Culturally modified trees: A case study for education

Differences in values between industrial forestry and indigenous peoples have immediate practical effects.

Since the early nineties, the Faculty of Forestry has been committed to taking a leadership role in assisting British Columbia through its transition to greater First Nation involvement in the forest sector.

As of July, 2004, we have been really fortunate to have attracted Dr. Ronald Trosper as a new faculty appointment in Aboriginal forestry (see page 2). Ron has taken on the task of revising the content of our core undergraduate course Conservation 370, Perspectives of First Nations and Forest Lands. He plans to incorporate a case study of the management issues raised by a current controversy on Haida Gwaii over the proper management of lands that contain culturally modified trees (those used for harvesting of live tree bark and wood fibre). The case, which involves Haida objections to plans for four cut blocks in the Naden Harbour area, revolves around the meaning of “archaeological site.” Are culturally modified trees (CMTs) themselves the limit of an archaeological site, or is the presence of CMTs a marker for the broader concept of the “forest as a living archaeological site”? How are the harvest techniques applied to forests that have culturally modified trees a model for sustainable forest use? Do these techniques show respect for the forest as a part of caring for it? Why have differences of approach to forest management between the Haida and timber companies come to focus on the presence and protection of culturally modified trees?

The answers to these and related questions provide a doorway to many of the issues the course will address. Although the courts have recognized that issue of Aboriginal title authorizes the Haida to be consulted in some land tenure decisions, the extent and range of intervention remains undefined and subject to controversy.
Separate from issues of Aboriginal title and rights, the issue of protection of forest resources because of their archeological value (in this case cedar that has been modified by the ancestors of the Haida while harvesting bark and fibre) reveals differences of view about the role of the past and its relation to the present.

Approving cutting plans is a core role for local Ministry of Forests officials, and as such represents one on-the-ground activity for which UBC forestry students are training. Because of their status as a First Nation, the Haida have been able to intervene in this fundamental operational activity of professional foresters—a point that serves to focus the attention of operationally-oriented forestry students. The case shows that differences in values between industrial forestry and indigenous peoples have immediate and practical effects.

Both the Ministry of Forests and the Haida have shown interest in having their conflict be a topic of study for UBC students. The case of CMT management within the BC forest development framework provides an opportunity to explore and critique current policies on First Nation Consultation and Accommodation, from government, industry and First Nations perspectives.

Aboriginal techniques of harvesting bark and wood fibre from cedar introduces the topic of indigenous ethnobotanical knowledge and traditional methods of harnessing the ability of the forest to produce a wide range of products useful to society. The result of these harvesting methods was the maintenance of a forest structure that supports and benefits wildlife, fish and other important forest products. The creation of CMTs by Haida and other First Nations people continues today as the resurgence of traditional practices spreads throughout First Nation communities.

For further information or comments on our course revision initiatives, contact Ron Trosper at ron.trosper@ubc.ca or 604-822-8089.

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**Ron Trosper joins the Faculty of Forestry**

“There is tremendous potential for UBC to be a leader in Aboriginal forestry education”.

Dr. Ron Trosper, who founded the Native American Forestry Program at the Northern Arizona University, has joined the UBC Department of Forest Resources Management as an associate professor of Aboriginal forestry. A member of the Salish and Kootenai Tribes of the Flathead Indian Reservation, Montana, Ron offers a distinctive combination of rigorous academic schooling and on-the-ground training and experience. This combination has helped him become an unusually prominent scholar and practical advisor for indigenous economics and policy.

Dr. Trosper has a PhD in economics from Harvard, and has published extensively on Aboriginal natural resource management and economic development. Much of Ron’s recent work has focused on the north-western tribal groups, examining the relationships between sustainability and traditional forms of governance.

In his new appointment at UBC, Ron plans to increase the Faculty’s involvement in community-based research. He describes this type of research as focusing on the difficult question of importance to communities, in addition to involving community members in research activities and utilization of results. He recognizes that First Nations require research protocols that protect their rights in research activities and anticipates that these projects will provide a means for increasing the number of First Nations students with master’s and doctoral degrees.

Ron is a “practical intellectual” who is highly regarded by both academics and the communities he studies and serves. He cites the Faculty of Forestry’s strong graduate program as one of the main reasons for him joining UBC. He wants to see more Aboriginal people pursue advanced degrees so that there is a “permanent presence” of Aboriginal people in academia. As well as revising the content of an undergraduate course in Aboriginal forestry (see article above), Ron will be developing a new graduate level course in First Nations issues. Both of these courses are part of the general increase in First Nations content throughout the Faculty’s forestry curriculum.

