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footnotes
THE NEWSLETTER OF THE FOOTHILLS RESEARCH INSTITUTE

foothills RESEARCH INSTITUTE
Research Growing Into Practice

LandWeb

A tool for finding sustainable resource management solutions

Created by the Healthy Landscapes Program, LandWeb (**landweb.foothillsri.ca**) is a simulation modelling project that is the first of its kind. It spans the western half of boreal Canada, with the intention of defining the historical range of landscape conditions before human influence. The project also intends to create data and modelling information that will help others to answer separate scientific questions related to such topics as climate change.

The modelling will result in important information about how often natural disturbances impact the landscape, and the extent of their impact. It will also provide information about species' habitats, the risk of wildfire, and how natural disturbances like fires and floods affect habitat.

Dr. David Andison, the Healthy Landscapes Program lead, explains that the information gathered will be useful for "establishing ecological benchmarks for desired future landscapes for both strategic and land-use planning exercises across five Canadian provinces and territories." This project fits well with the Healthy Landscapes Program mission statement, which includes seeking to understand natural and cultural patterns, and finding ways to demonstrate how natural pattern approaches can help to find sustainable resource management solutions.

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ACR environmental award for fRI

The Alberta Chamber of Resources (ACR) award ceremony was a professional and popular affair with nearly 700 in attendance. It included a short video (**foothillsri.ca/resource/video-ACR-award-profile**) for each recipient, and the Environment and Sustainable Resource Development minister, Robin Campbell, gave a speech before presenting the president of fRI, Dr. Rick Bonar, with the award.

The annual ACR award ceremony is held to recognize leadership in societal, environmental, and economic achievement, and the environmental award was given to fRI for its research focused on sustained and stellar environmental stewardship. Rick Bonar explained the significance of the award, stating that it is a "recognition of the uniqueness of the organization" as well as of how much fRI has contributed to improved land and resource management in Alberta. He sees this recognition as an opportunity to move forward—to use this momentum and make fRI an even better organization.

Photo Credit: Robert Berdan

Caribou in the Northwest Territories

Caribou Program collaborates and communicates ideas

The Caribou Program is working closely with the Government of Alberta and industrial partners to generate scientific research that can inform land managers interested in the restoration of caribou habitat. The program is also working with the Grizzly Bear Program to assess food supply for caribou and grizzly bears in territory influenced by mountain pine beetle management strategies, as well as collaborating with the Grizzly Bear Program on a caribou predation project that started last year.

When Dr. Laura Finnegan was asked what was most rewarding about being the program lead, she responded, "There are always new questions to answer and new approaches to take," adding that the ultimate goal is to make sure any restoration efforts on the ground will be the most beneficial for caribou.

Previously, she has worked with Trent researchers on a large-scale caribou genetics project in Ontario and prepared the *Caribou Designatable Units (DU) Report* for Committee on the Status of Endangered Wildlife in Canada (COSEWIC). This combination of academic work and collaboration with industry informs her current work and enables her to see the value of projects from several perspectives—an important skill when tackling the problem of improving habitat for an at-risk animal such as the caribou.

Socio-economics Program workshop – a new beginning

From the very beginning, the Model Forest Program has recognized social and economic criteria as important components of sustainable forest management. The Canadian Forest Service conducted socio-economic research for almost 15 years, supported by the Foothills Model Forest, now the Foothills Research Institute (fRI). After several years of inactivity due to retirements and staff changes, the program has been re-established. However, it was deemed necessary to review past research, assess current circumstances, and identify information needs.

On January 30, 2014, the Socio-economics Program convened a workshop in Edmonton with about 25 participants representing government, forestry, oil and gas, and the consulting field. Socio-economic research leads from the Canadian Forest Service, who conducted the research, provided detailed overviews of their past work under three main themes: social indicators and public involvement, economic analysis, and non-timber values and attributes. Later, table discussions focused on topics of concern that had been raised by the participants prior to the workshop and during discussions. These three topics were social licence and working together; trust, community engagement, and using social and economic science effectively; and determining the importance of balancing values for planning.

