

Western Newfoundland Model Forest
Forest Ecosystem Report Project – Final Report
By Karen Saunders
2001-10-28

Summary of Project

The following were the original objectives of this project.

1. To collect and compile (in a common digitized format) all research articles and data from projects conducted during the past two phases of the WNMF.
2. To assign the above data to the appropriate CCFM criterion and establish linkages between available data and existing and/or potential local level indicators.
3. To update the existing compendium of research projects.

Completion of all three objectives has been successful with some minor variations. The following will discuss each objective in turn by providing an explanation of limitations, changes that were made, and the final products.

Objective 1: Compilation (in digital format) of all Research Projects

An attempt was made to obtain digital copies of all relevant research projects. There were a significant number of projects for which digital copies were not available due to loss of disks or inability to locate the researcher. Scanning of all remaining non-digital projects was the original solution, however, due to time constraints and lack of equipment, this proved to be unpractical.

The original rationale for compiling such a digital database stemmed from the uncertainty surrounding the future of the Model Forest program. Should the program be discontinued, there was concern expressed over the potential loss of useful data and research. An alternative to digital copies of all reports was thus sought.

Bruce Boland, librarian for the Newfoundland Department of Forest Resources and Agrifoods was approached and agreed to be keeper of and contact person for the research. This will allow the Model Forest research to be available regardless of the actual presence of the Model Forest itself. The deliverables for this objective, therefore should be duplicated so as to provide one copy to the Model Forest and one copy to Bruce Boland.

The following constitutes the deliverables for this facet of the project:

- An index of all relevant research projects by project number arranged in the following categories: domestic woodcutting, fish, wildlife, GIS, non-timber values, public involvement/public opinion, plants/trees/forests, and stream crossings. Within this index, reports for which digital copies are available are highlighted. All other reports are available in paper form.

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- A set of summary pages for each research project arranged by category (as above) and outlining the following:

WNMF Project #:	Available Format
Title:	
Date:	
Author:	
Contact:	
Description:	
Methods:	
Results / Data:	
Notes:	
Criterion:	
Element:	
Indicator:	

- A CD with digital copies of all reports for which digital copies exist.
- A paper copy of all reports for which digital copies do not exist.

Objective 2: Assignment of Data to CCFM C&I and Establishment of Linkages

Each research project was assigned to one or more of the Canadian Council of Forest Minister's (CCFM) Criteria Elements and Indicators. These assignments are included in the summary sheets.

Matrices were developed in which the criteria, elements and indicators are linked with associated research projects. These matrices serve to clearly identify gaps in the fulfillment of the framework in the form of indicators for which no data exists. It is important to note that in many instances, an indicator may not be entirely met by a listed project. That project, however, may have useful information that could provide a starting point for the fulfilment of an indicator, or the project may have information that could be used as a new measurable indicator not previously identified by the CCFM, yet still within the boundaries of a criterion or element.

The following constitute the deliverables associated with this objective:

- Matrix of the CCFM Criteria, elements and indicators with listings of all project numbers that are associated with each indicator.
- Less specific matrix of the CCFM without the inclusion of indicators. This matrix outlines those research projects associated with each element.

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Objective 3: Update the Compendium

The compendium has been updated to be current as of August, 2001.

The following is the deliverable:

- A digital copy of the compendium is available on SWGC-info in the following folder: Documents/Personal Folders/Karen. It is titled: Compendium2001

Recommendations

In order to avoid future problems with the acquisition of digital copies of research, and thus potential loss of valuable data, it is advised that the Model Forest require researchers to submit digital copies of their research as a deliverable. This digital research should be immediately transferred to PDF format, a summary sheet should be completed, and the new research should be posted on the WNMF website. Periodically (ie: every three or four months) newly acquired research projects and summary sheets should be copied onto CD (a copy of which should be sent to Bruce), and the CCFM matrix should be updated. The above should be the designated responsibility of a specific Model Forest employee.

2 ECOSYSTEM CONDITION AND PRODUCTIVITY	
2.1 Disturbance and Stress	
2.1.1	area and severity of insect attack
2.1.2	area and severity of disease infestation
2.1.3	area and severity of fire damage
2.1.4	rates of pollutant deposition
2.1.5	ozone concentrations in forested regions
2.1.6	crown transparency in % by class
2.1.7	area and severity of occurrence of exotic species detrimental to forest condition
2.1.8	climate change as measured by temperature sums
2.2 Ecosystem Resilience	
2.2.1	% and extent of area by forest type and age class
2.2.2	% of area successfully naturally regenerated and artificially regenerated.
2.3 Extant Biomass	
2.3.1	mean annual increment by forest type and age class
2.3.2	frequency of occurrence within selected indicator species

