privacy Commissioner for BC, WorkSafeBC processes, employer dispute resolution processes, privately arranged mediation and more.

If you are a member who is a supervisor or manager, it is important that you understand your obligations with regards to the treatment of your employees and, in particular, employees who are fellow professionals. Know that bullying, discrimination or harassment are not recognized supervision or management styles. Members should understand their responsibilities under union contracts, the BC Human Rights Code, the *Employment Standards Act*, the *Freedom of Information and Protection of Privacy Act*, WorkSafeBC, and other relevant legislation, regulations and standards, which apply to their workplace. As members become higher level managers, the requirements for knowledge evolve and often include many other acts, regulations and standards in addition to forestry legislation.

Members should understand the difference between interpretation of labour (union) and employment contracts and the practice of professional forestry. Selecting the appropriate process to resolve workplace issues is important in order to ensure a satisfactory outcome. The *Foresters Act*, and our bylaws provide the members with specific direction to lodge complaints regarding the protection of the public interest, the maintenance of good forest stewardship and unprofessional conduct.

Issues of bullying, discrimination and harassment raised in recent complaints have been taken forward to the union involved, to the ombudsman, to the BC Human Rights Tribunal and to WorkSafeBC. It is our opinion that these are the proper authorities to be assessing the concerns that have been raised. Should these actions result in sanctions against an ABCFP member, the ABCFP will then review complaints stemming from these results and determine whether there has been professional misconduct.

Randy Trerise, RPF, joined the association in 2007 and is based in Grand Forks. As the registrar and director of act compliance, Randy oversees the ABCFP's admissions, registration, discipline, enforcement and accreditation activities.

ForesTrust: Supporting Future Forest Professionals

ForesTrust is the ABCFP's registered charity. Through it we create endowments at post-secondary institutions across British Columbia. Forestry students are granted scholarships and bursaries from the income these endowments earn.

How to Support Forestry Students Through ForesTrust

ForesTrust needs your help to continue its tradition of helping fund the education of forestry students. There are several ways you can support forestry students in BC.

Make a Cash Donation

Donations to ForesTrust are tax deductible and can be made by cheque, money order, Visa or MasterCard. It's also possible to contribute a gift in the memory of a colleague or include a charitable bequest in your will.

Donate to the Silent Auction

The host committee holds a silent auction during the ABCFP forestry conference and annual general meeting. Last year this one event raised more than $3,360. The host committee has have just started seeking donations for next year's auction. If you have an item you'd like to donate, contact Heather Cullen, silent auction committee chair, at heather.cullen@gov.bc.ca.

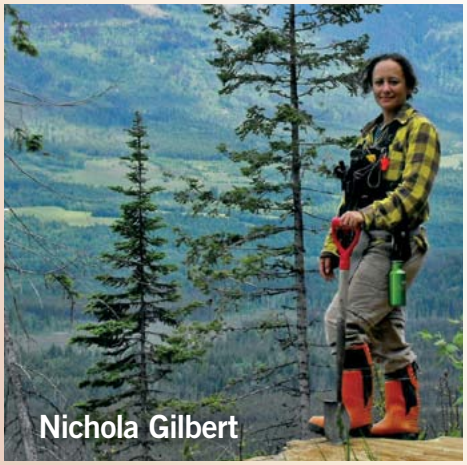
Bid on Silent Auction Items

Many fantastic items will be available for bid and purchase at the annual forestry conference in Prince George on February 20 to 22, 2013.

Estate Planning

Many people decide to designate a portion of their estates to a charitable organization. We encourage ABCFP members to remember ForesTrust in their wills. You can gain great satisfaction from the fact that your bequest will help students gain an education in forestry and become the next generation of forest professionals.

Last year, students won nine awards. We spoke to three of them to bring you their stories



Nichola Gilbert

University of Northern British Columbia

Association of BC Forest Professionals Award – $500

Hometown: Prince George, BC

Forestry is a renewable resource which supports many communities in the region where I grew up. I felt furthering my education would help me understand the most sustainable approaches to managing such a natural resource. Knowledgeable land and resource managers, such as forest professionals, can be key in developing informed and integrated land use management strategies.

