

# f tnotes

the newsletter of the foothills research institute  
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## Dive into the FRI toolbox

As research results in new knowledge, FRI's programs transform that knowledge into tools that benefit partners and researchers. Here's a look at some of the innovative tools produced recently ([tools.foothillsri.ca](http://tools.foothillsri.ca)).

### A triad of tools for grizzly bear information

The Grizzly Bear Program has developed three tools to help partners with decision making. The first is a resource selection function (RSF) model that shows the probability of animals, in this case grizzly bears, being present in a specific area. The model, described at [tools.foothillsri.ca](http://tools.foothillsri.ca), uses information about the landscape—food, habitat, proximity to water and humans—to tell the viewer how likely it is, on a scale from 1 to 10, that grizzly bears will be present in that area.

It works by overlaying GPS bear locations with spatial layers representing a particular habitat attribute, and then comparing the distribution of locations relative to the attribute with a set of random locations. The model is high-resolution, seasonally specific (spring, summer, and fall), and independently validated with GPS data and DNA-based population inventory survey results.

Complementing the RSF model where GPS data is sparse, the Grizzly Bear Food Model predicts how likely it is that 20 key grizzly bear food species groups occur in a certain area. It has advantages over RSF modelling: ▶



Wild blueberry  
(*Vaccinium myrtilloides*)

### Bears, fish, and hide-and-peek

This summer FRI was out in the community, participating in and holding events for groups like the Junior Forest Wardens. The young wardens and their families enjoyed an electrofishing demonstration and *Within Growling Distance*, an interpretative program about grizzly bears, as well as *How to Use GPS and Why You Should Care*, which featured a game of hide-and-peek.

FRI partnered with Hinton Wood Products to spend a day with 21 teachers as part



Inside Education  
educators tour

of Inside Education's annual forest education tour. The teachers heard about challenges faced by the forest industry, how industry met them, and what

lies ahead. A tour, to FRI stream crossings and with electrofishing, followed.

"These extension and outreach activities are important teaching tools to reach youth, families, and educators," says Joan Simonton, extension specialist. "They raise awareness about FRI, and understanding and appreciation of our natural environments."

Other initiatives included a FRI booth at the Hinton Trappers Association Provincial Rendezvous and Outdoorsman Show, "the *Within Growling Distance*" presentation at Gregg Lake Amphitheatre in William A. Switzer Provincial Park, and presentations by FRI grizzly bear researcher Karine Pigeon and the Northern Rockies EcoTour project lead Bob Udell at Whistlers Campground in Jasper National Park.

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habitat quality is directly linked to resources that influence reproduction, high-use areas associated with activities like bedding and movement are not emphasized as critical habitat, the temporal resolution is bimonthly rather than three seasons per year, and you do not need numerous GPS locations to develop the model.

To allow these models to be used in planning, the Grizzly Bear Program has also developed a Landscape Change Tool that takes into account the constant changes in the landscape that arise from both natural and human causes. Users simply input a new disturbance event such as a fire or road, and the RSF or food model for the area of interest is rapidly regenerated. It can be used after a disturbance event or to predict the impact of a planned event.

**“These are important tools for resource managers to use when conducting activities on the landscape while understanding the needs of grizzly bears,”** says Gordon Stenhouse, program lead.

## NEPTUNE

Modelling human disturbance patterns after natural disturbance patterns helps mitigate the impact we have on the landscape. But how do you know how “natural” your disturbance activities are or will be? By visiting NEPTUNE.

NEPTUNE—in full, the Novel Emulation Pattern Tool for Understanding Natural Events—was created by the Natural Disturbance Program. It lets landscape managers see how closely and in what ways human disturbance activities match natural disturbances that have taken place in the past. A desktop version is already available, and now NEPTUNE is going online for anywhere, anytime access.

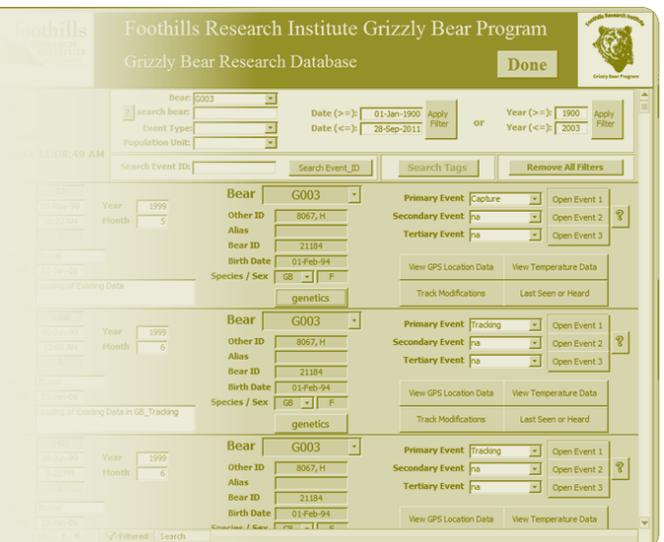


## OnFire

OnFire is an annotated online database of disturbance research studies relevant to Alberta. It includes manuscripts and reports related to disturbance patterns that may be useful for local land use, parks, certification, and forest management planning. Users can search the database by author, keyword, disturbance type, regime characteristic, and/or geographic area and see summaries of each study and manuscript. Access is free.

