Fundy Model Forest

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Report Title: Fundy Model Forest Project Report Deer Winter Habitat Projections

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The Fundy Model Forest…
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"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

Fundy Model Forest Project Report
Deer Winter Habitat Projections

The purpose of this project was to project the occurrence of stands that meet the winter habitat requirements of deer in the SNB area as a result of SNB's current SFM plan. This information would then be added to the existing SNB SFM system and also provided to the Fundy Model Forest so that the information can be added to their system as well.

SNB approached Group 5 (Multiple Benefits to Society) of the Fundy Model Forest to help fund the projection of potential deer winter habitat. The group was interested in the project because it filled an information gap and addressed indicator 5.1e with regards to the private forestland in the SNB / FMF areas. The on the ground benefits of this project will be primarily seen in the influence it will have on the development of woodlot management plans. The hope is that this landscape level concern will be increasingly incorporated into woodlot level management plans.

To project the potential deer winter habitat (DWH) over the planning horizon of the SNB SFM plan there were several steps that had to be completed along the way. These steps included:

1. Apply DWH habitat definitions to the appropriate forest stands

Using the deer winter habitat definitions from the NB DNRE the stand level yield curves that had the proper attributes such as species composition and volume were selected and the habitat windows were applied. These habitat windows define when, in terms of the age, the stand will provide deer wintering habitat (Table 1.).

2. Adding DWH yield component to appropriate stand yield curves.

Once the eligible yield curves were selected and the habitat windows determined, a new yield component was added to these yield curves. These new yield components were then added to SNB's existing wood supply analysis model.

3. Modifying SNB's current wood supply model to report on DWH

SNB's current wood supply analysis model was modified to report on the area of deer winter habitat for each five-year period between 1994 and 2074.

4. Re-running of SNB's preferred scenario.

The modified SNB wood supply model was then re-run using SNB's preferred scenario to gauge the impacts of this management strategy on the availability of deer winter habitat over the current planning period.

Table 1.

Deer Winter Habitat Windows for All Forest Development Curves (SNB)

Yield Set	Moderate Winter (Yrs.)	Severe Winter (Yrs.)
C09	90 - 140	70 - 95
C11	85 - 105	0 - 0
C12	50 - 150	0 - 0
C13	65 - 110	0 - 0
C15	60 - 145	0 - 0
C24	135 - 140	0 - 0
C28	75 - 160	75 - 115
C29	130 - 240	65 - 180
C32	50 - 155	0 - 0
C34	125 - 135	0 - 0
C35	70 - 150	50 - 90
C38	65 - 240	55 - 125
C39	105 - 110	0 - 0
C41	50 - 240	0 - 0
C42	100 - 205	100 - 135
C43	70 - 240	50 - 135
C44	70 - 100	50 - 90
C46	60 - 240	50 - 100
C47	65 - 125	0 - 0
C48	130 - 140	0 - 0
C49	50 - 135	0 - 0
C50	60 - 175	0 - 0
C51	70 - 240	50 - 110
C57	60 - 110	0 - 0
C58	65 - 110	0 - 0
C61	50 - 55	0 - 0
C62	60 - 125	0 - 0
C64	70 - 180	0 - 0
C68	75 - 155	0 - 0
C69	95 - 155	0 - 0
C70	90 - 100	0 - 0
C331	65-240	50- 75
C332	65-240	50- 75
C333	70-240	50- 75
C341	65-240	50- 75