My favourite class was reclamation and remediation of disturbed environments. I'm interested in the role forest professionals can have in mitigating environment impact in resource extraction, whether in forestry, oil and gas, or mining. When I graduate, I would like to research, develop and implement remediation strategies of disturbed environments, specializing in ecological restoration.

To anyone who is on the fence about studying forestry, I would say that people are increasingly losing touch with nature. This is a career with which you can be in touch with the land; it keeps you grounded.

When I'm not at work or school, I travel, scuba dive and snowboard. Also, I'm originally from New Zealand and mother's family is from Kaingaroa Forest.

I would like to thank the ABCFP for the $500. I put it towards my tuition.

Vancouver Island University

Association of BC Forest Professionals Award – $250

Hometown: Saltspring Island, BC

I used to be an electrical engineer, something I was not passionate about, and I worked all week just to get outside on the weekends. I wanted something that I was interested in, that would take me outside into the forests and keep me active. That's why I decided to study forestry.

I'm interested in promoting forestry as an environmentally sound, renewable and sustainable industry. There is still room for improvement. However, I really believe that many critics could be won over if only they understood the science behind what we do.

I'm currently working in engineering and would like to continue that for the immediate future. However, I am interested in silviculture. And eventually I would like to get into planning—especially where it pertains to interfacing with urban development.

To anyone who is on the fence about studying forestry, don't let people who are not in forestry or have negative outlooks influence your decision. Talk to forest professionals who are doing what they love and then follow your heart.

When I'm not working or in school, I hike, ski, run triathalon, travel and read. I also like adventure bicycling and motorcycling—last trip I rode my bicycle from BC to Peru. I'd like to thank the ABCFP for supporting my education. I put my bursary toward paying down my tuition and student debt.

Kurtis Buyze

Cody Turner

Thompson Rivers University

Association of BC Forest Professionals Award – $1,000

Hometown: Pritchard, BC

Growing up as the fourth generation on the family ranch, I always spent a lot of time outside. My parents also have a woodlot and small mill that ran with the ranch, diversifying the operation. This made integrated resource management important to me. The livelihood of my family is tied to proper management of the woodlot and the ranch. Unfortunately, the woodlot burnt in 2009. But proper management is still important.

I don't have a particular aspect of forestry that's my favourite. They're all interesting and important to know about. I always enjoy being outdoors though. Right now, I am working for Atlas Information Management in Kamloops doing forest development. My goal is to get a job that allows me to work on the ranch as well as practise professional forestry as an RPF.

To anyone who is on the fence about studying forest, it is a great discipline to be in as you get to work outdoors and learn about many different aspects about forests and forestry.

When I'm not at school or work, I'm working on the family ranch in Pritchard. I will be applying to the association this summer to work towards RPF status.

Finally, I would like to thank the ABCFP for their support of my education, it is greatly appreciated. I put the $1000 towards my tuition.

OTHER FORESTRUST AWARD WINNERS

Jesse Seniunas
College of New Caledonia
ABCFP Natural Resources Studies Scholarship - $1,000

Frank Brassard
Selkirk College
ABCFP Scholarship - $880

Charmaine Liu
University of British Columbia
ABCFP Scholarship in Forestry - $1,500

Collin Middleton
University of British Columbia
ABCFP Graduating Prize in Forestry - $300

