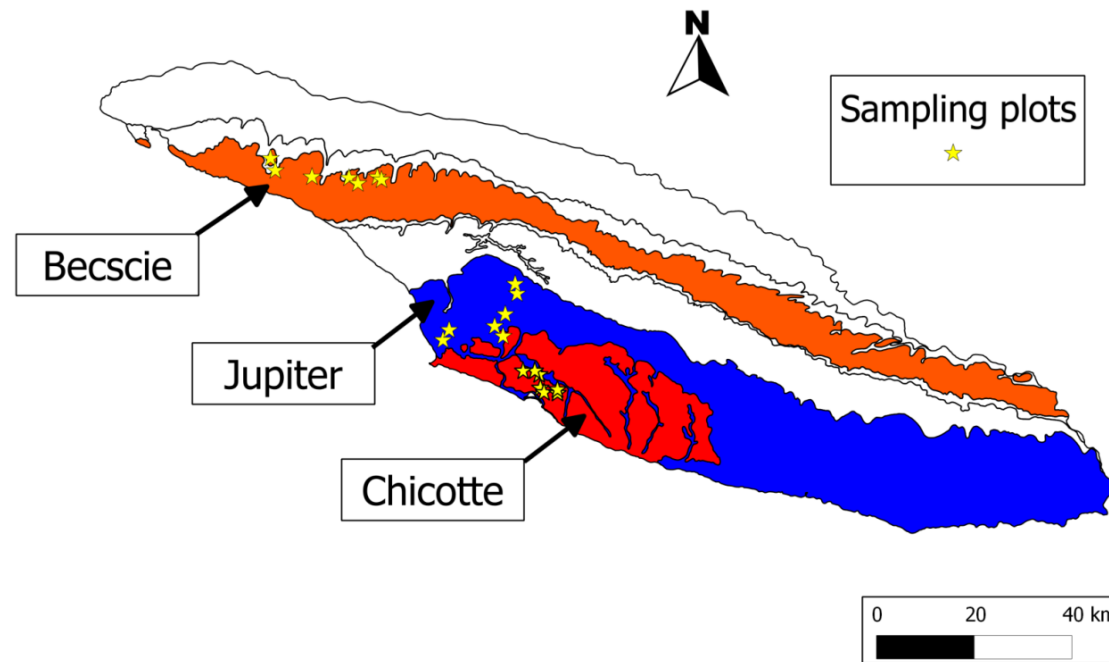


Appendix 1

Location of 21 sampling plots distributed over three geological deposits on Anticosti Island, QC, Canada. The island covers a total area of 7943 km².



Appendix 2

Summary of mineral soil properties for 21 sampling plots located on three geological deposits on Anticosti Island, QC, Canada

Sampling plot	pH	N (mg g ⁻¹)	C (mg g ⁻¹)	Silt %	Sand (%)	Clay (%)	Na (mg kg ⁻¹)	Ca (mg kg ⁻¹)	Mg (mg kg ⁻¹)	K (mg kg ⁻¹)	NH ₄ ⁺ (mg g ⁻¹)	NO ₃ (mg g ⁻¹)	Forest floor depth (cm)
Becscie 1	4.59	0.267	3.04	38	57	5	0.0596	0.224	1.95	0.114	0.016	0.0018	6
Becscie 2	6.28	0.190	2.53	37	58	5	0.0374	0.218	3.12	0.121	0.007	0.0168	23
Becscie 3	5.71	0.132	1.23	24	74	3	0.0698	0.219	2.68	0.073	0.004	0.0036	24
Becscie 4	4.39	0.183	3.16	31	64	5	0.0721	0.230	2.60	0.093	0.004	0.0211	15
Becscie 5	6.00	0.140	1.70	28	67	5	0.0384	0.213	2.92	0.056	0.003	0.0127	16
Becscie 6	3.43	0.190	3.79	41	54	5	0.0621	0.228	0.94	0.088	0.005	0.0000	15
Becscie 7	6.31	0.415	8.10	56	42	3	0.0553	0.224	2.63	0.117	0.004	0.0667	7
Mean Becscie	5.24	0.217	3.37	36	59	4	0.0564	0.222	2.40	0.094	0.006	0.0175	15
Chicotte 1	6.95	0.315	6.02	13	83	5	0.0940	0.265	22.34	0.204	0.044	0.0047	8
Chicotte 2	5.75	0.482	8.93	39	54	7	0.0830	0.260	8.13	0.157	0.031	0.0078	11
Chicotte 3	6.68	0.241	6.56	31	64	5	0.0679	0.211	18.48	0.130	0.044	0.0080	10
Chicotte 4	6.74	0.285	10.13	39	54	7	0.0587	0.235	19.42	0.185	0.032	0.0058	9
Chicotte 5	6.92	0.327	4.32	36	58	6	0.0673	0.222	13.05	0.199	0.003	0.0329	17
Chicotte 6	7.04	0.178	10.13	20	78	3	0.0275	0.191	19.95	0.104	0.020	0.0158	9
Chicotte 7	6.94	0.304	9.57	19	75	6	0.0590	0.224	20.84	0.139	0.026	0.0219	12
Mean Chicotte	6.72	0.305	7.95	28	66	6	0.0653	0.230	17.46	0.160	0.029	0.0139	11
Jupiter 1	6.75	0.229	3.44	35	62	4	0.1180	0.203	10.42	0.098	0.002	0.0343	12
Jupiter 2	6.69	0.221	5.52	29	70	2	0.0841	0.214	16.13	0.140	0.048	0.0028	11
Jupiter 3	6.92	0.176	2.56	38	57	6	0.0986	0.201	12.46	0.088	0.008	0.0042	53
Jupiter 4	6.31	0.190	1.80	46	46	8	0.0894	0.226	3.18	0.043	0.005	0.0036	34
Jupiter 5	4.90	0.268	4.22	33	63	5	0.0933	0.202	3.26	0.098	0.008	0.0118	13
Jupiter 6	4.98	0.312	5.51	19	78	4	0.1590	0.290	5.50	0.260	0.017	0.0107	9
Jupiter 7	6.87	0.208	3.81	23	75	3	0.1095	0.214	11.84	0.147	0.031	0.0030	10
Mean Jupiter	6.20	0.229	3.84	32	64	4	0.1074	0.221	8.97	0.125	0.017	0.0101	20

