Fundy Model Forest

~Partners in Sustainability~

Report Title: Monitoring Forests Pests with Pheromone Traps in the Fundy Model Forest

Author:

Year of project: 1994

Principal contact information:

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The Fundy Model Forest…
…Partners in Sustainability

"The Fundy Model Forest (FMF) is a partnership of 38 organizations that are promoting sustainable forest management practices in the Acadian Forest region."

Atlantic Society of Fish and Wildlife Biologists
Canadian Institute of Forestry
Canadian Forest Service
City of Moncton
Conservation Council of New Brunswick
Fisheries and Oceans Canada
Indian and Northern Affairs Canada
Eel Ground First Nation
Elgin Eco Association
Elmhurst Outdoors
Environment Canada
Fawcett Lumber Company
Fundy Environmental Action Group
Fundy National Park
Greater Fundy Ecosystem Research Group
INFOR, Inc.
J.D. Irving, Limited
KC Irving Chair for Sustainable Development
Maritime College of Forest Technology
NB Department of the Environment and Local Government
NB Department of Natural Resources
NB Federation of Naturalists
New Brunswick Federation of Woodlot Owners
NB Premier's Round Table on the Environment & Economy
New Brunswick School District 2
New Brunswick School District 6
Nova Forest Alliance
Petitcodiac Sportsman's Club
Red Bank First Nation
Remsoft Inc.
Southern New Brunswick Wood Cooperative Limited
Sussex and District Chamber of Commerce
Sussex Fish and Game Association
Town of Sussex
Université de Moncton
University of NB, Fredericton - Faculty of Forestry
University of NB - Saint John Campus
Village of Petitcodiac
Washademoak Environmentalists

MONITORING FOREST PESTS WITH PHEROMONE TRAPS IN TH FUNDY MODEL FOREST

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Statement of Project Accomplishments
Biodiversity and Landscape Technical Committee
November 23, 1994

Monitoring forest pests with pheromone traps in the Fundy Model Forest

Project Leader: Bruce Pendrel, Canadian Forest Service

Progress: The 5 forest pests examined were the spruce budworm, the forest tent caterpillar, the jack pine budworm, the gypsy moth and the hemlock looper. These insects all could figure prominently in management-decision making within the area of the Fundy Model Forest.

Traps were deployed on an approximated grid system involving the complete area of the FMF, with an inter-trap spacing of 5 km, down to 2.5 km in a special interest area, giving approximately 180 grid locations in the 410,000 ha Fundy Model Forest. Associated with each trap location, information on stand composition and pest damage was collected.

Traps are still being collected for two later flying species, the hemlock looper and the gypsy moth, however for the other 3 data has been computerized and initial pest distribution maps have been produced using ARC/INFO GIS. With the data collection phase nearing completion, efforts are now being turned to the spatial analysis phase of the project, which will occupy the winter of 1994-95.

Deliverables: pest distribution maps of point source data have been produced for the spruce budworm, the forest tent caterpillar and the jack pine budworm. These will be 'Kriged', a geo-statistical process yielding interpolated or "surface" maps during the next few months. The software to do this is presently being put into place, having been successfully demonstrated by one of our collaborators (B. Lyon, S.S. Marie) this month in Ottawa. Overlay with stand-level host distribution maps giving actual forested area impacted by each will then be completed and where feasible, impact maps giving the estimates wood fibre loss due to each pest. This should be done by spring 1995. Accompanying all maps will be statistics giving spatially linked data on areas and wood volumes. Decisions based on the data analysis will be made, as to the optimum or most appropriate trapping-grid intensities, host-mix selections and impact factors to be recommended for future methodology.

Background: A system for the collection and analysis of data from pheromone trapping of forest insect pests is being developed as a "model" approach to the use pheromones in monitoring pests in a large and diverse management area, the

Model Forest, providing information in a form which may be a suitable for integration in a management plan.

For the most part, we have not attempted to analyse our pheromone trapping data in terms of the area or volume of forest present. Computer based spatial analysis and forest inventories are required to accomplish this task.

As a secondary objective, this study will also evaluate the influences which forest composition has on pest populations as evidenced through pheromone trapping data. Species mixes which contain the host species but may be resistant to developing pest populations will be identified and characterised.

Proposed: In 95/96 field testing will be repeated for only 3 pests, those which are yielding the most valuable information; the spruce budworm, the gypsy moth and the hemlock looper. The original grid design will be preserved, locating traps in the exact stands as in 1994, however trap density and distribution outside of the model forest may be adjusted pending results of analysis of 1994 data. We hope to replicate the relationships between topography and cover type using the 1994 field design, modified as required. Development of methods to use multi-year data in impact estimation. Feasibility and implementation of pheromone results into decision support system for pest impacts.

This project was financially supported by the Fundy Model Forest at the level of 16% of funding. In addition to 5K FMF funding, the following resources were secured:

Green Plan IFPM	9.5K
Green Plan DSS	9.0K
Ag Canada	1.0K (in kind)
Can. For. Serv.	8.0K
Total	27.0K & FMF 5K = 32.0K

FMF funding was critical to successfully acquiring the additional resources.

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