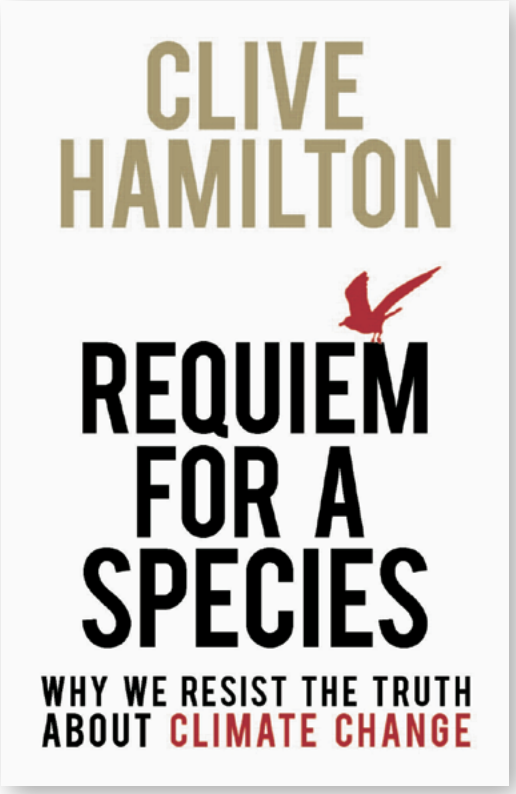
Britney Grunerud
University of Northern British Columbia
ABCFP Award for Excellence - $1,000

Ian Girard
University of Northern British Columbia
ABCFP Bursaries - $500

By Suzanne Simard, PhD, RPF

Requiem for a Species:

Why We Resist the Truth about Climate Change



By Clive Hamilton
Publisher: Earthscan (2010)
286 pages
ISBN: 978-1-84971-081-7 (hbk.) / 978-1-84407-766-3 (pbk.)

My concerns about global warming deepened on reading *Requiem for a Species: Why We Resist the Truth about Climate Change* by Clive Hamilton. Hamilton's Requiem explains the unambiguous evidence from top climate scientists that we are hurtling into a dramatically altered future as a result of human-caused global warming.

The book's main goal is to unveil the root causes of why we have denied, ignored and failed to act, and why it is now too late to avoid catastrophic warming. This is no excuse to do nothing. Hamilton argues we are obliged to cut emissions quickly and deeply to slow the rate of change, allowing us time to prepare for the future and reduce suffering.

Hamilton explains climate change scepticism as cognitive dissonance, the uncomfortable feeling we get when beliefs are contradicted by evidence. If humans were rational, the overwhelming scientific evidence for global warming would compel deniers to adjust beliefs to accommodate facts. Instead, many proselytise about the disastrous economic consequences of cutting emissions.

Hamilton traces the roots of denial to North American conservatism that views environmentalism as a threat to sovereignty, privilege, economic growth and man's mastery over nature. Leading the attack on climate science is the fossil fuel lobby, which has obfuscated understanding by reinforcing the very ideologies it helped create. The public has responded through emotions (fear or anxiety over job loss or higher taxes) rather than cognitive reasoning over future danger.

The fearful emotions are expressed in many forms of denial, including: distraction (shifting attention to something less upsetting), minimizing (rationalizing that scientists are exaggerating, or will rescue us through technology), distancing (it's a long way off so we can delay action), pleasure-seeking (let's party!), and blame-shifting. Only once we face up to global warming can we make realistic plans to reduce emissions, delay warming and build adaptive coping mechanisms.

Hamilton then goes on to argue that promotion of futuristic 'capture ready' or 'planetary environment manipulation' geo-engineering technologies only delays effective responses. Instead, immediate and dramatic reduction of emissions can be achieved at reasonable cost through increased energy efficiency, renewable energy (solar, wind, tidal) and, in the medium term, use of low carbon energy like natural gas (or nuclear power). In a straightforward manner, he carefully addresses arguments made against renewable energy and provides directions for positive actions.

Finally, he examines the psychology of facing a future of runaway climate change, where we recognize our "strange obsessions, hubris, and penchant for avoiding the facts" and confront the greed, materialism, alienation from nature and the very laws "that protect those who continue to pollute the atmosphere in a way that threatens our survival." He illustrates three stages: despair, acceptance and action. It is "only by acting, and acting ethically, can we redeem our humanity."

This book succeeds in revealing why we have ignored the scientific warnings of climate change. Hamilton analyses the science and underlying reasons for global warming with an appropriate blend of dispassion and compassion. I realized I am not prepared for what lies ahead. However, I have sharpened my focus on what is most important for the forestry profession, my students and my children. I invite you to read this remarkable book, look carefully at the evidence, and make your own plan.