The information gathered from the table discussions will be used to determine the future direction for the Socio-economics Program. An important outcome of the workshop was a determination of the impact of past research on forest management decision making and policy development, which will be the subject of an information note. Surprisingly, major themes considered important 10–15 years ago are still pertinent today; these include trust, respect, and relationships within the context of science and business.

Please visit **foothillsri.ca/program/socio-economics-program** to view the research plan for the Socio-economics Program, planned for distribution in the fall of 2014.

Mountain Pine Beetle Information Exchange Forum

The Mountain Pine Beetle Ecology Program (MPBEP) hosted its annual forum on April 23 and 24 in Edmonton, Alberta, to create an opportunity for practitioners, industry leaders, researchers, and government officials to share ideas and information. The MPBEP was created at fRI in 2006 in response to the threat posed by mountain pine beetle to Alberta's pine forests. Since 2006, the beetle has entered Alberta and has rapidly spread eastward and northward.

This most recent forum was an opportunity to allow the newest research to be shared between resource practitioners in industry and government. Since research by the University of Alberta has now shown the beetle has crossed into the hybrid lodgepole pine and jack pine zones, there is growing concern that the entire boreal forest is at risk. At this critical time, science-based research is finding answers to vital questions regarding population dynamics, the mountain pine beetle's ability to withstand cold temperatures, and factors that could allow host trees to resist the beetle.

The forum began with status reports on the impact mountain pine beetles are having in British Columbia, Alberta, and Saskatchewan, as well as from Colorado to Montana. It went on to share information about the expected invasive rate of spread, and their presence in post-burn lodgepole pine forests. The second day focused on the information necessary to rehabilitate beetle-killed pine forests. This included site considerations, ecophysiology, seed availability, and strategies for achievement.

Attendees heard how the TRIA Network is using genomics, genetics, physiology, biochemistry, ecology, and modelling to generate new information about the mountain pine beetle outbreak and opportunities for its management and control. The forum was an opportunity for key players to share knowledge. "Participants left the forum with a better understanding of the challenges ahead," says Dr. Keith McClain, program lead for the MPBEP. "Clearly, working together and using science to develop operational strategies are paramount for success."

Visit **foothillsri.ca/resource/MPB2014Proceedings** to view some of the presentations from the forum.

Highlighting academic achievement: Graduate students' contributions to healthy landscapes research

Paul Pickell is monitoring forest disturbances from aircraft and satellite remote sensing imagery, and comparing them to the historic range of variability of wildfire regimes. To monitor disturbances at a range of scales, he is developing tools and techniques that will guide forest management activities across the western boreal. Paul is completing his PhD at the University of British Columbia.

Theresa Dinh is using a fire-scar-based dendroecological approach to evaluate 250 cross-section samples originally collected by Gerald Tande in the 1970s from the Jasper townsite. By resurfacing, cross-dating, and remeasuring the samples, she will determine the years—and in some cases the seasons—of the fires that caused the scars. One of the goals of this project is to evaluate the historical role of climatic variability on wildfire dynamics. Theresa is an MSc geography candidate at the University of Guelph.

Research performed by graduate student Raphael Chavardes provides evidence of a mixed-severity fire regime including surface fires from 1646 to 1915 in the montane forests of Jasper National Park. Raphael demonstrated that fire suppression surpassed the effects of climatic variation to explain the reduced fire occurrence in the 20th century (**foothillsri.ca/resource/rchavardes-video**). The data garner support for forest management actions that increase forest compositional and structural diversity, which will mitigate the risk of high-severity fires in Jasper National Park. Raphael completed his MSc in April and is now working on his PhD at the University of British Columbia.

Vanessa Stretch's research uses a multiproxy fire history approach to reconstruct wildfire history in the foothills of the Rocky Mountains, Alberta. Dendrochronological results include stand establishment dates and fire scar years from 16 plots sampled in 2012. She has sampled another 32 plots and two small lakes for macroscopic sedimentary charcoal analysis (**foothillsri.ca/resource/vstretch-video**). Preliminary results show temporal and spatial variability in fire activity. Vanessa is a PhD geography candidate at the University of Guelph.

