

Supplementary Materials

Table S1. Locations and characteristics of the study plots in the Haliburton Forest.

Site	Latitude	Longitude	Elevation (m)	Basal Area (m ² /ha)	Stem Density (trees/ha)	Species Composition (% of total Basal Area)
BF01	45.2588	-78.4889	384	52.70	600	BF 79 %, SM 21 %
BF02	45.2590	-78.4885	384	27.99	950	BF 58 %, SM 24 %, YB 19 %
BF03	45.2543	-78.4899	389	18.36	350	BF 53 %, SM 21 %, BA 26 %
EH01	45.2576	-78.4910	379	38.55	400	EH 76 %, WC 23 %, BF 1 %
EH02	45.2578	-78.4904	379	17.90	500	EH 100 %
EH03	45.2450	-78.4826	380	32.50	100	EH 100%
WP01	45.3253	-78.6572	410	34.62	350	WP 95 %, AB 4 %, EH 2 %
WP02	45.3255	-78.6562	414	19.38	400	WP 74 %, WB 12%, Other 11 %, BF 3 %
WP03	45.3220	-78.6412	355	14.87	525	WP 83 %, BF 17 %
WP04	45.2681	-78.4540	489	35.24	500	WP 100 %
WP05	45.2701	-78.4515	488	19.68	375	WP 100 %
SM01	45.3272	-78.6276	365	15.99	350	SM 65 %, BF 35 %
SM02	45.3283	-78.6272	365	17.15	250	SM 81 %, WB 15 %, AE 4 %
SM03	45.2546	-78.5045	385	31.42	75	SM 93 %, YB 5 %, BF 2 %
SM04	45.2597	-78.4790	399	37.16	275	SM 92 %, BC 5 %, YB 1 %, WB 1 %, BF 1 %
SM05	45.2626	-78.4660	415	16.17	100	SM 100 %
YB01	45.2428	-78.4796	379	17.28	500	YB 95 %, BF 5 %
YB02	45.2428	-78.4792	380	25.92	700	YB 93 %, WB 7 %
YB03	45.2412	-78.4598	395	33.94	400	YB 87 %, BF 13 %

Species Abbreviations: AB = American Beech, AE = American Elm, BC = Black Cherry, BF = Balsam Fir, BA = Black Ash, EH = Eastern Hemlock, SM = Sugar Maple, WB = White Birch, WC = White Cedar, WP = White Pine, YB = Yellow Birch

Table S2. Leaf litter inputs in coniferous, deciduous, and woody debris in stands of five species.

Litter type	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	<i>p</i> Value
Units: kg/ha						
Coniferous	997.0 ^a (103.3)	1081.8 ^a (209.0)	947.4 ^a (161.1)	102.1 ^b (85.7)	36.2 ^b (13.2)	<0.001
Deciduous	1013.6 ^a (84.1)	491.3 ^a (399.6)	230.2 ^a (84.3)	3016.4 ^b (290.2)	2317.2 ^b (319.5)	<0.001
Woody Debris	408.0 ^a (17.8)	202.6 ^{ab} (94.8)	42.8 ^b (24.4)	49.1 ^b (7.0)	130.9 ^b (49.2)	<0.001
Sum	2419 ^{ab}	1776 ^{ab}	1220 ^b	3168 ^a	2484 ^{ab}	0.003

Table S3. ANOVA test *p* values for litterfall inputs and soil pools for carbon and the macronutrients by litter type, soil horizon, and the sum of total litterfall and the total soil pool. (--) = ANOVA test not conducted for soil horizon.

	C	N	Ca	Mg	K	P
Con	0.779	0.062	0.121	0.018	0.017	0.046
Dec	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WD	0.006	<0.001	0.009	0.009	0.002	<0.001
Sum	0.006	<0.001	<0.001	<0.001	<0.001	<0.001
L	0.042	0.141	0.022	<0.001	<0.001	<0.001
FH	0.118	0.014	0.006	<0.001	0.005	<0.001
Ah	0.836	0.503	0.469	0.466	0.449	0.246
Bm ₁	0.350	0.666	0.020	0.005	0.732	--
Bm ₂	0.553	0.850	0.162	0.431	0.118	--
Sum	0.327	0.762	0.251	0.574	0.082	0.085

Table S4. Carbon concentrations in litterfall and soil beneath the five tree species.