Ron Trosper can be reached by email at ron.trosper@ubc.ca, or by phone at 604-822-8089.
Gordon Prest retires from UBC
Pamela Perreault joins the team.

Gordon Prest joined the Faculty of Forestry in 1994 as the first full-time First Nations coordinator within a forestry school in Canada. After a career that began as a forest ranger, his interests led him to Aboriginal education, first as an instructor at the Nicola Valley Institute of Technology and, more recently, as First Nations Coordinator with the Faculty of Forestry at UBC. A member of the Sto:lo Nation, Gordon increased our enrolment of Aboriginal students and ensured that all of our students and staff learned more about First Nations rights, culture and land ethics. Although Gordon retired from UBC in September, his legacy lives on. Prior to 1994, only three Aboriginal students were known to have graduated from the Faculty. Since then, an additional 24 have completed their studies, including several at the masters and doctoral level.

Two years ago, Gordon and Pamela Perreault, a First Nation PhD student, developed the concept of the Faculty’s first forestry summer camp for First Nations youth. This highly successful introduction to forestry and university life for Aboriginal youth was repeated again this year. Pamela has now taken a one year leave from her doctoral studies at UBC to step into the role of First Nations coordinator for the Faculty of Forestry and to help to increase the number of Aboriginal students graduating from our programs.

Pamela, a member of the Garden River First Nation, graduated with a bachelor degree in Biology from the University of Waterloo in 1996. In 2002 she completed an MSc degree from the Faculty of Forestry at UBC. Her research focused on culturally modified tree (CMT) management and BC’s consultation policy with First Nations. As we wish Gordon a well earned retirement, we welcome Pamela to our expanding involvement in First Nations education and research. Pamela will be working closely with Ron Trosper (see article on page 2) in further developing the support system for First Nations students in our Faculty.

Pamela Perreault can be reached at 604-822-0651 or by email at pamela.perreault@ubc.ca.

First Nation UBC graduate lured back to school

Jeremy Boyd, from the Tsilhqot’in (Chilcotin) Nation, is one of three First Nation graduate students in the Faculty of Forestry at UBC. His community of Redstone, approximately 180 km west of Williams Lake, consists of about 200 people whose main livelihood is forestry.

Jeremy’s career goal was to become a Registered Professional Forester. From the beginning, he had the support of his parents and community. Jeremy graduated from UBC with a forest resources management degree in 2002. This accomplishment made him only the second person from Redstone to have obtained a university degree.

Ready for an ambitious forestry career in the real world, Jeremy began full time work with Riverside Forest Products Ltd. in Lumby, BC. He also registered as a forester in training, the first step to becoming a Registered Professional Forester. His advice for future First Nation foresters is to learn how to work with different people and to experience working outside the community.

Jeremy decided to return to UBC Forestry as a graduate student in January of this year. He is working with Dr. George Hoberg on a research project looking at the success of First Nations forestry businesses. He still intends to become a professional forester but now understands that his future career will have to involve First Nations people.

Jeremy was encouraged to study at UBC because of the Faculty’s commitment to First Nations education and research. On the retirement of Gordon Prest, Jeremy had the following comment:

“I would like to take the time to say “sechanalya” for Gordon’s words of wisdom and for his charismatic attitude. In most First Nation languages there is no word for “good bye” because we expect to see that person again. Gordon recruited me to UBC and somehow he knew I would be back as a graduate student. First Nation people in his era were trailblazers and Gordon was such in Forestry. I and many of the present First Nation forestry students will continue to trail blaze on the path Gordon created”.

Jeremy can be reached at jjboyd@interchange.ubc.ca.
Detecting the undetectable: Using satellites to help control the Mountain Pine Beetle

Multi-spectral satellite data helps foresters decide where and when to log.

