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An opportunity for graduate students...

EMEND has opened doors to more than forest companies seeing answers for long term management goals. Graduate students have launched their own research projects, on things as varied as habitat use by insectivorous bats to carbon flux analyses. In 1999, there were 37 individual projects underway at EMEND.



Julia Dunlop, U of A researcher, using respirator to catch wasps, probing the bark.
(Picture courtesy of DMI).

It's a busy place. A walk along a trail will reveal butterfly traps, soil temperature stations, or devices for measuring bird populations. The research at EMEND was not done as isolated research projects. Because all aspects of ecosystems are integrated, it was identified that the research being conducted at the EMEND site needed to be integrated as well. All of the researchers lived in the research camp during the summer months. Keeping all of the researchers together in the same camp fostered this climate of integration. Very important linkages were formed between the researchers over time. These linkages might have never happened if they had not been together for long periods at the EMEND camp.

Results are coming in...

The scope of EMEND had to be large enough to build up a solid data base over the next rotation about 100 years. Now after five years, some preliminary results are coming in. Both DMI and Canfor have posed the question: What is better in terms of leaving structure behind, patches of residual or single standing trees? "The preliminary answer from EMEND is that patches are by far the better method for maintaining species that require structural interior but that for other ecological function single trees are important as well," says Tim Vinge. We have learned that both patches and single tree retention service different ecological processes and that EMEND will help us understand these differences and be able to apply this retention in the future in accordance with the knowledge gained from EMEND.

Carbon and carbon flux are important ecological factors that have scant research. It will be critically important for forestry companies to

be able to demonstrate that we are using systems that fix the maximum amount of carbon. Kyoto has made this a part of the research even more important.

Grabbing the world's attention...

EMEND is a legacy of collaboration and partnerships. Its unprecedented size and broad partner base has attracted the attention of researchers and scientists around the world. On the national scene, it's considered an Alberta prize.

- EMEND partners are:
- Alberta Environment
- Alberta Research Council
- Canadian Forest Products Ltd.
- Canadian Forest Service
- Canadian Wildlife Service
- Daishowa-Marubeni International Ltd.
- Forest Engineering Research Institute of Canada
- Forintek Canada Corp. Ltd.
- Laval University
- Manning Diversified Forest Products Research Trust Fund
- Pulp and Paper Research Institute of Canada
- Sustainable Forest Management Network
- University of Alberta
- University of British Columbia
- University of Lethbridge
- University of Calgary
- University of Minnesota
- Weyerhaeuser

Last year, EMEND received awards from Natural Resources Canada (NRCAN). First, the Canadian Forest Service Merit Award, was presented for collaboration and partnership for projects under the auspices of the Canadian Forest Service. The second, the 2001 NRCAN departmental award, was also for excellence in partnership and collaboration, under the entire NRCAN regime. The partners are also considering building a permanent research facility which would be located in the Dixonville area. This research facility will ensure the legacy created at the EMEND site will live on for a very long time into the future.

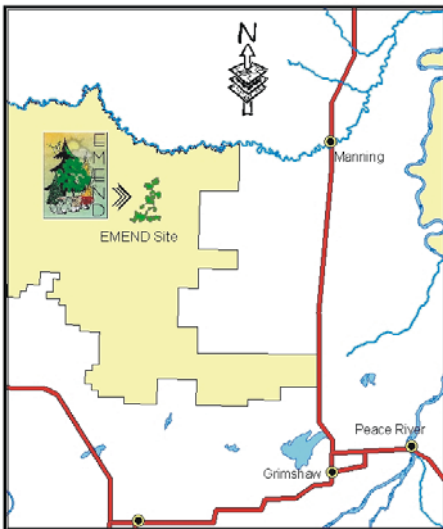
Steve Luchkow explains that with EMEND, the whole idea of partnership had to be turned on its head. "Instead of one company saying, we need answers to specific questions, we looked at it from the perspective of a common goal that would benefit a broad representation of partners," he explains. Early on, they realized a long term commitment of resources and personnel, as well as communication was needed.