3 SOIL AND WATER CONSERVATION	
3.1 Physical Environmental Factors	
Project #'s	1-501-002 (poor)
3.1.1	% of harvested area with significant soil compaction, displacement, erosion, etc.
3.1.2	are of forest converted to non-forest land use
3.1.3	water quality as measured by water chemistry, turbidity, etc.
Project #'s	8-301-001 8-301-002 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 8-302-001 8-305-004
3.1.4	trends and timing of events in stream flows from forest catchments
Project #'s	8-304-001 8-301-001 8-301-002 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 8-302-001 8-301-011 8-301-010 8-301-008 8-301-006 8-301-005 8-301-004 8-301-003 8-301-002 8-301-001 8-304-001
3.1.5	changes in distribution and abundance of aquatic fauna
Project #'s	8-304-001 8-301-002 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 8-301-013 8-301-014 8-302-001 8-303-001 8-303-003 8-303-003
3.2 Policy and Protection Factors	
Project #'s	1-501-002 (poor)
3.2.1	% of forest managed primarily for soil and water protection
3.2.2	% of forested area having road construction and stream crossing guidelines
3.2.3	area, % and representativeness of forest types in protected areas

4 GLOBAL ECOLOGICAL CYCLES	
4.1 Global Carbon Budget	
4.1.1	three biomass volume
4.1.2	vegetation (non-tree) biomass estimates
4.1.3	% canopy cover
4.1.4	% of biomass volume by general forest type
4.1.5	soil carbon pools
4.1.6	soil carbon pool decay rates
4.1.7	area of forest depletion
4.1.8	forest wood product life cycles
4.1.9	forest sector carbon dioxide emissions
4.2 Forest Land Conversion	
4.2.1	area of forest permanently converted to non-forest use
4.2.2	semi-permanent or temporary loss or gain of forest ecosystems
4.3 Carbon Dioxide Conservation	
4.3.1	fossil fuel emissions
4.3.2	fossil carbon products emissions
4.3.3	% of forest sector energy usage from renewable resources
4.4 Policy Factors	
4.4.1	recycling rate of forest wood products manufactured in Canada
4.4.2	participation in the climate change convention
4.4.3	economic incentives for bioenergy use
4.4.4	existence of forest inventories
4.4.5	existence of laws and regulations on forest land management
4.5 Hydrological Cycles	
4.5.1	surface area of water within forested areas

5 MULTIPLE BENEFITS	
5.1 Productive Capacity	
5.1.1 annual removal of forest products relative to the volume determined to be sustainable	
Project #'s	6-501-002 6-501-003 6-501-006
5.1.2 distribution of and changes in landbase available for timber production	
5.1.3 animal population trends for species of economic importance	
Project #'s	8-301-002 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 0-210-001 2-205-002 2-205-003 2-205-004 2-205-005 2-205-006 8-801-003 2-213-001 2-206-002 2-204-001 2-211-000 2-201-001 2-201-003 2-201-004 2-201-005 2-201-006 2-201-007 2-207-002 2-207-003 2-207-004 2-208-008 2-209-001 2-212-001
5.1.4 management and development expenditures	
5.1.5 availability of habitat for selected wildlife species of economic importance	
Project #'s	8-304-001 8-301-002 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 0-210-001 2-205-002 2-205-003 2-205-004 2-205-005 2-205-006 8-801-003 2-213-001 2-206-002 2-204-001 2-211-000 2-201-001 2-201-003 2-201-004 2-201-005 2-201-006 2-201-007 2-207-002 2-207-003 2-207-004 2-208-008 2-209-001 2-212-001
5.2 Competitiveness	
5.2.1 net profitability	
5.2.2 trends in global market share	
5.2.3 trends in research and development expenditures in forest products and processing technologies	
5.3 Contribution to Economy	
5.3.1 contribution of timber and non-timber sectors to GDP	
5.3.2 total employment in all forest-related sectors	
Project #'s	4-501-001

6 SOCIETY'S RESPONSIBILITY	
6.1 Aboriginal and Treaty Rights	
6.1.1	extent to which forest planning and management consider legal obligations to aboriginals
6.2 Participation by Aboriginal Communities	
6.2.1	extent of aboriginal participation in forest-based economic opportunities
6.2.2	extent to which forest planning takes into account protection of significant Aboriginal sites
6.2.3	# of aboriginal communities with significant forestry component in economic base
6.2.4	area of forest land available for subsistence purposes
6.2.5	area of reserve lands under integrated management plans
6.3 Sustainability of Forest Communities	
6.3.1	# of communities with a significant forestry component in economic base
6.3.2	index of diversity of local industrial base
6.3.3	diversity of forest use at community level
Project #'s	6-501-001 6-501-002 6-501-003 6-501-004 6-501-005 6-501-006 3-301-001 4-404-002
6.3.4 # of communities with stewardship or co-management responsibilities	
6.4 Fair and Effective Decision Making	
6.4.1 degree of public participation in design of decision-making process	
Project #'s	0-109-001 0-404-003 0-429-002 2-004-001
6.4.2 degree of public participation in decision-making process	
Project #'s	0-109-001 0-404-003 0-429-002 2-004-001

