

THE BIODIVERSITY ASSESSMENT PROJECT IN WESTERN NEWFOUNDLAND



Phase II: Analysis of biodiversity-friendly alternatives using coarse-filter and pine marten habitat supply model

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August 2001

## THE BIODIVERSITY ASSESSMENT PROJECT IN WESTERN NEWFOUNDLAND

Phase II : Analysis of biodiversity-friendly alternatives using coarse-filter and pine marten habitat supply model.

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Collaborator: Jason Pond, RPF (NF&L FS)

Partners: Western Newfoundland Model Forest

Institut Québécois d'Aménagement de la Forêt Feuillue (IQAFF)

Kruger Corner Brook Pulp and Paper Inc.

NF&L Forest service, Ecosystem Management Division

### **Deliverables**

From IQAFF:

- Stratification based on ecoclassification for making successional rules functioning according to Damman forest types dynamics;
- Succession transition probabilities;
- Scenario simulation rules at the stand and the landscape level for four scenarios (business-as-usual fragmenting the landscape, business-as-usual in aggregating the landscape, matern-friendly scenario, disturbance and succession);
- Pine marten HSM BAP indicator;
- Training workshop on how to run BAP models
- A report and a scientific article on the analysis of the outputs and its interpretation in regards to ecosystem management.

### **Introduction**

In the first phase of the project of transferring the BAP technology (Biodiversity Assessment Project, Duinker and Doyon 2000) to the Western Newfoundland Model Forest partners, the IQAFF had to apply the coarse-filter indicators to two forest projections developed by the NF&L FS for district 15. To do so, the IQAFF has developed the habitat classification and the algorithm for reclassifying the forest projections according to it. Two scenarios were produced by NF&L FS. After starting to interpret the outputs of the bio-indicators, I found disappointing that the results were barely similar. The two scenarios were too close in terms of silviculture, forest management and landscape dynamics rules for getting insightful results from the comparison on the biodiversity point of view (Table 1). Secondly, deterministic succession rules not ensuring equilibrium has gradually eliminated rare habitat types and provided faulty results. It became thus obvious that modifications of the business-as-usual scenarios were necessary and new scenarios more contrasted should be compared.

Table 1. Simulation rules used to generate two first scenario.

Conditions	Scenario 1	Scenario 2
Allowed hectares for planting	Max 300/yr	Max 230/yr
Allowed hectares for PCT*	Max 1500/yr	Max 850/yr
Prematurity for harvesting	Tighter operability	Relaxed operability
Oper. growing stock limit on AAC	$AAC \leq OGS/2$	No
Evenflow constraint	Yes	Yes
Age constraint	20% of 81+	No
Average age of cut stands	$\geq 70$ yrs	No
Min. block size	100	50
Target block size	150	500
Allowed flow fluctuation	10% max	5% max
Adjacency constraint	No	No

\* Precommercial thinning

Meanwhile, progress were made in the use of a pine marten habitat supply model (HSM) for assessing the ability of a forest landscape to support how many males, based on the work of Joe WHO? from the NF&L Wildlife Service. It was used to evaluate which part of the Main River Forest is deemed essential to be conserved for maintaining the pine marten in the area. We (Me and Jason Pond) saw then an opportunity to transfer this model into BAP for assessing the new scenarios.

### Tasks of this phase

This Phase II of the project seeks the same goal as in Phase I, but we want to improve the scenarios used and to start to use fine-filter indicators. More specifically, we will accomplish the following tasks:

1. Include stochasticity in the succession rules of the harvest simulator in order to improve the realness of the forest projection
2. Develop new scenarios (BAU fragmented, BAU aggregated, disturbance & succession only, and marten-friendly)
3. Code the pine marten habitat supply model already used by the NF&L Wildlife Service into a BAP-useable format (raster rather than vector);
4. Give a training workshop to planning analysts on running BAP technology;
5. Run the BAP indicators
6. Analyse BAP outputs; and
7. Interpret the results and give recommendations at the stand and the landscape level for implementing biodiversity-friendly alternatives.

### Schedule

Tasks	Period	Work load	
		IQAFF	NF&L FS
1. Review succession rules	01/09/01- 01/09/28	4 weeks	1 week
2. Develop & run new scenarios: BAU fragmented and aggregated	01/10/01- 01/10/12	1 week	2 weeks
2. Develop new scenarios: Marten-friendly	01/10/08- 01/10/20	2 weeks	2 weeks
2. Develop new scenarios: Disturbance and succession	01/10/22- 01/11/09	3 weeks	2 weeks

3. Pine Marten HSM	01/11/12- 02/11/30	3 weeks	1 week
4. Training workshop	01/11/19- 01/11/23	1 week	1 week
5. Running BAP indicators	01/11/26- 01/12/07		2 weeks
6. Outputs analysis	01/12/10- 02/01/18	6 weeks	
7. Results interpretation	02/01/22- 02/02/15	4 weeks	
8. Report and article writing	02/02/18- 02/03/15	4 weeks	

#### Payment schedule and associated deliverables

Payment	Deliverable	Time milestone	Amount <sup>1</sup>
First	Proposal	August 8, 2001	11 250\$ (25%)
Mid-project	Mid-project progress report	December 31, 2001	27 000\$ (60%)
Last	Final report	March 31, 2002	6 750\$ (15%)

<sup>1</sup> This amount does not include federal and provincial taxes.

**Budget**

<b>Expenses forecast for the different tasks of the project</b>					
ACTIVITY NO	RESOURCE	QUANTITY IN UNITS	COST BY UNITS	COST	TASK COST
1	Principal investigator	5 days	300\$/d	1 500\$	5 495\$
	Database analyst	17 days	235\$/d	3 995\$	
2	Principal investigator	30 days	300\$/d	9 000\$	9 000\$
3	Principal investigator	5 days	300\$/d	1 500\$	3 850\$
	Computer analyst	10 days	235\$/d	2 350\$	
4	Computer analyst	8 days	235\$/d	1 880\$	3 550\$
	Plane ticket	1 ticket	1000\$/tic	1 000\$	
	Room	6 nights	65\$/night	390\$	
	Restaurant	7 days	40\$/d	280\$	
6	Principal investigator	30 days	300\$/d	9 000\$	9 000\$
7	Principal investigator	20 days	300\$/d	6 000\$	6 000\$
8	Principal investigator	20 days	300\$/d	6 000\$	6 000\$
Other	Hardware amortization	145 days	10\$/d	1 450\$	1 450\$
	Subtotal				44 345\$
	Project management	3%			1 330\$
	Grand total (whitout taxes)				45 675\$

**Contribution**

WNMF	45 000 \$
Kruger	????? \$
Abitibi Consolidated	????? \$
Gros Morne National Park	????? \$
NF&L FS	????? \$

**References**

Duinker, P.N. and F. Doyon. 2000. Biodiversity Assessment Project. BAP structure. BAP report 1. Millar Western Forest Products, Edmonton, AB. 22pp.