

Article

# Supplementary material - Influence of tree, stand, and site attributes on hardwood product yield: insights into the Acadian forests

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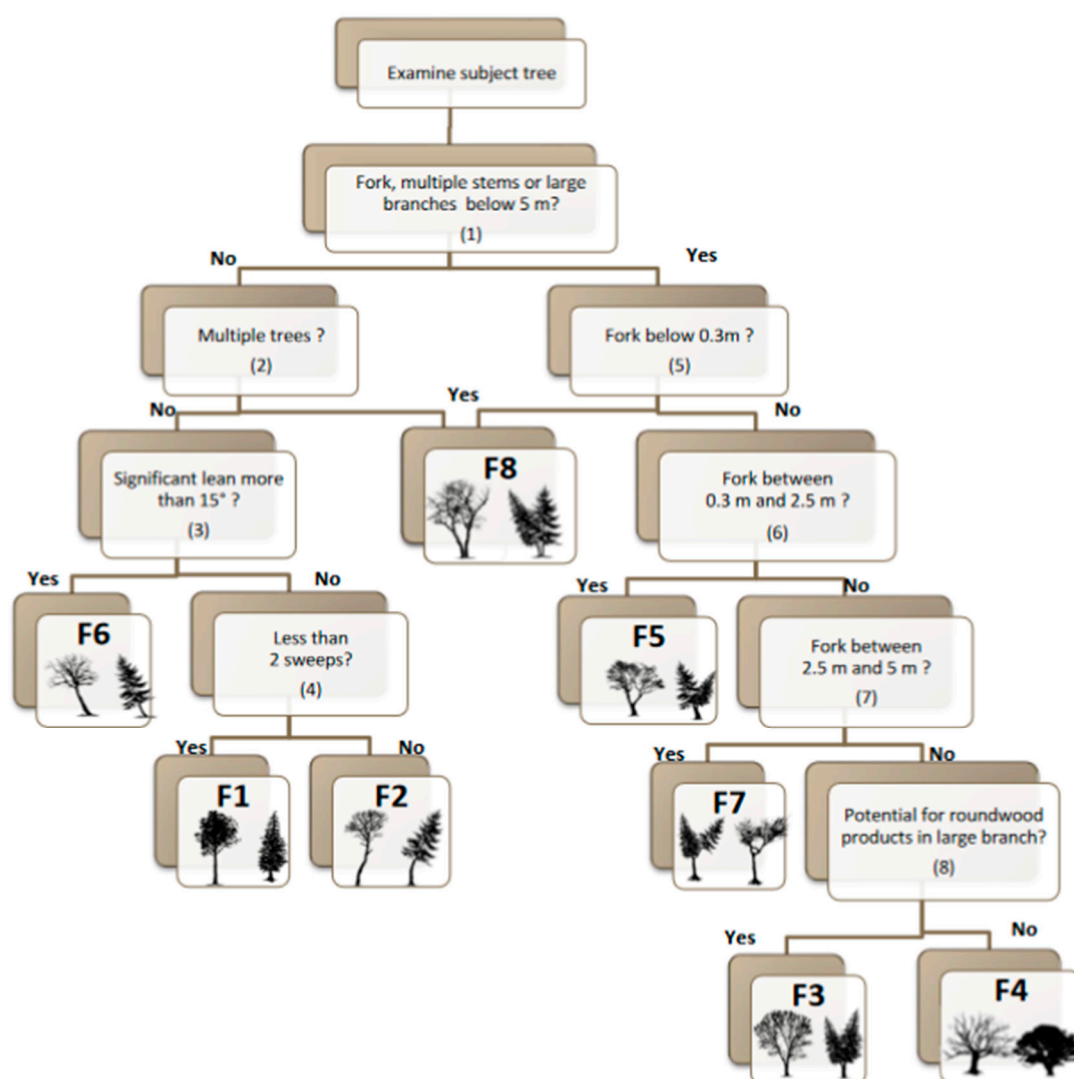


Figure S1: Decision tree for form classification of trees (F1-F8) used in New Brunswick [29].

Table S1: List of variables included in the FAMD on ecoregions.