Rajeev Sharma, a PhD student in Forest Resource Management, is turning a simple idea into a profound application, saving millions of dollars in the forestry sector. Collaborating with industry partners and the BC Ministry of Forests, Rajeev brought 20 years of experience with remote sensing to his work on the mountain pine beetle. Rajeev came from India to UBC’s Faculty of Forestry to complete graduate research, in collaboration with six forest companies, beginning with Lignum Ltd. (now Riverside Company). Rajeev wanted to have a user associated from the very beginning. He met with them and asked them what they wanted. They said, “How soon can you tell us that trees are infested? Can you tell us before the trees turn red?” By addressing these questions, Rajeev is helping forestry companies deal with the staggering financial (as well as socio-economic and ecological) implications of this epidemic. In the process, Rajeev has developed a program that first determines where the lodgepole pines are located, and then identifies which trees are infested.

Using spectral satellite data, Rajeev identifies different tree species based on their ‘light signature.’ This combination of features, including chlorophyll present, cell wall structure, water present and canopy moisture, is influenced by stand variables, plant variables, leaf variables and overall environmental conditions. The maps generated allow a single lodgepole pine to be located in a site labeled as 100% Douglas-fir. But mapping the forest is only the first step. Once Rajeev knows where the pines are located, he assesses whether the mountain pine beetle has infested the trees. The beetles introduce a fungus that impedes water translocation and conduction. The infested pines gradually die from lack of water, resulting in an overall decline in forest vigour. In the meantime, the trees have a lower commercial value because of blue-stained wood or a shortened shelf-life because the wood is not as strong. The multi-spectral satellite data that Rajeev uses enables him to compare the vigour of different stands which helps foresters decide which areas to log, and when.

A large component of the forestry companies’ responsibility is to verify Rajeev’s conclusions on the ground. After finishing a map for Lignum Ltd., the industry-research team went on a helicopter reconnaissance survey to verify a single pixel of the picture. Armed with stress detection glasses that make the infested trees appear bright orange, an aerial view verified what the maps predicted. Lignum also tested the results on the ground, at 340 points chosen randomly from over 34,000 points determined to be infested. At a cost to the company of 3 cents/kilometre “it was very cost-effective.” The ground verification was done by independent contractors and the data made available on-line. This accessibility is made easier because the technology is rooted in simple concepts of remote sensing. “We based our work on the biology of the beetle and of the plant together with simple fundamental software. We kept it to the level that people could use by themselves. Results, where final, are available to industry via the internet.”

Rajeev isn’t stopping there - one of the main components of his research is to enhance earlier detection by working with hyper spectral bands that result in 242 bands of detail, as opposed to 100 spectral bands. He continues to work on increasing successful imaging and more fully developing a system for forest sensing and detection. While finishing his thesis, Rajeev is located at the Pacific Forestry Centre in Victoria, working on radar and microwave data in forestry monitoring. The motivation for his work is grounded in his belief that remote sensing should be used in the management of forests. “I strongly believe that the full potential of remote sensing has not yet been realized and that there is more work to be done. I want to develop this field because that’s where my expertise comes from and that is what keeps me going. I also get strength from the companies’ acceptance and use of the results, which they have verified. So there is an acceptance and there is a demand.”

This article was written by MSc student Yona Sipos-Randor following a series of interviews with selected students, alumni and faculty members this summer.

For further information on this particular research topic, contact Rajeev Sharma at 250-363-0670 or email him at rsharma@interchange.ubc.ca.
Robert Fürst is an instructor in the Department of Wood Science at UBC. He is responsible for teaching undergraduate wood science students, maintaining the Centre for Advanced Wood Processing (CAWP) equipment, collaborative research in minimizing industrial waste while maximizing efficiency, and improving communication and teamwork in industry. The common thread that binds these varied associations is his passion for teaching. “What I love to do is pass on my knowledge,” says the German-born wood scientist, researcher and teacher. “It’s more than a job; it’s actually my life.”

Robert immigrated to Canada eight years ago after completing a Master’s degree in wood processing in Germany. Looking for new challenges, he began to work for Forest Renewal BC teaching advanced wood processing, and was eventually lured by Tom Maness to Forestry’s CAWP as equipment supervisor.

In coupling his experience with secondary wood processing machinery with more formal opportunities to share that knowledge, Robert has developed as a pragmatic and engaging teacher. His students’ evaluations consistently praise his ability to pass on his industry-based experience in an applicable and interesting manner. “We teach them a lot of theory and once that’s done, we go downstairs to the equipment and we relate what they’ve learned in class to a hands-on approach. It’s like turning on a light bulb. They’re really motivated and just love it.”