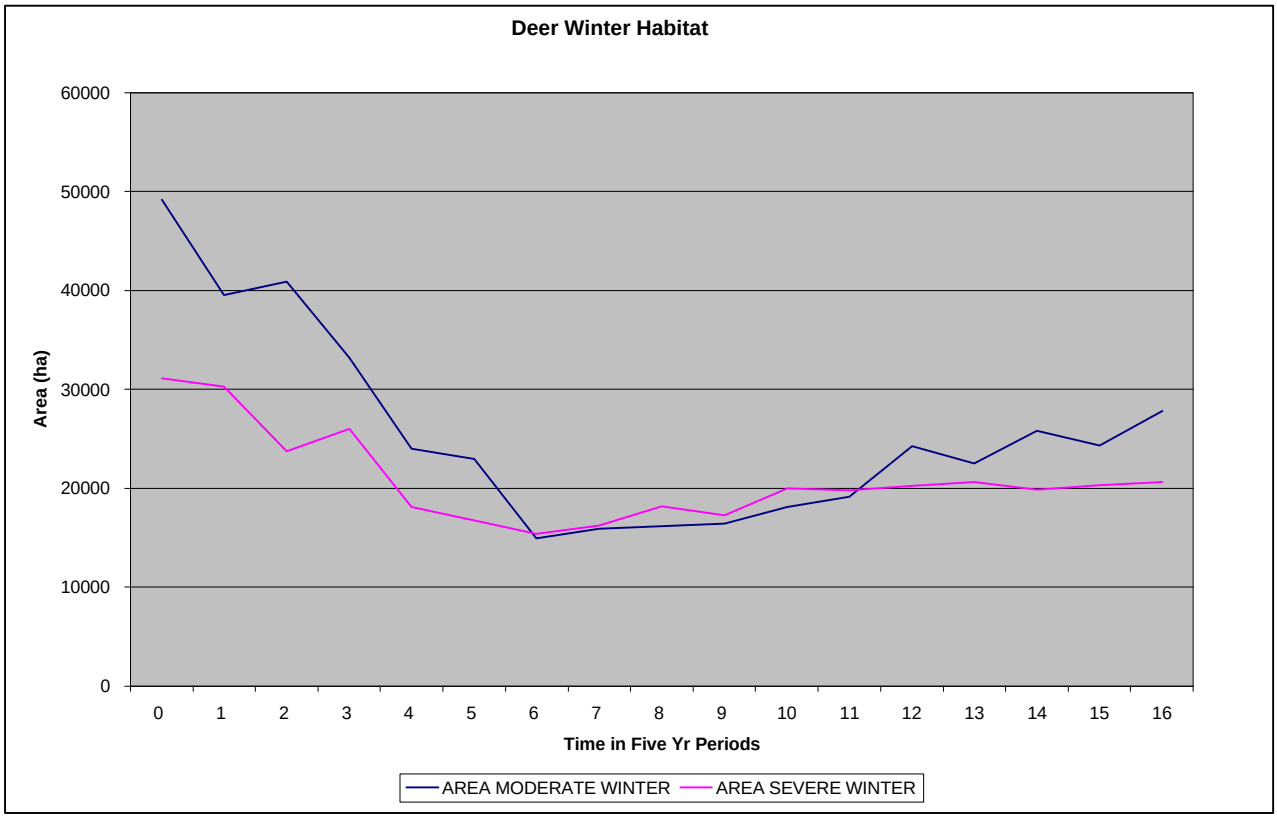
C342	65-240	50- 75
C343	70-240	50- 75
C344	65-240	50- 75
C345	65-240	50- 75
C346	70-240	50- 75
C421	75-240	70-240
C422	75-240	70-240
C423	75-240	70-240
C471	70-240	60- 80
C472	70-240	60- 80
C473	75-240	65- 80
C474	70-240	0- 0
C475	70-240	0- 0
C476	75-240	0- 0
C477	70-240	60- 80
C478	70-240	60- 80
C479	75-240	65- 80
C492	65-240	50- 75
C493	65-240	50- 75
C494	70-240	55- 75
C741	65-240	50- 75
C742	65-240	50- 75
C744	65-240	50- 75
C745	65-240	50- 75
C751	75-240	70-240
C752	75-240	70-240

From a previous deer winter habitat project it has been calculated that for the year 1994 there was 49168 ha of moderate winter DWH and 31148 ha of severe winter habitat in the SNB/FMF areas. The task of this project was to project these habitat levels over time as a result of SNB's current SFM plan. The projected areas of deer winter habitat for the SNB area for the time period 1994 – 2074 are shown in the table and graph below. (Table 2. and Fig. 1)

Table 2.