<i>Variable</i>	<i>Data type</i>	<i>Description</i>
<i>Ecoregion</i>	Qualitative	Land classification of New Brunswick (1 to 7)
<i>Soil</i>	Qualitative	Forest soil units, according to classification of NBDNRED
<i>Drain</i>	Qualitative	Classification of duration needed for water to infiltrate surface
<i>Slope</i>	Qualitative	Categories of slopes
<i>Aspect</i>	Qualitative	Categories of exposure of terrain
<i>Mean_WTB</i>	Quantitative	Mean water table depth
<i>Degree day</i>	Quantitative	Growing degree days
<i>Degree day 0</i>	Quantitative	Growing degree days base 0
<i>Degree day uti</i>	Quantitative	Growing degree days during growing season
<i>Prec_uti</i>	Quantitative	Precipitation during growing season
<i>Srad uti</i>	Quantitative	Sun radiation during growing season
<i>Tmax</i>	Quantitative	Mean of maximum daily temperatures for period 1981-2010
<i>Tmean</i>	Quantitative	Mean of mean daily temperatures for period 1981-2010
<i>Tmean_uti</i>	Quantitative	Mean of maximum daily temperature during growing season for period 1981-2010
<i>Prec_nonutil</i>	Quantitative	Precipitation outside growing season
<i>Srad_nonutil</i>	Quantitative	Sun radiation outside growing season

Table S2: ANOVA table (type II) for multinomial analysis of tree species (N = 253 235) with indication of significance levels (\*\*\*; 0).

Analysis of Deviance Table (Type II tests)

Response: groupedSp.relevel

	<i>LR</i>	<i>Chisq</i>	<i>Df</i>	<i>Pr(&gt;Chisq)</i>	
<i>DomHwSw</i>		54093	5	<2e-16	***
<i>SampleType</i>		614	5	<2e-16	***
<i>EcoRegion</i>		8663	30	<2e-16	***
<i>DomHwSw:SampleType</i>		-293	5	1	
<i>DomHwSw:EcoRegion</i>		778	30	<2e-16	***
<i>SampleType:EcoRegion</i>		-102	30	1	

Table S3: ANOVA table of relative stand density index (RSDI) with indication of significance levels (\*\*\*: 0; :. 0.05).

	<i>Df</i>	<i>Sum Sq</i>	<i>Mean Sq</i>	<i>F value</i>	<i>Pr(&gt;F)</i>	
<i>EcoRegion</i>	6	2.4	0.4052	3.919	0.000651	***
<i>DomHwSw</i>	1	0.3	0.3465	3.351	0.067223	.
<i>SampleType</i>	1	1.3	1.2775	12.355	0.000443	***
<i>EcoRegion:DomHwSw</i>	6	1.0	0.1621	1.568	0.152068	
<i>EcoRegion:SampleType</i>	1	2.1	2.1484	20.778	5.25e-06	***
<i>DomHwSw:SampleType</i>	1	0.2	0.1935	1.872	0.171318	
<i>Residuals</i>	6772	700.2	0.1034			

Table S4: ANOVA table (type II) for form classes with indication of significance levels (\*\*\*: 0; \*\*: 0.001; \*: 0.01; :. 0.05)..

Analysis of Deviance Table (Type II tests)

Response: Form4revel

	<i>LR</i>	<i>Chisq</i>	<i>Df</i>	<i>Pr(&gt;Chisq)</i>	
<i>DomHwSw</i>		42.17	3	3.699e-09	***
<i>Ecoregion</i>		376.33	18	< 2.2e-16	***
<i>SampleType</i>		19.90	3	0.0001784	***
<i>groupedSp</i>		2736.97	15	< 2.2e-16	***
<i>RSDI</i>		17.67	3	0.0005141	***
<i>DomHwSw:Ecoregion</i>		26.13	18	0.0968100	.
<i>DomHwSw:SampleType</i>		17.40	3	0.0005853	***
<i>DomHwSw:groupedSp</i>		57.55	15	6.627e-07	***
<i>DomHwSw:RSDI</i>		5.44	3	0.1424766	
<i>Ecoregion:SampleType</i>		21.44	18	0.2576344	
<i>Ecoregion:groupedSp</i>		210.82	90	1.080e-11	***
<i>Ecoregion:RSDI</i>		81.28	18	5.117e-10	***
<i>SampleType:groupedSp</i>		120.32	15	< 2.2e-16	***
<i>SampleType:RSDI</i>		12.56	3	0.0056833	**
<i>groupedSp:RSDI</i>		28.77	15	0.0171934	*

Table S5: ANOVA table (type II) for risk classes with indication of significance levels (\*\*\*: 0; \*\*: 0.001; \*: 0.01).