Appendix 3

Table 1. Results of multivariate analyses testing the relationship between plant nutritional quality of four forage species and soil properties. The analyses are achieved using the first two principal components of PCAs that describe the variance of either the plant nutritional quality or soil properties.

Type of test	Species	r	p-value
Procrustes	Balsam fir	0.22	0.7
	White spruce	0.52	0.004
	Canada bunchberry	0.29	0.4
	Canada mayflower	0.42	0.07
Mantel	Balsam fir	0.09	0.8
	White spruce	0.21	0.02
	Canada bunchberry	0.04	0.3
	Canada mayflower	0.14	0.08

Appendix 4

Table 2. Results of univariate tests testing the effect of the geological deposit on the nutritional quality of four forage species. The analyses are achieved by using the Tukey's method in conjunction with one-way analysis of variance (ANOVA). Bold characters show significant differences in quality between forage collected within different geological deposits. Statistically significant differences in forage quality as shown by Tukey's tests ($p < 0.05$) are denoted by different lower-case letters.

Plant species	Forage quality variable (%)	Variance explained by deposit	p-value	Mean values		
		(i.e. in ANOVA) R ²	(i.e. in ANOVA)	Becscie	Chicotte	Jupiter
Balsam fir	nitrogen	0.03	0.3	1.18	1.08	1.19
	carbon	0.00	0.5	51.66	51.81	52.01
	phosphorus	0.00	0.6	0.110	0.097	0.108
	IVTD	0.00	0.7	66.3	66.3	65.6
	NDF	0.00	0.4	39.7	40.9	39.5
	ADF	0.00	0.4	37.4	39.6	38.5
	ADL	0.00	0.4	23.2	25.9	24.9
	hemicellulose	0.00	0.6	2.30	1.27	0.96
	cellulose	0.00	0.8	14.2	13.7	13.7
White spruce	nitrogen	0.00	0.5	1.15	1.10	1.11
	carbon	0.11	0.1	50.48	50.67	51.02
	phosphorus	0.03	0.3	0.117	0.106	0.101
	IVTD	0.29	0.02	52.7a	54.4ab	56.0b
	NDF	0.38	0.005	55.6a	51.7b	52.9b
	ADF	0.45	0.001	45.6a	42.5b	44.4a
	ADL	0.13	0.1	27.2	25.5	27.1
	hemicellulose	0.10	0.1	9.9	9.2	8.4
cellulose	0.20	0.06	18.4	17.0	17.3	
Canada bunchberry	nitrogen	0.00	0.5	1.68	1.79	1.79
	carbon	0.00	0.6	43.87	43.55	43.63

	phosphorus	0.00	0.9	0.14	0.15	0.15
	IVTD	0.23	0.04	87.4a	88.8b	88.4ab
	NDF	0.00	0.5	41.1	39.9	43.9
	ADF	0.00	0.6	31.9	30.7	31.0
	ADL	0.00	0.7	11.1	10.3	11.4
	hemicellulose	0.00	0.4	9.3	9.2	12.9
	cellulose	0.04	0.3	20.8	20.4	19.6
	nitrogen	0.09	0.2	1.99	1.82	1.96
	carbon	0.00	0.4	44.82	44.49	43.95
	phosphorus	0.04	0.3	0.17	0.15	0.17
	IVTD	0.12	0.1	87.2	87.6	86.2
Canada	NDF	0.09	0.2	38.6	44.6	39.3
mayflower	ADF	0.00	0.5	28.2	29.2	28.3
	ADL	0.00	0.7	9.9	9.7	10.3
	hemicellulose	0.07	0.21	10.4	15.4	11.0
	cellulose	0.12	0.1	18.3	19.6	18.0