

Table S1 Soil carbon raw data for tree species Norway spruce (NS), black walnut (BW), white cedar (WC) and red oak (RO) collected in 2018 in the Agroforestry Research Station, Guelph, Ontario, Canada.

Sample	Weight (g)	% Total C	Total C Corrected for Moisture (%)	% Inorganic C	TOC (%)	SOC (t C Ha ⁻¹)
NS 1 2 m	0.2074	2.153	2.17434459	0.1535	2.02084459	81.23795251
NS 1 5 m	0.2077	2.272	2.294524342	0.1879	2.10662434	84.68629854
NS 2 2 m	0.2095	2.532	2.557101951	0.1982	2.35890195	94.82785844
NS 2 5 m	0.2026	2.041	2.061234235	0.1266	1.93463423	77.77229624
NS 3 2 m	0.2064	1.144	1.155341482	0.1782	0.97714148	39.28108758
NS 3 5 m	0.2073	1.968	1.987510521	0.1802	1.80731052	72.65388296
NS 4 2 m	0.2074	2.169	2.190503212	0.1666	2.02390321	81.36090912
NS 4 5 m	0.2078	2.038	2.058204493	0.1636	1.89460449	76.16310063
NS 5 2 m	0.2079	2.331	2.354109261	0.1187	2.23540926	89.86345229
NS 5 5 m	0.2062	2.143	2.164245451	0.08558	2.07866545	83.56235113
BW 1 2 m	0.2096	2.369	2.392485988	0.1717	2.22078599	89.27559674
BW 1 5 m	0.2076	2.064	2.084462254	0.1489	1.93556225	77.80960262
BW 2 2 m	0.2075	2.139	2.160205795	0.1879	1.9723058	79.28669297
BW 2 5 m	0.2032	2.249	2.271296323	0.1304	2.14089632	86.06403216
BW 3 2 m	0.2016	2.123	2.144047173	0.1231	2.02094717	81.24207637
BW 3 5 m	0.2095	1.896	1.914796722	0.112	1.80279672	72.47242822
BW 4 2 m	0.2026	2.466	2.490447635	0.1834	2.30704764	92.74331493
BW 4 5 m	0.2009	2.327	2.350069605	0.3034	2.04666961	82.27611814
BW 5 2 m	0.2025	2.669	2.695460153	0.2347	2.46076015	98.92255816
BW 5 5 m	0.2093	2.462	2.48640798	0.1926	2.29380798	92.21108078
WC 1 2 m	0.203	2.207	2.228879939	0.5446	1.68427994	67.70805357
WC 1 5 m	0.2038	2.242	2.264226925	0.5612	1.70302693	68.4616824
WC 2 2 m	0.2089	2.223	2.245038562	0.3381	1.90693856	76.65893017

WC 2 5 m	0.2057	2.231	2.253117873	0.4168	1.83631787	73.81997848
WC 3 2 m	0.2004	2.37	2.393495902	0.2923	2.1011959	84.46807527
WC 3 5 m	0.2022	2.744	2.771203695	0.7341	2.03710369	81.89156852
WC 4 2 m	0.2042	2.015	2.034976474	0.3196	1.71537647	68.95813425
WC 4 5 m	0.2019	2.291	2.313712706	0.6196	1.69411271	68.10333076
WC 5 2 m	0.2028	2.157	2.178384245	0.5162	1.66218425	66.81980666
WC 5 5 m	0.2048	2.301	2.323811844	0.4297	1.89411184	76.14329615
RO 1 2 m	0.2018	2.286	2.308663136	0.2292	2.07946314	83.59441807
RO 1 5 m	0.202	2.257	2.279375634	0.1797	2.09967563	84.40696047
RO 2 2 m	0.203	2.223	2.245038562	0.1446	2.10043856	84.43763017
RO 2 5 m	0.204	2.199	2.220800628	0.1037	2.11710063	85.10744526
RO 3 2 m	0.206	2.304	2.326841586	0.1132	2.21364159	88.98839176
RO 3 5 m	0.2025	2.241	2.263217011	0.1849	2.07831701	83.54834386
RO 4 2 m	0.207	3.397	3.43067746	0.1387	3.29197746	132.3374939
RO 4 5 m	0.2031	2.597	2.622746354	0.1017	2.52104635	101.3460634
RO 5 2 m	0.2004	2.717	2.74393602	0.0697	2.67423602	107.504288
RO 5 5 m	0.2033	2.39	2.41369418	0.06347	2.35022418	94.47901204

Table S2 Tree carbon content data for tree species Norway spruce (NS), black walnut (BW), white cedar (WC) and red oak (RO) collected in 2018 in the Agroforestry Research Station, Guelph, Ontario, Canada.

Tree Sample	DBH (cm)	Height (m)	AGB (kg/tree)	BGB (kg/tree)	Total Biomass (kg/tree)	Biomass C (kg/tree)
NS 1	31.4676084	15.6	9117.569077	3371.677045	12489.2461	6344.53703
NS 2	30.4808477	14.2	8448.137797	3124.121357	11572.2592	5878.70765
NS 3	29.812397	13.1	8011.452724	2962.635217	10974.0879	5574.836674
NS 4	31.0219746	15	8811.564643	3258.516605	12070.0812	6131.601274
NS 5	30.8256363	14.9	8678.671257	3209.372631	11888.0439	6039.126295
BW 1	29.5949323	16.7	32766.27463	7192.197281	39958.4719	19499.73429
BW 2	28.2422567	14.9	28782.05993	6317.662155	35099.7221	17128.66438
BW 3	28.4862	15.5	29476.27921	6470.043287	35946.3225	17541.80538
BW 4	32.9876088	17.9	44263.27577	9715.789031	53979.0648	26341.78362
BW 5	30.3588761	16.4	35164.11451	7718.523135	42882.6376	20926.72717
WC 1	25.3611281	6.4	1451.192592	336.2413237	1787.43392	908.0164294
WC 2	22.5574664	6.2	1143.375839	264.920182	1408.29602	715.4143789
WC 3	21.576058	5.9	1044.42412	241.9930685	1286.41719	653.4999315
WC 4	24.5707057	6.9	1360.636814	315.2595499	1675.89636	851.3553529
WC 5	26.4222553	6.8	1577.43079	365.4907139	1942.9215	987.0041238
RO 1	29.2208476	15.1	5639.195652	1981.049433	7620.24508	3718.679601
RO 2	27.8602848	13.8	5050.176076	1774.126855	6824.30293	3330.25983
RO 3	28.1095804	13.7	5155.346243	1811.073135	6966.41938	3399.612656
RO 4	29.4808477	16.2	5755.968176	2022.07162	7778.0398	3795.683421
RO 5	28.9132422	14.6	5502.79466	1933.131764	7435.92642	3628.732095

Table S3 Allometric coefficients from Ter-Mikaelian and Korzukhin (1997).

Tree Sp.	a	b
NS	0.2722	2.104
BW	0.1634	2.348
WC	0.0910	2.234
RO	0.1335	2.422