

FOREST ECOSYSTEM RESEARCH NETWORK OF SITES (FERNS)

D.A. MacIsaac¹ and J. Wood²

ABSTRACT.--The Canadian Forest Service (CFS) has organized a national network of research sites, named the Forest Ecosystem Research Network of Sites (FERNS). These sites are focused on the study of sustainable forest management practices and ecosystem processes at the stand level. This network promotes this research nationally and internationally, improves linkages among sites, preserves the long-term research investments already made on these sites and provides a forum for information exchange and data sharing. While the CFS coordinates and promotes FERNS, the network consists of local autonomous partners nationwide who benefit from the FERNS affiliation through increased visibility for their sites.

framework for a national suite of research sites that are focused on the development of innovative forest management practices and understanding of ecosystem processes at the stand level.

The overall goal or mission of FERNS is to provide and promote a network of sites, representative of major Canadian forest ecosystems, for long-term multi-disciplinary research on forest management practices. FERNS has three specific objectives: promote forest management practices research nationally and internationally, improve linkages among sites, and preserve the long term research investments already made on these sites.

FERNS promotes Canadian forest management practices research as well as the individual research sites both nationally and internationally, using traditional print media as well as the latest electronic technology. Individual FERN Sites are examples of high quality forestry practices research.

FERNS provides researchers and students with a set of well-characterized and liked sites across Canada on which to work. By providing opportunities for comparative and collaborative research, FERNS also fosters partnerships between governments, universities and industry, and serves as a national communication tool between researchers and with forest managers. The network also links researchers working at the various sites as well as providing a forum for information exchange and data sharing. In this regard, FERNS is fostering a sense of community among forest ecosystem management researchers in Canada. In addition, at the national and international levels, the network is linking forest managers to researchers.

FERNS is helping to protect the investment made in the installation of long-term stand

INTRODUCTION

Forests cover almost one-half of the land mass of Canada and 10% of the global forest cover is located within our borders. As a result, Canada finds itself at the center of the growing international debate on the environment. Science has a critical and increasing role to play in this debate. As a nation, Canada is being evaluated internationally against complex criteria such as effects of forestry practices on ecosystem productivity, ecosystem processes and long term biological diversity. Because of the complexity of these issues, as well as the inherent complexity of forest ecosystems themselves, multidisciplinary and multi-partner approaches to forest ecosystem management research have become the norm in the 1990's.

Across Canada, long-term multi-disciplinary forest management research sites and studies are already in place, but the linkages between the individual sites has not yet been made. The network of sites, named the Forest Ecosystem Research network of Sites (FERNS), is the

¹D.A. MacIsaac, Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre, 5320-122 Street, Edmonton, AB, Canada T6H 3S5 Phone: (780) 435-7332 FAX (780) 435-7359. E-Mail: dmacisaa@nrca.gc.ca.

²J. Wood, Natural Resources Canada, Canadian Forest Service, Pacific Forestry Centre, 506 West Burnside Road, Victoria, B.C., Canada V8Z 1M5 Phone: (250) 363-6008 FAX (250) 363-0775. E-Mail: jwood@pfc.forestry.ca.

manipulation studies, the gathering of extensive biophysical databases, and the conduct of site-specific studies. Although FERNS does not provide funds, the association of each site to the network will enhance its visibility and its ability to attract funding from agencies or from industrial partners.

A new global scientific culture is emerging in which archiving and inter-connectivity of data sets is becoming increasingly important. Researchers are now being encouraged to make their data available for wider distribution once the scientific paper has been published. In the future, FERNS may be able to play an important data management role by providing a means to synthesize and integrate the scientific information across a number of sites.

CHARACTERISTICS AND CRITERIA

Each FERN Site possesses a number of characteristic features. For example, the research conducted on FERN Sites:

- Addresses forest harvesting options and ecosystem functioning aimed at sustainable forest management;
- Is multidisciplinary and multi-partnered; and
- Is sound ongoing research.

FERN Sites must be:

- Well documented with good historical stand and site information;
- Accessible;
- Located in a forest that is representative of one of the major forested ecozones in Canada; and
- Protected for long-term research values.

In addition, FERN Sites must include areas of mature forest where natural successional stages can be observed and/or investigated.

CANADIAN FOREST SERVICE ROLE

The Canadian Forest Service (CFS) is the largest national forest science organization in Canada and has a mandate to address both national and international issues affecting forests and forestry practices. There is a need to bring together key research activities and to provide a framework for a more integrated Canada-wide approach to forest ecosystem management research among

CFS researchers and partners in industry, provinces and universities.