Analysis of Deviance Table (Type II tests)

Response: Riskrelevel

	<i>LR</i>	<i>Chisq</i>	<i>Df</i>	<i>Pr(&gt;Chisq)</i>	
<i>DomHwSw</i>		12.69	3	0.0053478	**
<i>Ecoregion</i>		758.63	18	< 2.2e-16	***
<i>SampleType</i>		67.32	3	1.596e-14	***
<i>groupedSp</i>		1629.55	15	< 2.2e-16	***
<i>RSDI</i>		9.81	3	0.0202681	*
<i>DomHwSw:Ecoregion</i>		71.23	18	2.795e-08	***
<i>DomHwSw:SampleType</i>		41.41	3	5.345e-09	***
<i>DomHwSw:groupedSp</i>		92.96	15	2.776e-13	***
<i>DomHwSw:RSDI</i>		0.68	3	0.8779214	
<i>Ecoregion:SampleType</i>		64.76	18	3.404e-07	***
<i>Ecoregion:groupedSp</i>		245.34	90	2.485e-16	***
<i>Ecoregion:RSDI</i>		56.43	18	7.626e-06	***
<i>SampleType:groupedSp</i>		78.18	15	1.503e-10	***
<i>SampleType:RSDI</i>		9.46	3	0.0237177	*
<i>groupedSp:RSDI</i>		43.37	15	0.0001377	***

Table S6: ANOVA table for DBH of trees with known localization (N = 253 235) with indication of significance levels (\*\*\*: 0; \*: 0.01).

	<i>Df</i>	<i>Sum Sq</i>	<i>Mean Sq</i>	<i>F value</i>	<i>Pr(&gt;F)</i>	
<i>groupedSp</i>	5	397476	79495	1633.016	<2e-16	***
<i>DomHwSw</i>	1	6060	6060	124.489	<2e-16	***
<i>Ecoregion</i>	6	32240	5373	110.379	<2e-16	***
<i>SampleType</i>	1	195948	195948	4025.238	<2e-16	***
<i>groupedSp:DomHwSw</i>	5	20264	4053	83.256	<2e-16	***
<i>groupedSp:Ecoregion</i>	30	74832	2494	51.241	<2e-16	***
<i>groupedSp:SampleType</i>	5	47020	9404	193.182	<2e-16	***
<i>DomHwSw:Ecoregion</i>	6	9959	1660	34.098	<2e-16	***
<i>DomHwSw:SampleType</i>	1	306	306	6.293	0.0121	*
<i>Ecoregion:SampleType</i>	1	3	3	0.055	0.8147	
<i>Residuals</i>	252900	12311157	49			

Table S7: ANOVA table for DBH of trees with information on form group and risk class (N = 25 516) with indication of significance levels (\*\*\*: 0).

	<i>Df</i>	<i>Sum Sq</i>	<i>Mean Sq</i>	<i>F value</i>	<i>Pr(&gt;F)</i>	
<i>Form4</i>	3	46567	15522	142.838	< 2e-16	***
<i>Risk</i>	3	10418	3473	31.955	< 2e-16	***
<i>Form4:Risk</i>	9	3060	340	3.129	1.57e-08	***
<i>Residuals</i>	25227	2741452	109			

Table S8: ANOVA of tree height depending on species group, plot dominance and ecoregion (N = 62 292) with indication of significance levels (\*\*\*: 0).

	<i>Df</i>	<i>Sum Sq</i>	<i>Mean Sq</i>	<i>F value</i>	<i>Pr(&gt;F)</i>	
<i>groupedSp</i>	5	86 985	17 397	980.59	< 2e-16	***
<i>DomHwSw</i>	1	3 593	3 593	202.51	< 2e-16	***
<i>EcoRegion</i>	6	10 084	1 681	94.73	< 2e-16	***
<i>groupedSp:DomHwSw</i>	5	1 585	317	17.87	< 2e-16	***
<i>groupedSp:EcoRegion</i>	30	8 793	293	16.52	< 2e-16	***
<i>DomHwSw:EcoRegion</i>	6	1 476	246	13.87	7.98e-16	***
<i>Residuals</i>	62 238	1 104 191	18			

Table S9: ANOVA table of tree height depending on form group and risk class (N = 24 048) with indication of significance levels (\*\*\*: 0; \*: 0.01).

	<i>Df</i>	<i>Sum Sq</i>	<i>Mean Sq</i>	<i>F value</i>	<i>Pr(&gt;F)</i>	
<i>Form4</i>	3	1055	351.6	18.177	8.91e-12	***
<i>Risk</i>	3	178	59.5	3.075	0.0265	*
<i>Form4:Risk</i>	9	822	91.3	4.721	2.71e-06	***
<i>Residuals</i>	23942	463106	19.3			