Litterfall	Carbon					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	52.2 (0.9)	52.0 (0.7)	50.3 (0.2)	--	--	0.064
Deciduous	49.8 (0.5)	50.4 (1.1)	46.1 (2.7)	45.7 (0.1)	49.8 (0.4)	0.289
Woody Debris	50.2 ^{ab} (1.0)	53.4 ^a (0.4)	--	46.9 ^b (1.0)	50.3 ^{ab} (0.7)	0.004
Horizon						
L	48.8 ^a (0.8)	50.2 ^a (0.2)	47.0 ^a (0.5)	41.8 ^b (1.3)	47.8 ^a (0.5)	<0.001
FH	43.0 ^a (3.9)	48.9 ^a (0.2)	37.0 ^a (2.5)	24.8 ^b (2.9)	43.6 ^a (5.7)	0.001
Ah	2.5 (1.1)	2.1 (0.6)	6.7 (1.2)	4.6 (1.2)	5.1 (1.1)	0.077
Bm ₁	2.7 (1.1)	4.0 (1.0)	5.0 (0.9)	3.7 (1.2)	8.3 (0.5)	0.489
Bm ₂	2.5 (1.1)	4.5 (1.1)	4.1 (1.1)	3.1 (0.9)	8.1 (0.7)	0.633
Total elemental concentrations in % of soil or litterfall, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S5. Nitrogen concentrations in litterfall and soil beneath the five tree species.

Litterfall	Nitrogen					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	1.0 ^a (<0.1)	1.0 ^a (<0.1)	0.6 ^b (<0.1)	--	--	<0.001
Deciduous	1.0 ^a (<0.1)	0.9 ^a (0.1)	0.8 ^a (0.2)	0.9 ^a (0.1)	1.6 ^b (0.3)	0.023
Woody Debris	2.5 ^a (0.3)	1.2 ^b (<0.1)	--	0.9 ^b (0.1)	2.2 ^{ab} (0.4)	<0.001
Horizon						
L	1.9 ^a (0.1)	1.4 ^{ab} (<0.1)	1.2 ^b (0.1)	1.6 ^{ab} (0.1)	2.0 ^a (0.2)	0.005
FH	2.1 ^a (0.1)	1.9 ^{ab} (0.1)	1.4 ^b (0.1)	1.4 ^b (0.2)	2.2 ^a (0.1)	0.002
Ah	0.2 (0.1)	0.1 (<0.1)	0.3 (0.1)	1.7 (0.1)	0.4 (<0.1)	0.086
Bm ₁	0.2 (0.1)	0.2 (<0.1)	0.2 (<0.1)	0.3 (0.1)	0.5 (<0.1)	0.699
Bm ₂	0.2 (0.1)	0.2 (<0.1)	0.2 (<0.1)	0.2 (0.1)	0.5 (<0.1)	0.939
Total elemental concentrations in % of soil or litterfall, (--) = not enough litter collected for analysis, Standard error in brackets						

Table S6. Phosphorus concentrations in litterfall and soil beneath the five tree species.

Litterfall	Phosphorus					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	862.9 ^a (186.1)	662.1 ^{ab} (23.2)	353.2 ^b (30.1)	--	--	0.009
Deciduous	697.0 ^a (107.7)	516.4 ^{ab} (11.4)	476.6 ^{ab} (50.7)	413.4 ^b (50.8)	655.7 ^{ab} (34.9)	0.045
Woody Debris	2548.7 ^a (186.9)	960.6 ^b (132.5)	--	629.4 ^b (128.1)	2265.0 ^a (521.5)	0.001
Horizon						
L	1054.7 (199.7)	797.5 (25.9)	693.9 (57.5)	792.2 (63.5)	1005.1 (123.8)	0.100
FH	1156.6 ^a (96.3)	898.7 ^{ab} (39.6)	765.6 ^b (47.2)	759.6 ^b (91.0)	1150.4 ^a (5.1)	0.006
Ah	370.7 (114.0)	65.8 (28.1)	413.8 (87.2)	535.2 (196.0)	191.1 (21.9)	0.241
Total elemental concentrations in mg/kg,						
(--) = not enough litter collected for analysis, Standard error in brackets						

Table S7. Calcium concentrations in litterfall and soil beneath the five tree species.