Robert’s expertise on the equipment is rooted in his experience with industrial design. His strategy is to look for problems that need to be addressed, and design ways to fix them. “I’m involved in multiple research projects right now, mainly for companies”. When asked about his most influential contribution to the field of wood processing, he answers quickly, “Strangely enough, it comes down to windows and doors. I accidentally started working on them because nobody really knew how to design windows and doors properly against water penetration.” Robert began working with Dynamic Windows and Doors, a company in the Lower Mainland, helping them increase their workforce from 25 to 300 employees, refine their processes, create a new layout for the plant, and provide in-house training for unskilled workers. The company is now one of the largest employers in Abbotsford, providing opportunities for young people and unskilled labourers in the region. In the meantime, he has been approached by Viceroy Homes to develop a new window line for the Japanese market. With funding from Forintek’s Technology Transfer Program and in cooperation with the CAWP, he is working closely with the Japanese client and Viceroy’s process engineer Shaun St. Amour to design a wood-based line that combines American and Japanese requirements, resulting in a window with three weather strips and thicker glass. This innovative design creates jobs in British Columbia and creates markets internationally, not to mention that it reduces the heating bills of those that use the new design.

“Being an instructor and working at the university is great because you can educate, you can work with young people, and you can work with the industry. This kind of freedom lets me stick to my objectives of educating young people.” He expresses his appreciation for the academic life by acknowledging the Faculty of Forestry’s supportive environment, infrastructure, and industrial connections. “My office door is open to anyone who is interested in this field. I’m always open to helping students and the industry.”

This article was written by MSc student Yona Sipas-Randor following a series of interviews with selected students, alumni and faculty members this summer.

For further information on Robert Fürst’s teaching or research initiatives, contact Robert at 604-822-0034, or email him at robert.furst@ubc.ca.
Our second newsletter of the year is certainly a “good news” document! You may have noticed that one half of the content is devoted to the students, staff and faculty involved in our highly successful First Nations initiative. The recent hiring of Ron Trosper as a new faculty member in Aboriginal forestry (see page 2) has brought a truly exciting academic focus to our commitment of increasing the role of Aboriginal people in managing and caring for the land. Gordon Prest, our recently retired coordinator of First Nations forestry (see page 3), made tremendous headway during his tenure and was able to help increase our graduation rate of First Nations students eight-fold. That said, there are still too few Aboriginal people involved in the forestry sector. Of more than 3,000 registered professional foresters in BC, only 12 are of Aboriginal ancestry. The hiring of Ron Trosper and Pamela Perreault (our new coordinator of First Nations forestry) underscores the Faculty of Forestry’s dedication to promoting First Nations education and research and better positions us to make major contributions to increasing First Nations’ participation in forest resource management in British Columbia. Ron and Pam together will further develop the support system in place for First Nations students such as supplemental learning in math and science, mentoring programs and networking among students. They are continuing an active recruiting program, and are developing articulation agreements with other institutions of higher learning.

As sustainability becomes increasingly important, the leading roles that indigenous peoples have had in advocating sustainable land management means that their values and philosophies deserve serious attention. The Faculty is committed to working with First Nations and others in the forest sector to undertake research designed to address Aboriginal concerns. With Ron in place we will be able to increase the amount of community-based research in the Faculty and, in turn, attract more First Nations students into our masters and doctoral programs.

This issue of Branch Lines also includes two articles written by Yona Sipos-Randor (graduate student in forest sciences) as part of our “Making a Difference” initiative to highlight our faculty, staff and student research success stories. We began this initiative by tracking all graduate alumni (masters and doctoral degrees) since 1952. Our purpose, apart from updating our contact database, was to be able to document the accomplishments of our alumni post graduation. These success stories, along with articles on current faculty members and graduate students whose activities are influencing the way of thinking in forestry, will become a regular component of Branch Lines. This issue includes our first two Making a Difference stories, featuring the graduate work of Rajeev Sharma and the teaching and research of faculty member Robert Fürst. We also invite you to visit our newly redesigned web site (www.forestry.ubc.ca) where you will be able find highlights of ongoing research projects and associated information such as our faculty research clusters, publications and research funding - all now much easier to access and search.

I welcome your feedback on our First Nations initiatives, our research promotion project or any other aspect of our Faculty’s activities. You can reach me at jack.saddler@ubc.ca or 604-822-3542.

Jack Saddler