RANKING: 4 OUT OF 5 CONES

Further Reading on Climate Change

IPCC, Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Core Writing Team, R.K. Pachauri, A. Reisinger, (Eds.), IPCC, Geneva, Switzerland, 2007, 104 pp.

Copenhagen Accord. 2009 FCCC/CP/2009/L.7. Copenhagen, Denmark: United Nations Climate Change Conference.

Hare, W.L., Cramer, W., Schaeffer, M., Battaglini, A., and Jaeger, C.C. 2011. Climate hotspots: key vulnerable regions, climate change and limits to warming. Reg Environ Change 11: 1-13.

Anderson, K., and Bows, A. 2008. Reframing the climate change challenge in light of post-2000 emission trends. Phil. Trans. Roy. Soc. 366, 3863-3882.

Anderson, K., and Bows, A. 2011. Beyond 'dangerous' climate change: emission scenarios for a new world. Phil. Trans. Roy. Soc. 369, 20–44.

Shakhova. N., Semiletov, I., Salyuk, A.,Yusupov, V., Kosmach, D., Gustafsson, Ö. 2010. Extensive methane venting to the atmosphere from sediments of the East Siberian Arctic Shelf. Science 327: 1246-1250.

Olivier, J.G.J., Janssens-Maenhout, G., Peters, J.A.H.W., and Wilson, J. 2011. Long-term trend in global CO2 emissions. 2011 report. PBL Netherlands Environmental Assessment Agency, The Hague, 2011; European Union, 2011 PBL publication number 500253004

Forest Genetics continued from Page 17

In addition to about 100 seed orchards across 15 sites, BC now benefits from a sophisticated forest genetics research program, a world-class provincial tree seed center, extensive genetic conservation cataloguing, and comprehensive seed use policies and systems that track seed from its point of origin to its planting site. Of the 240 or so million seedlings planted annually in BC, 62% are grown from select seed (orchard and superior provenance). It is noteworthy that genetically modified trees are not planted or being developed for operational use in BC and none of the 240 million trees planted annually have gone through any type of genetic modification.

Despite the program's successes, many challenges remain. Climate change is a looming threat that requires new research and tools to match seed sources with the future climatic conditions of planting sites. The assisted migration of both species and seed sources is a proactive management option that has the potential to mitigate expected losses to forest health and productivity. Staff succession, and adjusting seed orchards and seed supply to meet needs with climate-based seed zones are looming issues. In addition, reduced provincial support for applied forest research is slowing the advancement of knowledge and tools in areas relevant to forest genetics, such as growth and yield modelling and ecosystem mapping. However, good field-based science working in combination with sophisticated tools such as the ClimateBC model[2], along with a cooperative approach, put BC in a strong position to respond to these challenges.

Jack Woods, RPF, is program manager for the Forest Genetics Council of BC and CEO of Council-owned SelectSeed Ltd. He has worked in forest genetics and tree improvement in BC since 1982, first as a scientist with the BCFS and more recently with the Forest Genetics Council of BC.

[1] Currently the Ministry of Forests Lands and Natural Resource Operations.

[2] ClimateBC and ClimateWNA were developed at UBC (Wang et al. Wang, T., A. Hamann, D. Spittlehouse and S.N. Aitken. 2006. Development of scale-free climate data for western Canada for use in resource management. International Journal of Climatology 26: 383-397) and continue to be supported financially through the FGC. http://www.genetics.forestry.ubc.ca/cfcg/climate-models.html

Seed continued from Page 19

The use of this methodology allowed for a variation under the Chief Forester's seed planning guidelines and as such applies to the 100 Mile House and Williams Lake timber supply areas.

With regards to improved seed use and different species, the Tree Improvement Branch is embarking on a climate-based seed transfer system soon. However, there is information available now for preliminary climate based decisions on future impacts.

In summary, policy can be amended or manipulated for local consideration by information and a level of risk mitigation, allowing forest managers greater flexibility to practise for the unknowns ahead. All the strategies described above are examples of this flexibilty, you just have to do it.