Calcium						
Litterfall	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	<i>p</i> Value
Coniferous	10359.6 ^a	10704.6 ^a	6391.4 ^b	--	--	0.001
	(793.7)	(1014.0)	(277.3)			
Deciduous	11816.3 ^{ab}	11763.4 ^{ab}	7572.1 ^b	11240.7 ^a	12604.6 ^a	0.047
	(152.3)	(2506.4)	(1011.7)	(1080.1)	(329.1)	
Woody Debris	9409.8 ^{ab}	4864.4 ^b	--	10259.3 ^{ab}	10026.0 ^a	0.020
	(978.9)	(726.5)		(1945.1)	(311.4)	
Horizon						
L	7864.1 ^a	5813.4 ^{ab}	7821.3 ^a	4406.3 ^b	8287.7 ^a	<0.001
	(593.4)	(538.2)	(274.8)	(379.8)	(731.1)	
FH	5622.9 ^{ab}	6957.8 ^a	5160.3 ^{ab}	3817.6 ^b	6020.3 ^{ab}	0.022
	(677.5)	(2354.3)	(546.3)	(179.7)	(967.9)	
Ah	138.7	97.1	442.4	457.2	233.5	0.124
	(38.5)	(27.7)	(98.5)	(145.2)	(39.4)	
Bm ₁	69.4 ^{ab}	53.3 ^b	193.7 ^a	150.5 ^{ab}	152.9 ^{ab}	0.021
	(12.1)	(8.5)	(26.8)	(34.7)	(4.1)	
Bm ₂	72.1	70.8	150.9	73.7	154.9	0.213
	(5.5)	(30.2)	(65.8)	(27.2)	(41.3)	
Litterfall and exchangeable cation concentrations in mg/kg, (--) = not enough litter collected for analysis, Standard error in brackets						

Table S8. Magnesium concentrations in litterfall and soil beneath the five tree species.

Litterfall	Magnesium					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	748.7 ^a (632.1)	1324.3 ^b (66.7)	612.8 ^a (36.6)	--	--	<0.001
Deciduous	1352.4 ^{ab} (141.8)	1826.1 ^{bc} (55.2)	1050.6 ^a (153.5)	1187.1 ^{ab} (47.1)	2474.5 ^c (33.6)	<0.001
Woody Debris	1527.0 ^{ab} (142.1)	964.3 ^a (36.7)	--	955.0 ^a (144.7)	1986.3 ^b (233.6)	0.004
Horizon						
L	888.9 ^a (97.0)	950.1 ^a (11.1)	685.2 ^a (81.3)	997.5 ^a (51.4)	1703.5 ^b (370.0)	<0.001
FH	496.8 (58.9)	591.3 (21.0)	403.4 (39.5)	424.8 (46.7)	557.7 (159.0)	0.001
Ah	17.9 ^a (6.2)	15.1 ^a (3.5)	58.6 ^b (10.1)	36.2 ^{ab} (6.2)	16.3 ^a (2.5)	0.077
Bm ₁	7.6 ^a (1.9)	9.0 ^a (1.2)	27.3 ^b (34.7)	18.4 ^{ab} (2.3)	9.0 ^a (1.1)	0.489
Bm ₂	7.7 (1.3)	10.8 (2.9)	15.0 (27.2)	17.2 (5.9)	8.8 (2.1)	0.633
Litterfall and exchangeable cation concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S9. Potassium concentrations in litterfall and soil beneath the five tree species.