The Caribou Patrol EduKits

Vibrant, informative, and engaging—these are the words that best describe the new Caribou Patrol EduKits. Three versions were created for outreach and educational purposes: one each for students, industry, and the general public. They differ in the level of knowledge shared and the types of material included. The student kits include bookmarks, stickers, activities, and space to draw caribou, whereas the industry and public versions have links to online resources and legislation about species at risk. All versions include a booklet on woodland caribou in our region, with information about the cultural importance of caribou to the Aseniwuche Winewak Nation of Canada (AWN) as well as caribou artifacts and specimens.

The EduKit creations were a collaborative effort between the AWN and fRI's Foothills Landscape Management Forum (FLMF). Chantelle Bambrick, FLMF integrated land management technician, explains, "I think the most important aspect is trying to find a way to reach people—to help them learn to care." She goes on to explain that caribou are a species at risk, and that if population trends continue to decline, they may not exist for future generations.

The EduKits were born from the desire to educate people about the importance of caribou and were made possible by funding received from Environment Canada, Alberta Environment and Sustainable Resource Development, and the FLMF (on behalf of industry). The project includes a website (**www.cariboupatrol.ca**), and a plan to engage with the public through social media. People have already uploaded photos of caribou in the area—you can see them for yourself on Facebook (**www.facebook.com/cariboupatrol**). The booklets for the public will be available in the Switzer Park Visitor Centre at Kelley's Bathtub for the duration of the summer.

For more information on the Caribou Patrol Program, or to obtain a printed copy of any version of the EduKit, please contact Chantelle Bambrick by email at cbambrick@foothillsri.ca.

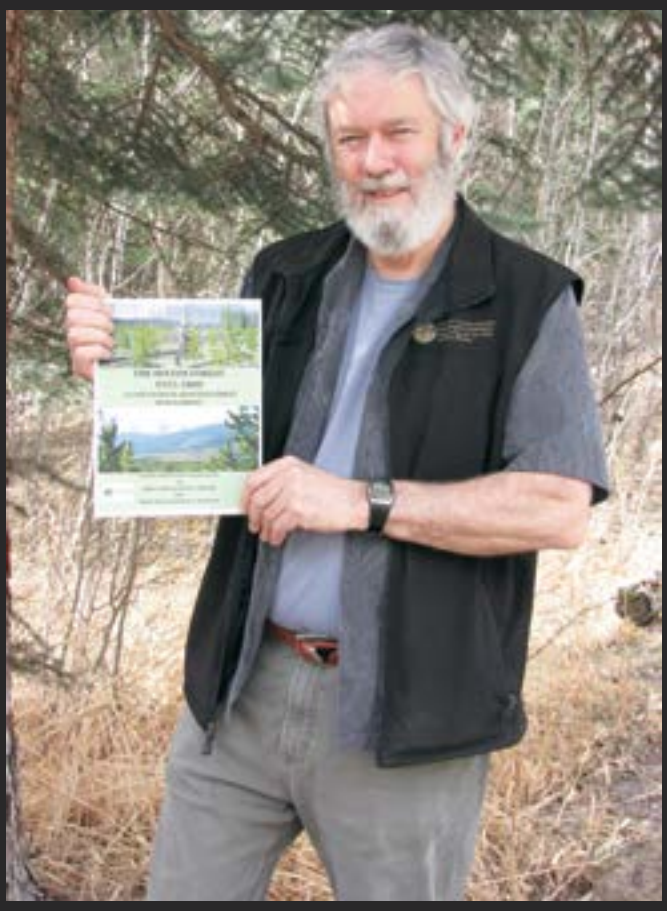
The Hinton Forest 1955–2000: A Case Study in Adaptive Forest Management

There is a lot of history in Hinton—especially when you look to the forest. Written by Robert Udell, Peter J. Murphy, Robert Bott, and Robert E. Stevenson, *The Hinton Forest* reports on the development of the industrial forest management program from 1955 to the end of the 20th century. It's a story of innovation, adaptation, and commitment to stewardship. The security of tenure on a large forest management area justified substantial investment in mills and forest management, which continues today.

The innovations that started under Hinton's first chief forester, Des Crossley, set a standard against which other industrial and provincial forestry programs were measured for many years. The forestry program was praised in a series of federal and provincial forestry task force reports. It was cited as one of the few bright lights in the Canadian forestry landscape in Donald MacKay's remarkable book *Heritage Lost: The Crisis in Canada's Forests (1985)*.