Guy Burdikin, RPF, graduated from the College of New Caledonia in 1977 and from the ABCFP forestry pupil program in 1990. He worked for the BC Forest Service and the then Ministry of Forests from 1977 to 1988 in Tatla Lake and Horsefly Districts and the Cariboo Forest Region. Beginning in 1988, Guy worked in West Fraser's Williams Lake division as an area supervisor, then a silviculture forester and now as a silviculture supervisor.

Discipline Case Update

Discipline Case: 2011-04
Subject Member: Mark Boucher, RFT, and Darren Forbes, RFT
Referred to: Arbitration Panel
Date of Decision: January 2012
Type: Decision by an Arbitration Panel of the Discipline Committee

This is an abridge version. To read Discipline Case Digest 2011-04 in its entirety, please visit our website (www.abcfp.ca) and click on: Regulating the Profession, Complaints & Discipline, Discipline Case Digests.

The Complaint

This complaint was made regarding the conduct of Mark Boucher, RFT, and Darren Forbes, RFT, (Subject Members), owners of Oak Tree Forestry Services, by a client of these members. In an Agreed Statement of Facts developed by the Association of British Columbia Forest Professionals Registrar, the Subject Members admitted to purposely moving cruise plots. The Subject Members stated that they did this to, "meet the required standard error with fewer plots to complete work faster and meet deadlines."

Their actions caused the timber cruise results to be unreliable. As a consequence the client's business goals and schedules were compromised, consequently increasing unnecessary risk for timber harvesters. Additionally, the derivation of timber values and the related stumpage calculations, based on submission of potentially biased cruise information, undermines assurance that publicly harvested timber is correctly priced.

Discussion and Considerations

In the written submission by the Registrar, the ABCFP contended that the Subject Members engaged in conduct unbecoming of a member as defined in the *Foresters Act*, where improper conduct is defined as that which:

a) Brings or may bring the association or its members into disrepute;
b) Undermines the scientific methods and principles that are the foundation of the practice of professional forestry; or
c) Undermines the principles of stewardship that are the foundation of the practice of professional forestry.

The panel concurs with the ABCFP position, that both (a) and (b) above are relevant to this case. The panel determined that paragraph (c) was not applicable in this case.

Further, in its submission, the ABCFP stated that it believes the Subject Members breached the following bylaws:

11.4.1 To inspire confidence in the profession by maintaining high standards in conduct and daily work; and,
11.4.4 Not to misrepresent facts, and,
12.2.2 Competent members ensure that their work is complete, correct and clear.

In the panel's opinion, when the Subject Members decided to move cruise plots, they were focused exclusively on their own company's desire to complete the work expeditiously. They did not turn their mind to the needs of the others who subsequently would have relied on precise timber cruise information.

Additionally, forest professionals who may have bid for the same work, and who intended to adhere to the requisites of the Cruise Manual, could have been cheated out of a contract opportunity as a consequence of the Subject Members' actions.

If all forest professionals involved in timber cruising approached their work with similar self-centred expediency, ignoring the existence of well-understood, published standards, the timber cruising process would generally be seen as an unreliable way to estimate timber volumes and values. The panel and the ABCFP intend for this decision to clarify the necessary baseline for conduct of RPFs, RFTs, and Associate Members, should they undertake timber cruising work.

Importantly, the panel noted that the Subject Members were contrite once they were alerted to client's concerns. Correspondence provided to the ABCFP by the client and information provided by the Subject Members during the hearing process suggests that the Subject Members did what they could to correct the work after the fact. Rather than denying the misconduct, the Subject Members attempted to mend fences with the client. They also treated the hearing process with respect and did their best to aid the process by providing constructive comments.

Further, the Subject Members' written submission reflects genuine concern the client whom they recognize they had failed, as well as for themselves, and the future of their company. The fact that the Subject Members did additional work for the client and participated in meetings with the client on the matter to help resolve the issue indicates to us that they have a future in this work and have learned from this serious matter.