Litterfall	Potassium					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	1354.5 ^a (77.4)	1281.8 ^a (63.0)	685.6 ^b (57.0)	--	--	<0.001
Deciduous	1561.4 ^a (87.9)	1347.2 ^{ab} (140.5)	863.1 ^b (121.3)	2331.2 ^c (169.5)	1308.2 ^{ab} (114.7)	<0.001
Woody Debris	4654.3 ^a (553.4)	2539.3 ^{ab} (530.2)	--	1771.0 ^b (64.2)	4544.8 ^a (984.0)	0.014
Horizon						
L	1554.8 ^{ab} (258.6)	1658.9 ^a (284.3)	884.9 ^b (64.3)	1281.5 ^{ab} (76.3)	1362.9 ^{ab} (147.1)	0.022
FH	815.2 ^{ab} (76.0)	1059.8 ^a (120.0)	598.5 ^b (69.0)	508.8 ^b (94.5)	732.1 ^{ab} (206.5)	0.017
Ah	27.5 ^{ab} (11.7)	27.1 ^a (4.0)	75.0 ^b (12.1)	54.2 ^{ab} (10.3)	23.4 ^{ab} (4.0)	0.018
Bm ₁	13.2 ^a (4.8)	18.3 ^a (2.9)	54.9 ^b (9.0)	27.8 ^{ab} (7.1)	10.8 ^a (0.2)	0.006
Bm ₂	12.9 ^a (5.1)	19.0 ^{ab} (3.1)	34.3 ^b (6.3)	19.4 ^{ab} (3.4)	10.8 ^a (4.4)	0.044
Litterfall and exchangeable cation concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S10. ANOVA test *p* values for litterfall inputs and soil pools for micronutrients and trace metals by litter type, soil horizon, and the sum of total litterfall and the total soil pool.

	Al	Mn	Zn	Sr	Cu	Cd
Con	0.349	0.549	0.690	0.017	0.343	0.741
Dec	0.151	0.010	<0.001	<0.001	0.014	<0.001
WD	0.097	0.007	0.003	0.007	0.307	0.258
Sum	0.007	0.059	<0.001	<0.001	0.006	<0.001
L	0.010	0.034	0.053	<0.001	<0.001	<0.001
FH	0.064	0.029	<0.001	<0.001	<0.001	<0.001
Sum	0.080	0.033	<0.001	<0.001	<0.001	<0.001

Table S11. Aluminum concentrations in litterfall and soil beneath the five tree species.

Aluminum						
Litterfall	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	<i>p</i> Value
Coniferous	134.2 (42.3)	236.7 (8.9)	205.4 (20.5)	--	--	0.084
Deciduous	48.2 ^{ab} (5.1)	70.6 ^a (0.6)	479.3 ^a (382.8)	34.8 ^b (3.9)	33.7 ^b (9.0)	0.037
Woody Debris	74.3 ^a (4.2)	211.1 ^b (18.8)	--	76.3 ^a (24.0)	36.7 ^a (7.2)	0.001
Horizon						
L	18.6 ^{ab} (9.0)	47.8 ^{ab} (27.9)	55.7 ^{ab} (8.6)	13.2 ^a (4.4)	79.3 ^b (7.0)	0.019
FH	64.8 ^{ab} (29.8)	84.5 ^{ab} (46.4)	157.8 ^{ab} (58.5)	41.0 ^a (14.3)	606.0 ^b (439.5)	0.027
Litterfall and exchangeable cation concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S12. Manganese concentrations in litterfall and soil beneath the five tree species.

Litterfall	Manganese					p value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	883.2 (230.4)	529.5 (85.2)	803.5 (61.1)	--	--	0.204
Deciduous	1383.0 (245.5)	1211.2 (29.3)	1049.2 (111.2)	708.0 (130.6)	1271.1 (293.5)	0.071
Woody Debris	1041.4 ^a (212.0)	295.7 ^b (28.5)	--	552.2 ^{ab} (161.2)	753.3 ^{ab} (134.1)	0.048
Horizon						
L	1276.1 (535.2)	576.0 (83.7)	806.7 (125.0)	797.0 (156.2)	951.6 (274.1)	0.455
FH	921.4 (462.6)	672.0 (37.5)	581.9 (144.1)	695.8 (154.3)	734.3 (263.3)	0.866
Litterfall and exchangeable cation concentrations in mg/kg, (--) = not enough litter collected for analysis, Standard error in brackets						

Table S13. Zinc concentrations in litterfall and soil beneath the five tree species.

