



Partner Perspectives

Multi-disciplinary team finds new way to watch bear habitat



Partner Perspective

REMOTE SENSING RESEARCH

"This is a large multi-disciplinary partnership that puts Alberta on the leading edge of biodiversity management and spatial management – it is quite unique to this landbase."

Dr. Nicholas Coops
Canadian Research Chair in Remote Sensing
University of British Columbia

MARCH, 2010

Overview

The Grizzly Bear Program at Foothills Research Institute draws on tools and techniques based on remote sensing and satellite imaging, through geography and forestry specialists at the Canadian Forest Service in Victoria, the University of British Columbia, the University of Calgary and the University of Victoria. The imaging team is in its third year of a five-year program with the research institute.

Challenge

Grizzly bear habitat, and the way bears use it, change frequently during the year as seasons, human activity and natural disturbances such as fire and pest come and go. The imaging team's challenge was to help the Grizzly Bear Program "see" these changes at a very fine scale and on a regular and timely basis. "West central Alberta is actively managed with energy exploration, mining, roads, timber harvesting – quite often it is difficult for managers to access all of this information and it may not be updated very often," says Nicholas Coops, remote sensing research chair at UBC. "The Grizzly Bear Program needed very fine spatial and temporal maps of changes on the landscape, and it's not easy using ordinary remote sensing approaches because the more common methods cannot see the smaller features with sufficient frequency, and are often obstructed by cloud."

Solution

The imaging team captures satellite and other images every two weeks and integrates the data to obtain a very fine representation of what is actually happening on the ground. The breakthrough was discovery of a way to blend diverse data so that very small areas of pest attack or timber harvest patches and location of bear browse can be predicted and mapped with a high degree of confidence. "We're 80% accurate on predictions involving anything greater than 4 ha," says Coops. "We can calculate the area affected by one disturbance or another, and determine how habitat is being impacted at a particular time of year."

Results

The map products generated by the team give land managers a very accurate near-real-time picture of what is happening today and how bear habitat can be expected to evolve in coming months. The information is already helping forest managers adjust activities, such as how they design the "edges" of harvest patches to cater to grizzly needs. Equally exciting, the system shows great promise as a tool for a whole range of forest and biodiversity planning challenges, involving anything from caribou recovery to lodgepole pine and mountain pine beetle management. New technology has also come out of the project, including a new solar-powered camera system that takes photos of the overstorey and understorey five times a day on seven sites.

Learn more at www.foothillsresearchinstitute.ca