The Decision

The following remedies were imposed by the panel:

a) A letter of apology must be written and submitted to the ABCFP within a month of the decision of the arbitration panel.
b) The ABCFP will place a letter of reprimand on their files.
c) The ABCFP will publish their names in a discipline case digest that will be posted on the ABCFP website and notification in the **BC Forest Professional** magazine.
d) They must apply for certification as accredited timber cruisers within a month of release of the decision of the arbitration panel. The ABCPF will monitor their application with the expectation that they must become Accredited Timber Cruisers (ATCs) forthwith and maintain that certification.
e) They must attend an ABCFP seminar on Professional Ethics and Obligations in the spring of 2012.
f) They will be subject to a Practice Review of their practices. The date for this review will be at the pleasure of the ABCFP.
g) They will be required to pay to the ABCFP a fine of $5,000 each.
h) The ABCFP may suspend or cancel the member's registration if there is any failure to achieve the requirements above, or if the ABCFP's practice review finds significant concerns regarding their practice.

Membership Statistics

ABCFP—April 2012

NEW RPF

Ivan Erik Andersen, RPF
Karen Eileen Baleshta, RPF
Wolfgang Erwin Beck, RPF
David Beleznay, RPF
Colin Earle Chisholm, RPF
Samuel Bailey Coggins, RPF
Sheila January Crombie, RPF
Matthew Evan Donovan, RPF
Gary Alexander Fetterley, RPF
Wesley Warren Fietz, RPF
Alexander White Shaw Forrester, RPF
Colin Anthony Germsheid, RPF
Lisa Marie Gibbons, RPF
Sebastien Lecours, RPF
Michael Patrick Lee, RPF
Jason Carmen McCleary, RPF
Richard William Mills, RPF
Colin Neiser, RPF
Jason David Northcott, RPF
Marie-Helene Picard, RPF
Jason Mark Rees, RPF
Daniel Eugene Stanyer, RPF
Graham Jonathan Wells, RPF

NEW RFT

Robin Esther Strong, RFT

NEW ENROLLED MEMBERS

Stefan Albrecher, FIT
Todd William Blewett, FIT
Kathlene Jane English, FIT
Barry Tyler Jonat, FIT
Adrian Thomas Edward Morse, TFT
Josefine Ann Qureshi, TFT
Jonathan William Van Barneveld, FIT

REINSTATEMENTS

Catharine Anne Charman, RPF
Cory James Delves, RFT
Greg B. Holfeld, RPF
Alan A. McLeod, RPF
Gerard Messier, RPF
Kevin Frederick Raynes, RFT
Greg Donald Spence, RFT
Jason Thomas Swanson, RPF

DECEASED

Lubor Vaclav Josef Kraus, RFT(Ret)

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

LEAVE OF ABSENCE

Bryan Woodward, FIT

REMOVAL

Cynthia Eleanor Mann

Membership Statistics

ABCFP—May 2012

NEW RFT

Nadia Davina Ramnarine, RFT

NEW ENROLLED MEMBERS

Sarita Beth Burgoon, TFT
Holly Jean Christie, TFT
Eleanor Eileen Dupont, TFT
Steven Alan Generous, TFT
Janelle Mary Aiko Sakamoto, FIT
Robert Harding Van Buskirk, FIT
(resigned as a TFT)

REINSTATEMENTS

Elaine Dobie Bambrick, RPF
Kevin Jock Honeyman, RFT
Janet M. Pritchard, RPF

DECEASED

Irving K. Barber, RPF(RET), Life
G. Vernon Wellburn, RPF(RET), Life

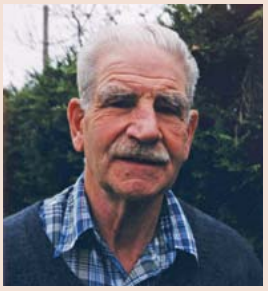
Correction: We incorrectly listed Randall G. Hart under Reinstatements and Resignations in the May/June issue. We apologize for the confusion. Randall Hart is a registered member in good standing with the ABCFP.

In Memorium

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

Gerald Vernon (Vern) Wellburn

RPF(Ret) #222 (Life Member)
1925 - 2012



Vern passed away peacefully after a brief illness. He is survived by his loving family, son Gerry, daughter Kathy, sister, Lois, and his four grandchildren, Kate, Kit, Jenny and Malcolm.