Area of deer winter habitat by type of habitat provided (SNB Area)			
Planning Period	Moderate Winter DWH	Severe Winter DWH	Total Area (ha)
P0	49168	31148	80316
P1	39533	30271	69804
P2	40935	23760	64695
P3	33187	26006	59193
P4	23993	18113	42106
P5	22963	16734	39697
P6	14917	15371	30288
P7	15880	16214	32094
P8	16159	18166	34325
P9	16420	17290	33710
P10	18131	19993	38124
P11	19176	19792	38968
P12	24281	20248	44529
P13	22494	20659	43153
P14	25797	19863	45660
P15	24290	20297	44587
P16	27831	20610	48441

Fig. 1.



As an addition to this project group 5 upon approval of the deer winter habitat projection project asked SNB to also include the NBDNRE mature coniferous forest habitat (MCFH) and mature deciduous forest habitat (MDFH) in the re-run of SNB's wood supply analysis model. Adding the MCFH and MDFH windows to the model was done in the same manor as the DWH windows, and so the steps will not be repeated here. The projected areas of MCFH and MDFH for the SNB area for the time period 1994 – 2074 are shown in the table and graph below. (Table 3., Fig. 2 and Fig. 3)

Table 3.

Area of Mature Forest Habitat (SNB Area)			
Planning Period	Area MCFH	Area MDFH	Total Area (ha)
P0	73149	46566	119715
P1	78856	60420	139275
P2	65118	51946	117064
P3	49728	58461	108189
P4	47223	65383	112606
P5	39833	62307	102139
P6	34930	61245	96175
P7	31248	55248	86496
P8	30490	58610	89101
P9	32578	52182	84760
P10	39225	52230	91455
P11	42286	52215	94501
P12	50905	54973	105878
P13	51963	56839	108801
P14	48243	56399	104642
P15	43213	61386	104599
P16	42581	64771	107353

Fig. 2.