## Grizzly Bear Database

Over the last decade, the Grizzly Bear Program has amassed an enormous amount of data. The Grizzly Bear Database, built in Microsoft Access, brings that data together so FRI researchers can cross-reference and get information faster. As an example of what's possible, a researcher can enter information from a bear's tag and find out where and when it was last seen, whether it has any known relationships, how many times it's been captured, and how many samples have been taken from it.





## FRImap

Freely available to the public, FRImap provides an easy online method of viewing spatial data pertaining to the Foothills and Jasper National Park regions. Users can view geoadministrative boundaries; access; ecological, vegetation, hydrology, and disturbance information; and FRI project data over various background layers, such as the Open Street Map or relief.

Partners can do even more with the application, including creating their own layers. FRImap also has a density calculator for activities like calculating road density within a particular area.

FRImap was built by the Forestry Corp. using an open-source framework. "We went with open-source because it's new and held exciting possibilities for us," says Debbie Mucha, GIS program lead. "At FRI, we think it's important to strive to be innovative." NEPTUNE and the FLMF applications are also based on the same technology framework.

## Foothills Landscape Management Forum Map Server

Partners of the Foothills Landscape Management Forum (FLMF) can now access and download data on roads, streams, and barriers throughout the region 24 hours a day with the FLMF Map Server.

The website is secure. Members log in and view or download data for immediate use in planning. "They can click on a road and instantly find out what type of road it is, how many lanes it has, the maximum size vehicle it can take, and who provided the data," explains Chantelle Bambrick, information researcher, FLMF.

When looking up barriers, partners can see pictures of the barrier as well as related information. Data about streams was derived from fish probability models.

The website was recently updated to make it more user friendly and to allow partners to immediately download data rather than wait for it to be emailed to them. It remains completely confidential.



## Mountain Pine Beetle Decision Support Tool

What is the impact of a certain level of mountain pine beetle (MPB) infestation on post-attack stand development? How will various silviculture interventions impact a stand? The MPB Decision Support Tool is designed to give partners answers to these questions so they can predict how much timber they will have on a certain site.

The tool builds scenarios based on growth model, ecosite, stand structure, species composition, stand age, MPB severity, and silviculture intervention. Currently, more than 600 scenarios are built in; more will be added as it is enhanced.

“It reduces the number of scenarios land managers and planners have to look at and makes it easier to gather the information required to make decisions,” says Don Podlubny, lead for the MPB Ecology Program.

Genome Alberta

## Online mapping for Foothills Stream Crossing Partners

Members of the Foothills Stream Crossing Partnership (FSCP) will soon have their own dedicated online map application to access stream crossing data. The new online mapping tool is scheduled to be completed in the new year, allowing FSCP members secure 24/7 access. Not only will users be able to view a base map with crossings, they'll be able to search the crossing data by year of inspection, type of crossing, watershed and, if they wish, download data and inspection reports, complete with photos. The crossings will automatically be filtered to the company that logged in.

This tool, requested by the FSCP members, is a great addition to the list of benefits they enjoy with the partnership. The online mapping tool compliments the FSCP's new data collection devices and database structure. (see *Updates*)

## Scandinavian Brown Bear Project

The Scandinavian Brown Bear Project is a long-term research project focused on the grizzly bear population in Sweden. Once endangered, grizzly bears in Sweden are growing in number, providing interesting fodder for researchers interested in everything from how to manage an increasing bear population to ethical questions regarding research on bears.

With an annual growth rate of 16%—the fastest-growing brown bear population ever documented—Sweden's grizzly bears have increased from 130 individuals in the 1930s to more than 3,000 in 2010. Researchers keep a close eye on the bears, collaring all female offspring and following them for life.

“We really understand how bear populations work. But what we don't understand are the energetics in space and time,” says Andreas Zedrosser, a researcher with the project. The Scandinavian Brown Bear Project is partnering with FRI's Grizzly Bear Program to share data and knowledge for the benefit of all.



S. Nielsen,  
G. Stenhouse,  
A. Zedrosser

# Updates

## Foothills Stream Crossing Partnership

The 2011 data collection season saw increased demand for the Foothills Stream Crossing Partnership (FSCP) inspection crews and a need to increase the group's capacity. The data management system, designed in 2006, was limiting growth.