Zinc						
Litterfall	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	<i>p</i> Value
Coniferous	57.7 (12.9)	37.1 (5.5)	47.5 (4.1)	--	--	0.222
Deciduous	87.4 ^{ab} (14.2)	104.9 ^{ab} (41.5)	44.9 ^a (17.3)	44.6 ^a (3.6)	200.5 ^b (66.2)	0.006
Woody Debris	63.1 ^a (5.6)	13.2 ^b (13.2)	--	54.4 ^{ab} (8.3)	118.2 ^c (14.6)	0.002
Horizon						
L	94.2 ^a (14.2)	51.4 ^a (9.7)	59.2 ^a (8.0)	63.6 ^a (10.3)	181.9 ^b (47.3)	0.001
FH	75.3 (21.3)	63.0 (1.8)	53.2 (3.4)	68.5 (16.4)	117.4 (29.9)	0.158
Total elemental concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S14. Strontium concentrations in litterfall and soil beneath the five tree species.

Strontium						
Litterfall	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	<i>p</i> Value
Coniferous	44.6 ^a (2.2)	36.2 ^a (13.3)	9.8 ^b (2.5)	--	--	0.001
Deciduous	70.7 ^a (6.3)	51.7 ^b (12.6)	14.3 ^b (3.8)	74.6 ^a (7.4)	63.1 ^a (3.2)	<0.001
Woody Debris	62.5 ^{ab} (9.0)	16.1 ^a (1.4)	--	83.2 ^b (18.4)	56.4 ^{ab} (2.1)	0.019
Horizon						
L	77.0 ^a (5.6)	36.1 ^b (5.6)	16.0 ^b (1.9)	81.8 ^a (5.9)	81.8 ^a (7.4)	<0.001
FH	53.0 ^a (11.2)	32.4 ^{ab} (7.3)	15.5 ^b (1.7)	50.1 ^a (6.5)	55.8 ^a (4.7)	0.002
Total elemental concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S15. Copper concentrations in litterfall and soil beneath the five tree species.

Litterfall	Copper					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	3.4 (2.7)	2.7 (2.1)	0.8 (0.8)	--	--	0.462
Deciduous	8.2 (5.1)	8.5 (3.8)	4.2 (1.2)	7.1 (1.9)	6.1 (1.2)	0.830
Woody Debris	7.1 (0.8)	10.1 (5.0)	--	6.5 (1.2)	11.3 (1.3)	0.642
Horizon						
L	8.0 ^a (3.5)	4.9 ^a (1.4)	0.1 ^b (0.1)	4.5 ^a (0.6)	8.2 ^a (1.2)	<0.001
FH	5.7 ^{ab} (0.8)	8.1 ^a (1.6)	0.4 ^b (0.3)	8.0 ^a (1.9)	9.1 ^a (0.7)	0.003
Total elemental concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						

Table S16. Cadmium concentrations in litterfall and soil beneath the five tree species.

Litterfall	Cadmium					<i>p</i> Value
	Balsam Fir	Eastern Hemlock	White Pine	Sugar Maple	Yellow Birch	
Coniferous	<0.1 (<0.1)	0.1 (0.1)	0.1 (<0.1)	--	--	0.064
Deciduous	0.4 ^a (0.2)	0.7 ^{ab} (0.1)	0.1 ^a (0.1)	0.3 ^a (0.1)	1.7 ^b (0.6)	0.289
Woody Debris	0.3 ^{ab} (0.2)	<0.1 ^a (<0.1)	--	0.7 ^b (0.1)	0.7 ^b (0.1)	0.004
Horizon						
L	0.6 ^a (0.1)	0.4 ^a (0.1)	0.7 ^a (0.1)	0.7 ^a (0.1)	1.6 ^b (0.2)	<0.001
FH	0.4 (0.2)	0.7 (0.1)	0.5 (0.1)	0.5 (0.2)	1.3 (0.2)	0.080
Total elemental concentrations in mg/kg, (--)= not enough litter collected for analysis, Standard error in brackets						