This is being watched by researchers around the world. There is nothing like EMEND in terms of its scope, its multi-disciplinary approach and the array of partners," says Jan Volney. He notes that there is a 200 year old study in England. "Researchers are very keen to get onto that site, see the data," he says. But there is none that he's aware of in the world of forestry. "I'm sure 50 to 100 years from now, people will consider EMEND a very valuable source of information." Meanwhile, patience and some realistic expectations are needed. With a 100 year plus planning horizon, the partners know that even 15 years to wait for some useful results isn't that long. But that's okay with Steve Luchkow. Foresters are trained from the outset to see in the long term. "I won't be here in 100 years. My hope is that someone will still be doing studies and collecting data, that EMEND will carry on," says Steve.

EMEND - Opening the window to ecology based landscape

EMEND - Ecosystem Management by Emulating Natural Disturbance. It's a concept whose time has come. The forest industry is moving towards a new paradigm in forest management that recognizes the importance of maintaining ecological function at the cutblock level and at the landscape level.

The effects of size and distribution of residual patches have been studied in Alberta, however, the important question of "how much residual is enough to preserve and protect critical aspects of ecosystem function?" has received scant attention.



Location of EMEND - map courtesy of DMI

Ecosystem function is directly affected by how much standing green tree or dead residual is left after harvest. That's where EMEND steps in. Located about 90 kilometres northwest of Peace River, EMEND has been created to compare structure left behind by nature's harvester - fire - to that left behind by cutblocks. If in 100 years time EMEND identifies which ecological process can be maintained by leaving structure, foresters will know they have a valuable tool for maintaining the forest for generations to come. "If we can manage the forest the way a fire does, we should be able to maintain ecological function," says Jan Volney, researcher with the Canadian Forest Service and one of EMEND's creators.

How it started...

Sustainable forest management, ecologically sensitive management, holistic silviculture - these are the terms of today's forest managers. But back in 1997 when EMEND was initiated, forest management was emerging into a new era. The theory was there but the question was how to implement it.

The original concept for the EMEND research project was developed by Frank Oberle, forester with Daishowa-Marubeni International Ltd. (DMI). Frank approached Jan Volney from Forestry Canada and Dr. John Spence for the University of Alberta to see if they would be interested in participating in a large study to look at the impact of leaving structure in cutblocks.

John and Jan jumped on board and invited an array of researchers, government agencies, and private companies into a unique partnership. Industry asked the big questions, researchers developed the research framework, and EMEND was born.

While EMEND was being developed in the winter of 1998-99, Canfor-Hines Creek and DMI were moving ahead with their ecological approach to forest management. Their Joint Detailed Forest Management Plan was approved by the government in 2001. The research at the EMEND site was developed in order to help answer questions arising from the new ecological approach proposed in the Joint Detailed Forest Management Plan.

With the backing of their employers, Steve Luchkow, Woodlands Superintendent with DMI, and Tim Vinge, Forest Analyst with Canfor-Hines Creek division, took the reins. Steve recalls how the industry was venturing into new waters with this sustainable approach. The assumptions in the management plan was that by leaving green tree retention in the cutblocks that ecosystem function can be maintained. This assumption needed to be tested.

"We knew that this type of large scale ecological research has to be multi-disciplinary, long term, and coordinated if we were going to see results we could apply," said Steve. The structural component was determined to be the most important aspect of research because it is something that we have the ability to control during the harvest phase.

What you'll see...

As you take a tour through EMEND's 1000 hectare site, you'll see a network of trails that lead through 60 cutblocks. There are five different treatments on four different stand types - conifer dominated, mixed, deciduous dominated with coniferous under story and deciduous dominated stands. Treatments are from clear cutting to leaving 10%, 20%, 50%, and 75% for forest structure as well as controls.

The structure that is being left behind represents that start of a silviculture system. It was decided that different reforestation techniques needed to be tested in these different retention blocks as well.

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