Robert Udell writes, "Forest management involves a complex array of considerations designed to meet ecological, economic and social objectives." The Hinton program was a model of industry/government collaboration through a shared commitment to forest stewardship and sustainability. During the period covered by this story, there was an unbroken line of management plan authors, each learning from and consulting with the previous authors in developing successive plans.

Many advances in the fields of silviculture, wildlife and forestry integration, growth and yield, and management planning were pioneered at Hinton, and emulated elsewhere across Canada. As a result, senior foresters from Hinton were in demand for a number of provincial and federal task forces on forestry and the environment, as well as for speaking engagements and national and international conferences.



When the Canadian government announced the Model Forest Program in 1991, the Hinton area was a logical choice for one of these model forests because of the remarkable work being done, including one of Canada's first programs integrating wildlife and forest management.

The background material for this book began as a series of reports in the late 1990s. Extracts from these reports led to the first book in the Forest History Series, *Learning from the Forest* (Fifth House, 2003). *The Hinton Forest* is a product of the Forest History Program and is available for download at **foothillsri.ca/resource/hinton-forest-1955-2000**.

The Grizzly Bear Program is making history twice this year

The Grizzly Bear Program is repeating a DNA population inventory of grizzly bears for the first time in Alberta. The original DNA samples were taken in 2004 by the Grizzly Bear Program crew. Now, 10 years later, samples will be taken again. "I'm interested in the change in abundance and distribution of grizzly bears that may have occurred in the last 10 years," says Gord Stenhouse, program lead. The hair samples will be taken in Bear Management Area 3 (Yellowhead), between Highway 16 and Highway 11.

Ten years ago in Bear Management Area 3 (Yellowhead), there was a population estimate of 42 bears. This study will provide information about population trends in the study area over a 10-year time frame and will help the Grizzly Bear Program to understand the survival rates of the bears that live in that area.

Also, for the first time in the history of Jasper National Park, a grizzly bear population inventory will be done. The inventory will be completed by the Grizzly Bear Program, working with Parks Canada. It is a project that has gained a great deal of support from Jasper National Park, Environment and Sustainable Resource Development, West Fraser, and Weyerhaeuser. Add these projects to the ones already implemented, and you can imagine that the Grizzly Bear crew will be very busy this summer, out in the field, tracking bears.

Reading material

Visit **foothillsri.ca** to read this and other publications.

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About fRI

The Foothills Research Institute (fRI) is a unique community of partners joined by a common concern for the welfare of the land, its resources, and the people who value and use them. fRI connects managers and researchers to effectively collaborate in achieving fRI's vision, which is to support and contribute to sustainable land and resource management.

Over the years, fRI has grown, expanding in scope, broadening and increasing partnerships and funding, and expanding in activity and interest beyond forest lands. Our programs and partners determine where we do research. We now collaborate with colleagues regionally, provincially, nationally, and internationally through new agreements and understandings.

Welcome to our new intern

Anja Sorensen is here at fRI through a Natural Resources Canada (NRCan) internship and is responsible for logistical planning, preparation, and fieldwork with the DNA crew in the Grizzly Bear Program. As the wildlife research biologist intern, she may also be doing lab work at the University of Saskatchewan and working on a predation study.

"I am very excited to have the opportunity to expand my skill set by taking part in numerous different projects, and working with so many talented people," says Anja. She also hopes to do some modelling work with resource selection functions (RSF), and looks forward to exploring Hinton and getting out in the field.

Anja attended the University of Alberta for a BSc in environmental and conservation sciences, and attended the University of Saskatchewan to pursue an MSc. Her research focused on resource selection by elk, mule deer, and white-tailed deer in Saskatchewan's prairies and parkland. This research included collecting information about areas of species overlap and the implications for chronic wasting disease transmission. Her work here will include more research on resource selection by large mammals.

Saying goodbye

We are sad to be saying goodbye to Debbie Mucha, Geographic Information Systems Program (GISP) lead, but excited that she will be pursuing new adventures. We wish her all the best!

Julie Duval is our interim GISP lead. Please direct any GISP-related questions or concerns to her at jduval@foothillsri.ca.