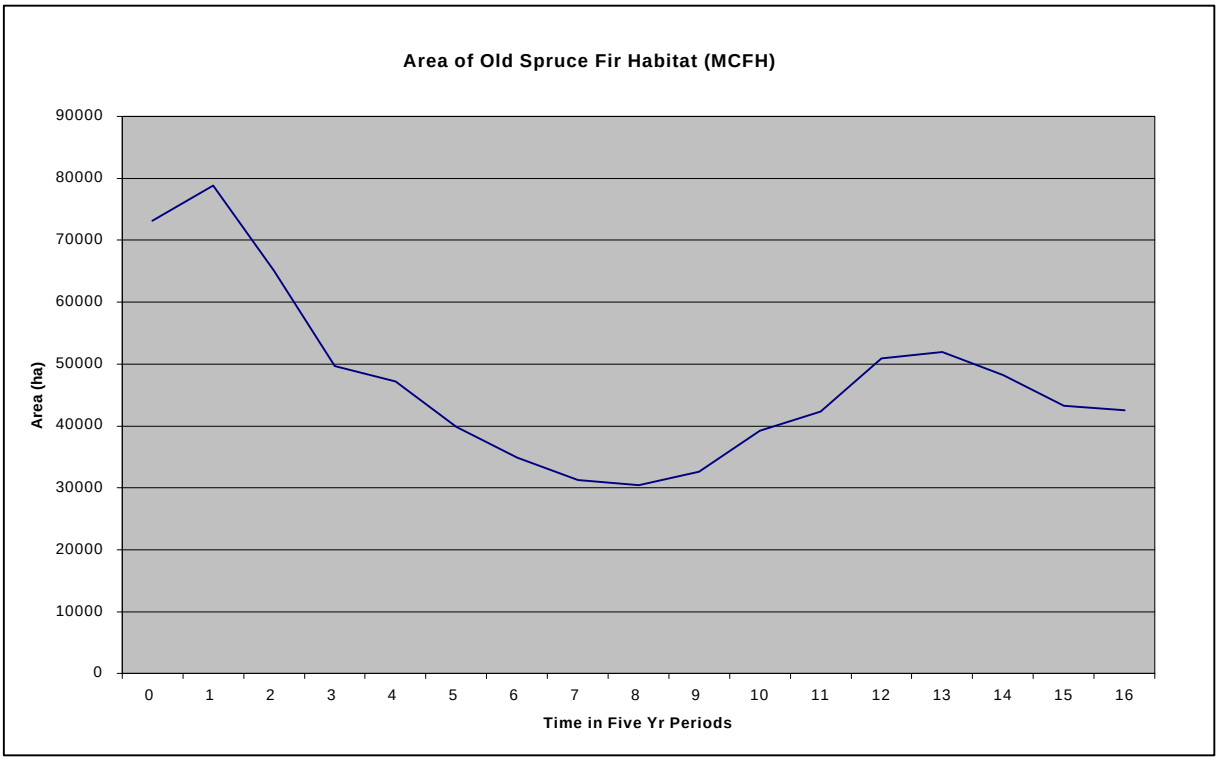
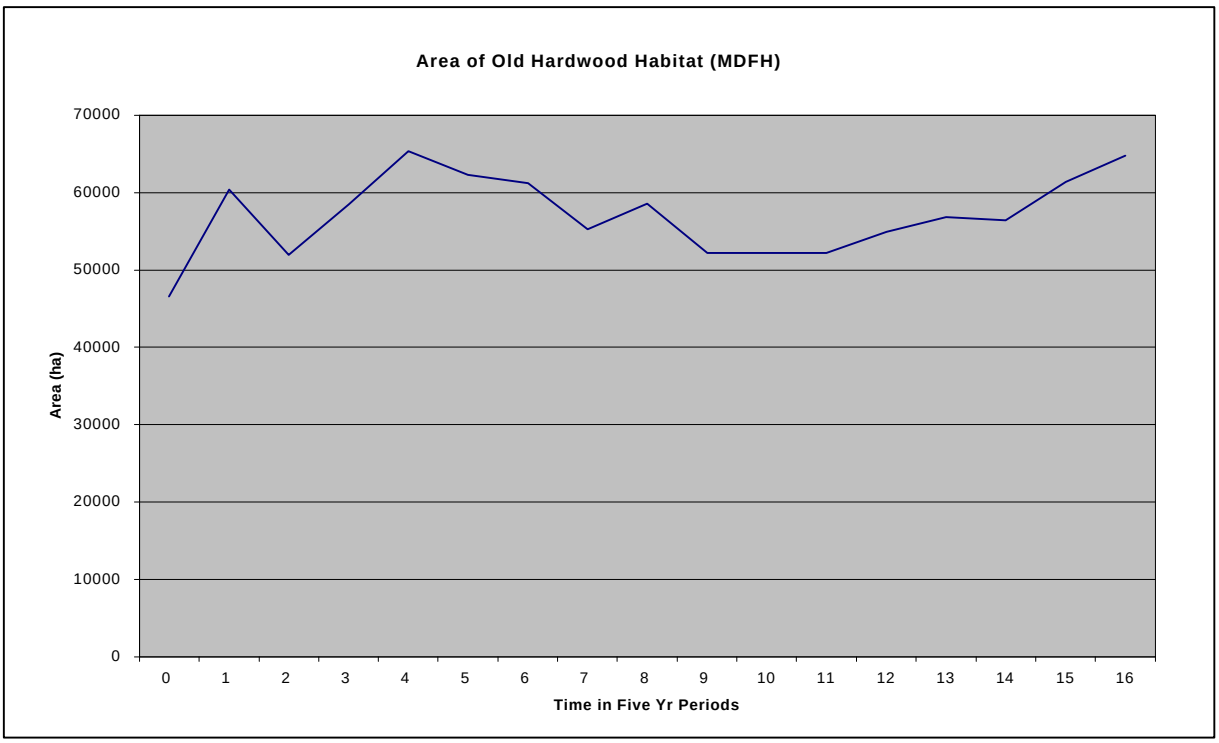

Area of Old Spruce Fir Habitat (MCFH)
Area (ha)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Time in Five Yr Periods

Fig. 3


Area of Old Hardwood Habitat (MDFH)
Area (ha)
70000
60000
50000
40000
30000
20000
10000
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Time in Five Yr Periods