The CFS will contribute to the coordination and promotion of FERNS, but it must be recognized that the network will consist of a collection of local partners across the country that have come together freely to achieve things which exceed what any one of them, individually, could achieve. As such, each site will continue to operate autonomously. Where a benefit can be recognized, however, sites may act together as a network. Partnerships and links between FERNS and national and international programs will be encouraged.

ESTABLISHED FERN SITES

The attached map (fig. 1) indicated established FERN Sites across Canada as of August 1997, with the numbers below corresponding to the numbers on the map.

Pacific Maritime Ecozone

1. Montane Alternative Silvicultural Systems (Vancouver Island, British Columbia)

Contact:

Dr. Al Mitchell, Pacific Forestry Centre, Canadian Forest Service, Victoria, B.C.

Phone: (250) 363-0600

E-mail: amitchell@cfs.nrcan.gc.ca.

Salal Cedar Hemlock Integrated Research Program (SCHIRP) (Vancouver Island, British Columbia)

Contact:

Dr. Cindy E. Prescott, Project Leader
Faculty of Forestry, University of British Columbia, Vancouver, B.C.

Phone: (604) 822-4700

E-mail: cpres@unixg.ubc.ca

Website:

<http://www.forestry.ubc.ca/schirp/homepage.html>

Bill Beese, MacMillan Bloedel Ltd., Nanaimo, B.C.

Phone (250) 755-3422

E-mail: w.j.beese@mbld.com.

Website:

<http://www.pfc.cfs.nrcan.gc.ca/practices.mass>

Montane Cordillera Ecozone

2. Sicomous Creek Silvicultural Systems Project (southern interior, British Columbia)

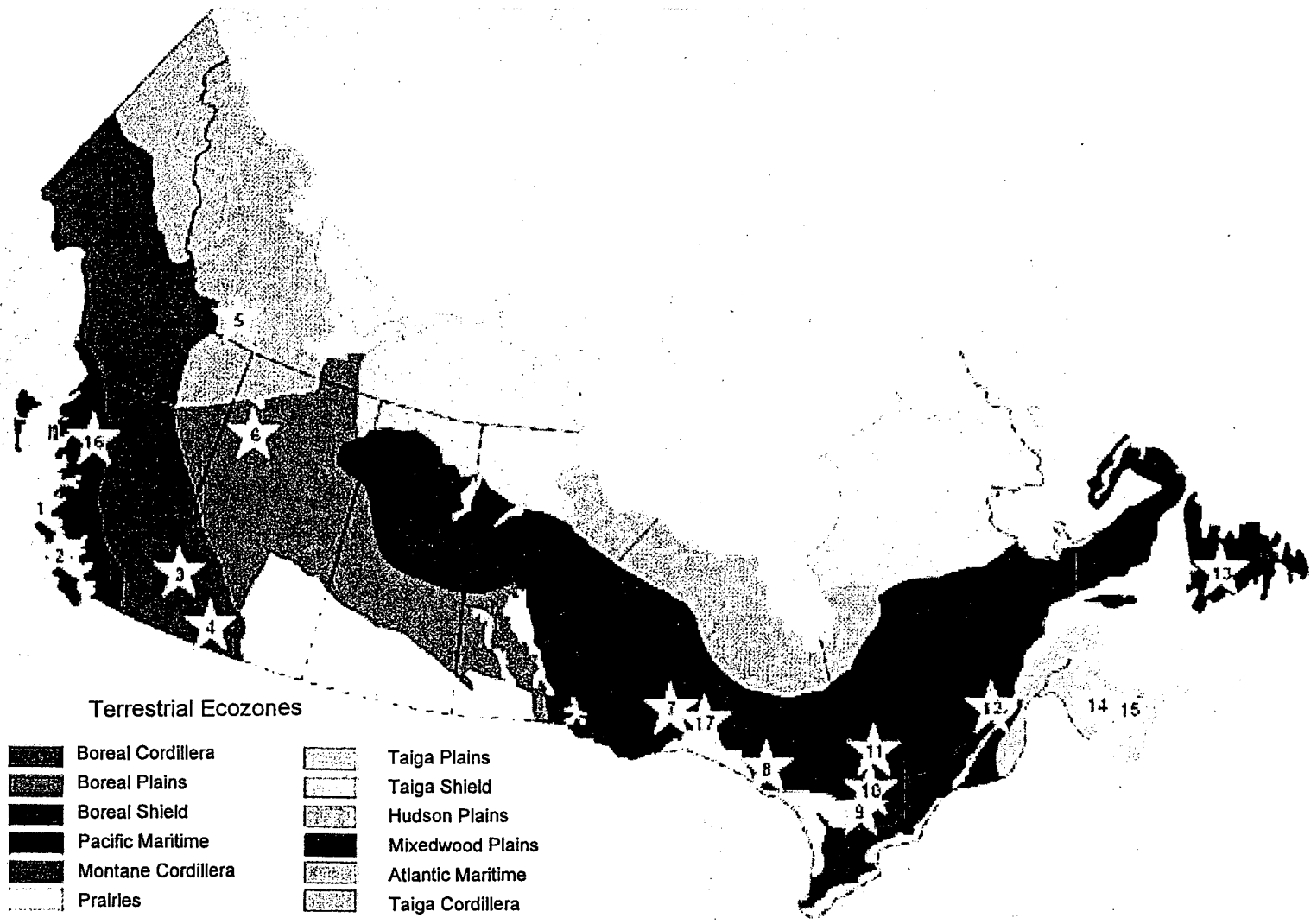


Figure 1.--Established FERNs (Forest Ecosystem Network of Sites) sites across Canada as of August, 1997.

Contact:
Alan Vyse, BC Ministry of Forests, Kamloops,
B.C.
Phone (250) 828-4183
E-mail: avyse@gemsl.gov.bc.ca
Website:
<http://www.hre.for.gov.bc.ca/grops/kamloops/sicrule.html>

3. Lodgepole Pine Management Study (southern interior, British Columbia)

Contact:
Roger Whitehead, Pacific Forestry Centre,
Canadian Forest Service, Victoria, B.C.
Phone: (250) 363-0600
E-mail: rwhitehead@pfc.cfs.nrcan.gc.ca

Dr. Les Safranyik, Pacific Forestry Centre
Canadian Forest Service, Victoria, B.C.
Phone (250) 363-0600
E-Mail: Isafranyik@pfc.cfs.nrcan.gc.ca
Website: http://nrcan.gc.ca/cfs.proj/sci-tech/arena/styr_e.html

Taiga Plains Ecozone

4. Muskeg River Silvicultural Study (Liard Valley, Northwest Territories)

Contact:
Derek Sidders, Northern Forestry Centre,
Canadian Forest Service, Edmonton, AB
Phone: (403) 435-7355
E-mail: dsidders@nrcan.gc.ca.

Boreal Plains Ecozone

5. Hotchkiss River Mixedwood Timber Harvesting Study (northwestern Alberta)

Contact:
Dan MacIsaac, Northern Forestry Centre,
Canadian Forest Service, Edmonton, AB
Phone: (403) 435-7332
E-mail: dmacisaac@nrcan.gc.ca.

Boreal Shield Ecozone

6. Black Sturgeon Boreal Mixedwood Project (north-central Ontario)

Contact:
Al Cameron, Great Lakes Forestry Centre,
Canadian Forest Service, Sault Ste. Marie, ON
Phone: (705) 949-9461
E-mail: acam@nrcan.gc.ca
Website:
pfc.cfs.nrcan.gc.ca/practices/fems/hotchkiss.htm

7. Turkey Lakes Silvicultural Study (northeastern Ontario)

Contact: Dr. Al Cameron, Great Lakes Forestry Centre, Canadian Forest Service, Sault Ste. Marie, ON
Phone: (705) 949-9461
E-mail: alcam@nrcan.gc.ca

8. Scott and Swan Lake Forest Research Reserve (central Ontario)

Contact:
Dr. Bill Cole, Ontario Forest Research Institute, Ontario Ministry of Natural Resources, Sault Ste. Marie, ON
Phone: (705) 946-2981 Ext. 113
E-mail: coleb@gov.on.ca.

9. White Pine Silvicultural Study (central Ontario)

Contact:
Steve D'Eon, Petawawa Research Forest, Canadian Forest Service, Chalk River, ON
Phone: (613) 589-3009
E-mail: sdeon@intranet.ca.

10. Lac Duparquet Research and Teaching Forest (northwestern Quebec)

Contact: Dr. Yves Bergeron, Université du Québec à Montreal, PQ
Phone: (514) 987-3000 Ext. 4872
E-mail: bergeron.yves@uqam.ca
Website: www.pfc.cfs.nrcan.gc.ca/practices

11. Montmorency Experimental Forest (St. Lawrence Region, Quebec)

Contact:
Dr. Louis Belanger, Laval University, St. Foy PQ
Phone: (418) 656-2131 Ext. 6110
E-mail: louis.belanger@sbf.ulaval.ca.