6.4.3	degree of public participation in implementation of decisions and monitoring	
Project #'s		0-109-001 0-404-003 0-429-002 2-004-001
6.5 Informed Decision Making		
6.5.1	% of area covered by multi-attribute resource inventories	
6.5.2	investments in forest-based R&D	
Project #'s		6-101-001
6.5.3	total effective expenditures on public forestry education	
Project #'s		6-501-004 6-501-005 6-501-006 8-401-001 2-004-001
6.5.4	% of forest area under management including public participation	
6.5.5	expenditure on international forestry	
6.5.6	mutual learning mechanisms and processes	
Project #'s		6-501-004 6-501-005 6-501-006 0-109-001 0-404-003 2-004-001

1 CONSERVATION OF BIOLOGICAL DIVERSITY (General)	
1.1 Ecosystem Diversity	
Project #'s	1-601-001
1.2 Species Diversity	
Project #'s	2-205-002 2-205-003 2-205-004 2-205-006 2-204-001 2-211-000 2-201-001 2-201-003 2-201-004 2-201-005 2-201-006 2-201-007 2-207-002 2-207-003 2-207-004 2-208-008 2-209-001 2-212-001 8-803-002 8-304-001 8-301-013 8-301-014 8-302-001 0-210-001 2-205-005 8-801-003 2-203-001 2-213-001 2-206-002 8-803-002 8-303-001 8-803-002 8-303-003 8-401-001 2-204-001 2-211-000 2-201-001 2-205-005 2-213-001
1.3 Genetic Diversity	
Project #'s	2-201-002 2-201-001 8-101-001

2	ECOSYSTEM CONDITION AND PRODUCTIVITY
2.1	Disturbance and Stress
2.2	Ecosystem Resilience
2.3	Extant Biomass

3 SOIL AND WATER CONSERVATION	
3.1 Physical Environmental Factors	
Project #s	8-301-001 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 8-302-001 8-305-004 8-304-001 8-301-002 8-301-008 8-304-001 8-301-013 8-301-014 8-303-001 8-303-003 8-303-003
3.2 Policy and Protection Factors	
Project #s	1-501-002 (poor)

4	GLOBAL ECOLOGICAL CYCLES
4.1	Global Carbon Budget
4.2	Forest Land Conversion
4.3	Carbon Dioxide Conservation
4.4	Policy Factors
4.5	Hydrological Cycles

5 MULTIPLE BENEFITS	
5.1 Productive Capacity	
Project #'s	6-501-002 6-501-003 6-501-006 8-301-002 8-301-003 8-301-004 8-301-005 8-301-006 8-301-008 8-301-010 8-301-011 0-210-001 2-205-002 2-205-003 2-205-004 2-205-005 2-205-006 8-801-003 2-213-001 2-206-002 2-204-001 2-211-000 2-201-001 2-201-003 2-201-004 2-201-005 2-201-006 2-201-007 2-207-002 2-207-003 2-207-004 2-208-008 2-209-001 2-212-001 8-304-001
5.2 Competitiveness	
5.3 Contribution to Economy	
Project #'s	4-501-001 6-501-001 6-501-002 6-501-003 6-501-006 3-301-001 4-404-002 8-102-002 8-103-001 8-103-003 8-103-004 8-601-001 0-109-001 8-303-002 8-303-003
5.4 Non-Timber Values	
Project #'s	2-203-001 2-213-001 3-301-001 4-404-002 8-102-002 8-103-001 8-103-002 8-103-003 8-103-004 8-601-001 0-109-001 8-303-002 8-303-003 4-501-001

6 SOCIETY'S RESPONSIBILITY

6.1 Aboriginal and Treaty Rights

6.2 Participation by Aboriginal Communities

6.3 Sustainability of Forest Communities

Project #'s	6-501-001	6-501-002	6-501-003	6-501-004	6-501-005	6-501-006	3-301-001	4-404-002
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6.4 Fair and Effective Decision Making

Project #'s	0-109-001	0-404-003	0-429-002	2-004-001
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6.5 Informed Decision Making

Project #'s	6-101-001	6-501-004	6-501-005	6-501-006	8-401-001	2-004-001	0-109-001	0-404-003
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