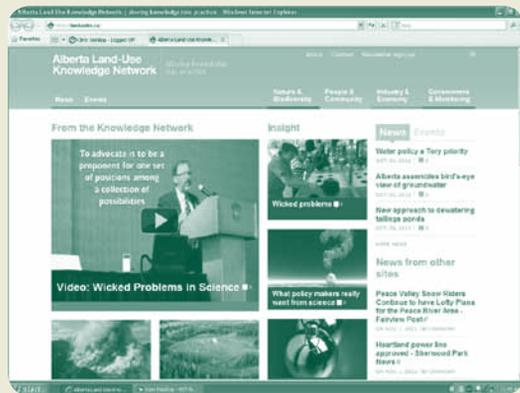
The FSCP contracted the Forestry Corp. to evaluate the system. It found room for improvement in three areas: data capture, data management, and reporting. As a result, the old Allegros data loggers were replaced by Samsung Galaxy tablets. An Android data-collection application was designed specifically for the FSCP protocol.

The 2011 pilot season was a success. Both the collection crews and the supervisors have been impressed with the results.

New data management developments under way include an enterprise database and an online mapping tool for managing stream crossings.

## Water Program

FRI's newest program continues to evolve. Axel Anderson, program lead, says that seven goals are being developed with the activity team and that the program aims, among other things, to provide and maintain products for partners and to use knowledge and innovation to improve the management of Alberta's land, water, and resources. Priority project themes are also under development, and will focus on cumulative effects assessment procedures and providing innovative solutions for coordinating the many provincial watershed research initiatives.



## Alberta Land-use Knowledge Network

The Alberta Land-use Knowledge Network website is in development. The site will be a comprehensive source of information to support land-use planning and decisions. Constant feeds from other sites and changing themes, such as reclamation issues in the boreal forest or sage grouse in grasslands, will keep the conversation flowing. For more information about the AB Land-use Knowledge Network visit [www.landusekn.ca](http://www.landusekn.ca)

## Open house and AGM

FRI held its annual open house and annual general meeting on Monday, October 3, and Tuesday, October 4. This year's theme was Meeting the Challenge, and participants showcased how our programs do just that in displays, conversation, and presentations. Open to the public, the AGM attracted an audience of approximately 100 interested in FRI's tools, programs, research, and initiatives. For more details, see [agm2011.foothillsri.ca](http://agm2011.foothillsri.ca).



# News and Events

## What's in a name?

The Foothills Stream Crossing Program is now the Foothills Stream Crossing Partnership (FSCP). "The name was changed to better reflect the FSCP's status as an association within FRI," explains Ngaio Baril, project coordinator. "The term 'partnership' better suited our business structure."

## Welcome new staff

Terri McHugh joins FRI as our Land-use Knowledge Network librarian. Terri has a master's degree in human ecology and has worked as managing curator for the Clothing and Textiles Collection at the University of Alberta. Terri will be cataloguing and summarizing documents, reports, and research and making this information easily accessible to resource managers, practitioners, and researchers. Originally from Hinton, Terri moved back recently with her husband and son.

Jennifer Hancock, our new administrative assistant, recently graduated from NAIT with a diploma in finance. Jennifer will be providing administrative support to the general manager and president as well as assisting FRI's accountant. While at NAIT, Jennifer played hockey for the NAIT Oaks women's team. Jennifer is originally from Hinton and decided to move back after school to make this her home.

## New publications, a wealth of information

The following are now available in the Publications section on [foothillsresearchinstitute.ca](http://foothillsresearchinstitute.ca):

- *Meeting the Challenge: FRI Annual Report 2010–2011*
- *Foothills Growth and Yield Association: The First Decade April 2000–March 2010*
- *Disturbance Regimes of the North Saskatchewan Regional Plan Area*
- *Defining Pre-Industrial and Current Disturbance Regime Parameters for the North Saskatchewan Planning Area*

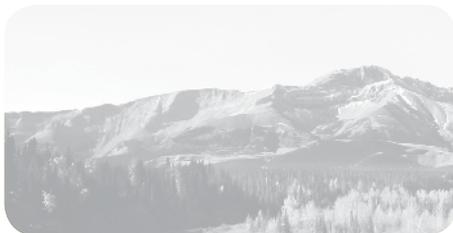
## Spot the signs

Next time you're travelling down Robb Road near Hinton, stop at the GRS stream crossing demonstration site. Recently installed interpretive signs share information about this innovative crossing.



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The Foothills Research Institute core landbase is located in west-central Alberta, and is based in the resource community of Hinton, some three hours west of Edmonton. It covers roughly 2.75 million hectares (27,500 square kilometres), and encompasses Jasper National Park of Canada, Willmore Wilderness Park, William A. Switzer Provincial Park, and the Forest Management Area of Hinton Wood Products, a division of West Fraser Mills Ltd. It also includes some provincial "crown forest management units" and the Hinton Training Centre's Cache Percotte Training Forest. Within its boundaries are three forest areas—boreal, montane, and subalpine—and many forest uses, including timber, petroleum, and coal extraction, tourism, and recreation.