Vern was born in Cumberland, BC and moved to the Cowichan Valley in 1929 where he attended school. He joined the army in 1944. He graduated from UBC in 1948 with degrees in forestry and engineering.

While at UBC Vern met and married Frances Schofield and they lived in various logging camps, including Vancouver Bay, Youbou and Bear Creek where he worked for BC Forest Products.

They later moved to Vancouver and in 1964 he became the vice-president of forestry and logging for the Tahsis Company. In 1972 Vern joined the Faculty of Forestry at UBC as a special lecturer and in 1975 he became the western vice-president of the Forest Engineering Research Institute of Canada until his retirement in 1990.

Vern married Pat Graham in 1992 and they retired to Duncan. They had a wonderful time traveling, going on vintage car tours and walking their two dogs. Vern was predeceased by Pat in April of this year. Vern had a love of forestry and antique cars. He was a strong supporter of the BC Forest Discovery Centre. He served as a director there, as well as for the BC Logger's Association and the Pacific Logging Congress. He was a past president of the Association of BC Forest Professionals. Vern was also a past president and enthusiastic member of the Vintage Car Club of Canada where he made many lifelong friends. Our special thanks to Dr. Roy and Chun Yu An (Molly) who helped make his last days more comfortable.

Submitted by Kathy and Gerry Wellburn, RFT

Richard (Dick) M. Herring

RPF(Ret) #613
1931 - 2012

Richard (Dick) Herring passed away suddenly in his home on April 15, 2012 just two weeks shy of his 81st birthday.

Dick was the son of the late Frederik M. Herring and Constance Herring Harrison. He is survived by his brother Bruce of Newton, Connecticut and cousins in the Pacific Northwest. He also will be remembered by his many friends in Alaska, British Columbia, the US and Australia.

He was a long-time member of the Association of British Columbia Forest Professionals and the Canadian Institute of Forestry.

Dick, graduated from high school in Connecticut and went on to graduate from the University of Michigan School of Forestry. He saw combat service in Korea with the US Marine Corps and the Black Watch.

His professional forestry career spanned the full gamut of logger, forester, senior executive and consultant. He also worked as a prospector. Geographically, his career spanned the globe from the tropics, to the forests of Alaska, British Columbia and the high Arctic. He worked in Alaska for Alaska Pulp, and Canadian Forest Products Ltd. as woodlands manager at Chetwynd in the Interior of British Columbia and as manager of Mainland Logging Division on the coast. After leaving CFP he worked for Stewart Ewing and Associates and as an independent consultant.

Dick was recognized for his appetite for life and his tremendously diverse span of knowledge and interests. He was a keen sailor, hunter, fisherman and shooter. He loved the outdoors and championed the conservation of wildlife and the preservation of the arts and traditions of the First Nations people. He was an accomplished piper and his name will be long remembered in the tune, *The Richard Herring March*. Dick traveled extensively. He was also known for his knowledge and love of good food, fine wine and good scotch whiskey. Dick had the gift of being totally engaged in what he was doing while integrating into it his vast knowledge of other things. He enjoyed working with young people and making them enjoy what they were doing. He gave them help and guidance while at the same time making them realize that there was a great deal more to learn about the topic.

His command of the English languish was awesome and he was told a number of time he had missed his calling—he should have been an English professor at Cambridge or Oxford.

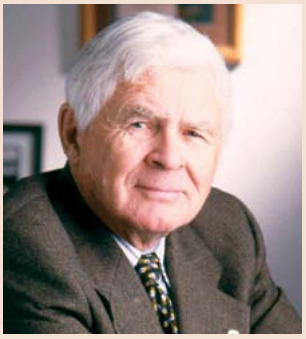
He was a pioneer in the application of remote sensing to forestry using aerial photography and satellite imagery for operational and strategic purposes. He claimed he could predict log markets by studying satellite imagery to see where his competition was operating.

Dick was larger than life in so many ways—he will be missed.

Submitted by Stan Chester, RPF(Ret), and Stirling Angus, RPF

Irving (Ike) K. Barber

RPF(Ret) #176 (Life Member)
1923-2012



The BC forest industry, and the forest profession, lost a great leader in the passing of Ike Barber on April 13, 2012.