Dr. Brian Harvey, Université du Québec en Abitibi-Témiscamingue, PQ
Phone (819) 762-0971 ext. 2361
E-Mail: brian.harvey@uqat.quebec.ca
Web site: <http://web2.uqat.quebec.ca/ferld/>

12. Glide Lake (western Newfoundland)

Contact: Dr. Doyle Wells, Atlantic Region, Canadian Forest Service, Corner Brook, NF
Phone: (709) 686-5038
E-mail: dwells@nrcan.gc.ca.

Atlantic Maritime Ecozone

13. Acadia Experimental forest (south-central New Brunswick)

Contact: Edwin Swift, Atlantic Forestry Centre,

Canadian Forest Service, Fredericton, NB
Phone: (506) 452-3175
E-mail: eswift@nrca.gc.ca

14. Fallingsnow Ecosystem Project (north-central Ontario)

Contact:

F.W. Bell, Project Co-ordinator

Phone: (705) 946-2981 x225

E-mail: bellw@gov.on.ca

R.A. Lautenschlager, Co-ordinator

Phone: (705) 946-2981 x228

E-mail: lautenr@gov.on.ca

16. The Hayward Brook Project (southeastern New Brunswick)

Contact: Dr. Gerry Parker, Canadian Wildlife Service, Sackville, NB

Phone: (506) 364-5045

Website:

<http://www.pfc.cfs.nrcan.gc.ca/practices/ferns/acadia/acadia.htm>

16. The Date Creek Silvicultural Systems Research Project (north-central B.C.)

Contacts: Dave Coates, Project Leader

B.C. Forest Service, Smithers, B.C.

Phone: (250) 847-7436

E-Mail: Dave.Coates@gems7.gov.bc.ca

<http://www.pfc.cfs.nrcan.gc.ca/practices/FERNS/date/date.htm>

Phil LePage, Research Silviculturalist,

B.C. Forest Service, Smithers, B.C.

Phone (250) 847-7437

E-Mail: Phil.LePage@gems8.gov.bc.ca

Website:

<http://www.pfc.cfs.nrcan.gc.ca/practices/FERNS/date/date.htm>

17. Fallingsnow Ecosystem Project (north central Ontario)

Contacts: F.W. Bell, Project Coordinator

Phone: (705) 946-2981- x225

E-mail:

R.A. Lautenschlager, Co-ordinator

Phone: (705) 946-2981 x228

E-mail: lautenr@gov.on.ca

CURRENT STATUS

There is solid and growing support for FERNS from research partners both inside and outside of the CFS. Since an initial set of FERNS sites was announced early in 1997, there have been several new additions to the Network.

In August 1997, an Internet web site was launched to profile FERNS. This web site is accessible through the Canadian Forest Service, Pacific Forestry Centre home page at <http://www.pfc.forestry.ca> or <http://www.pfc.cfs.nrcan.gc.ca>. This internet site includes information on individual FERN sites, as well as linkages to collaborators.

TO OBTAIN MORE INFORMATION

For further information about FERNS contact Chris Lee, FERNS Coordinator, Canadian Forest Service, Pacific Forestry Center, Victoria, British Columbia, Canada. Phone: (250) 363-0600. E-mail: clee@pfc.forestry.ca. To obtain information on an individual site, the specific contact person listed in this document can be contacted.

For assistance in accessing the FERNS web site contact Chris Lee (contact information listed above) or Rod Maides, Communications, Canadian Forest Service, Pacific Forestry Centre, Victoria, British Columbia, Canada. Phone (250) 363-0737. E-Mail: rmaides@pfc.forestry.ca.

Conard, Susan G., ed.

2000. **Disturbance in boreal forest ecosystems: human impacts and natural processes.** Proceedings of the International Boreal Forest Research Association 1997 annual meeting; 1997 August 4-7; Duluth, Minnesota, USA. Gen. Tech. Rep. NC-209 . St. Paul, MN: U. S. Department of Agriculture, Forest Service, North Central Research Station. 435 p.

The papers in these proceedings cover a wide range of topics related to human and natural disturbance processes in forests of the boreal zone in North America and Eurasia. Topics include historic and predicted landscape change; forest management; disturbance by insects, fire, air pollution, severe weather, and global climate change; and carbon cycling.

Key Words: Boreal forest, disturbance, forest management, climate change, forest health.