Ike was born in Alberta in 1923, and, after service in the Air Force in WWII, he attended UBC and graduated with a BSF in 1950. His first position was as fire warden with M&B Ltd. Soon, he was transferred to the forest department for this company and, eventually, promoted to regional forester.

After a few years, Ike transferred to the logging operations division, serving as manager in four divisions over the next eight years. He was one of the earliest foresters to be promoted to manager of an operating logging division in a major BC company.

In 1970, Ike accepted a position with a new company at Kitimat-Eurocan Pulp Company as vice president of logging and forestry. Then, in 1978, at the age of 55, Ike became the owner of a sawmill and cutting rights in Slocan city in the West Kootenays.

As the owner of this new company, which he called Slocan Forest Products Ltd., Ike purchased many other Interior mills and fibre positions over the next 15 years. In 2000, Slocan was named "The world's #1 forest company because of its performance and growth in previous years" by PricewaterhouseCoopers.

Ike Barber was always concerned about the reputation of the industry in the province and with his customers in many countries. So, in 1994, he financed a table book, titled "The Working Forest of BC" in which before-and-after pictures of logged areas throughout the province were described by practising foresters. The book was given world-wide distribution by forest companies and Canadian embassies.

In 2004, Ike sold his company, and embarked on a career of philanthropy. He created the UBC Learning Centre, The School of Arts and Science at UBC's Okanagan campus, The Endowment for Educational Opportunities at Kwantlen Polytechnic University and the Enhanced Forestry Lab at UNBC.

He held honorary doctorates at UBC, UNBC and Kwantlen Polytechnic University. Ike was named to the Order of BC in 2003.

Ike Barber became a giant in the forest industry, both in the profession, in the industry, and in the philanthropic community. All will miss Ike's dynamic presence and advice. He is survived by his wife, Jean, his three children, nine grandchildren and 17 great-grandchildren.

Submitted by Gerry Burch, RPF(Ret), Life Member and Mike Apsey, RPF(Ret), Life Member.

Sitka continued from Page 18

On-the-ground practice of forestry should be affected by the results of this program. Current guidelines for planting Sitka spruce have been modified across the range of Sitka spruce in BC with current recommendations to plant weevil-resistant orchard seed of Sitka spruce on suitable sites in the coast forest region, including in species admixtures where most of the block will be reforested to spruce. This is in contrast to the older red book rules that listed Sitka spruce as an unacceptable species for reforestation. This message still has not fully filtered through to coastal forest managers and it should be clearly understood that Sitka spruce needs to be revisited as a potential choice for reforestation. This will help increase diversity and bring back this historic species to the forests of British Columbia.

This research has, for the most part, been published, is internationally recognized, and has been used as a textbook example of how an active breeding program can be used against an insect pest in forest trees. Most of this work has been accomplished through the establishment, careful maintenance, and record keeping of well-replicated, long-term experimental plots, and most importantly, through sustained funding from provincial and federal sources. This effort has involved effective and skilled teams from the BC Forest Service (genetics and breeding), the Canadian Forest Service (entomology), and collaboration with the forest industry and universities.

John N. King, RPF(Ret), retired after a 30-year career in forest genetics and tree breeding in Alberta, New Zealand and British Columbia. John worked for the BCFS Research Branch in the resistance breeding program for Sitka spruce and blister rust resistance in white pine.

René I. Alfaro, PhD, is a senior research scientist with the Pacific Forestry Centre in Victoria, BC. He is an internationally recognized forest entomologist and recipient of the Canadian Institute of Forestry Scientific Achievement Award (2001).

A Moment in Forestry

Submit your moment in forestry to Brenda Martin at: **editor@abcfp.ca**

Mom and Three Cubs. Submitted by Joshua Hiebert, RFT, ATC

This photo was taken while engineering on the west coast of Vancouver Island (Artlish River Valley – Tahshish Inlet). Mom and three cubs up a hemlock.

Plant Wizard Software Update

It's here!

Plant Wizard 8 is the most powerful tree planting software yet.

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