

SUPPLEMENTARY ONLINE MATERIAL

Pyrogenic carbon distribution in mineral topsoils of the northeastern United States

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Table S1. Predictive parameters and their sources.

Predictive parameter	Method	Reference
Soil sulphur	Measurements of sampled soils	Smith et al., 2013
Vegetation Group	Interpolation from spatial source using the Intersect Point Tool in Hawth's Tools	The National Map Landfire, 2006
Plant tissue lignin	Averaged lignin values by Vegetation Group obtained from the literature	Pickering, 2008; Rowell, 2005; Corker and Boyer, 1975; Pettersen, 1984; Ostrofsky, 1997; Wenzl, 1970; Brauns and Brauns, 1960; Park and Kim, 2012; Cook and Harris, 1952; Wilson, 1985; Bray et al., 2012; Sharpe et al., 1980; Severson and Ursek, 1988; Lamoot, 2004; Butkutė et al., 2013; Conn, 1994; Wainio and Forbes, 1941; Smith and Kadlec, 1984; Laursen, 2004; Abideen et al., 2011; van Niekerk et al., 2004; Sultan et al., 2009; Fukushima and Hatfield, 2004
Soil drainage Combined silt and clay	Interpolation from spatial source using the Intersect Point Tool in Hawth's Tools	STATSGO 2.0, 2006
Slope gradient Aspect	Interpolation from spatial source using the Intersect Point Tool in Hawth's Tools	Gesch, 2007; Gesch et al., 2002
Mean annual temperature Mean annual precipitation	Interpolation from spatial source using the Intersect Point Tool in Hawth's Tools	Hijmans et al., 2005

Table S2. PyC content [g kg⁻¹ soil] at all 165 sample locations. Additional data on Bulkdensity (STATSGO 2.0, 2006) and Landcover (Smith et al., 2013. Appendix 3a: <https://pubs.usgs.gov/ds/801/downloads/>)

Lab No	Latitude	Longitude	State	PyC [g kg ⁻¹]	total C [g kg ⁻¹]	Bulk Density [g cm ⁻³]	LandCover1	LandCover2
C-299983	41.42577	-73.50091	CT	15.34	83.02	1.19	Forested Upland	Deciduous Forest
C-299988	41.40579	-72.17969	CT	10.31	63.12	1.19	Forested Upland	Deciduous Forest
C-300000	41.55775	-73.24319	CT	17.93	98.67	1.19	Forested Upland	Deciduous Forest
C-300006	41.47186	-71.90276	CT	11.85	66.05	1.18	Forested Upland	Mixed Forest
C-300013	41.27675	-73.0257	CT	4.27	22.35	1.19	Planted/Cultivated	Urban/Recreational Grasses
C-300022	41.71457	-72.55464	CT	2.60	11.63	1.17	Planted/Cultivated	Row Crops
C-300023	41.96384	-73.0134	CT	11.85	70.84	1.1	Forested Upland	Mixed Forest
C-300029	41.67261	-71.7932	CT	7.86	50.21	1.18	Forested Upland	Evergreen Forest
C-299945	42.46214	-72.39369	MA	11.56	86.37	1.07	Forested Upland	Mixed Forest
C-299974	42.66795	-71.514	MA	6.41	30.62	1.14	Planted/Cultivated	Row Crops
C-299980	42.0629	-73.39897	MA	4.68	18.91	1.17	Planted/Cultivated	Pasture/Hay
C-299981	42.17212	-72.547	MA	7.59	51.16	1.03	Forested Upland	Mixed Forest
C-299982	42.22454	-72.23597	MA	21.81	135.08	1.14	Forested Upland	Mixed Forest
C-299993	42.0975	-71.32552	MA	10.63	61.82	1.03	Forested Upland	Evergreen Forest
C-299994	42.63847	-70.77454	MA	6.12	26.26	1.14	Planted/Cultivated	Urban/Recreational Grasses
C-300011	42.20275	-71.71062	MA	14.50	80.15	1.14	Forested Upland	Mixed Forest

C-300015	42.32149	-72.86941	MA	11.45	57.38	1.03	Forested Upland	Deciduous Forest
C-300046	42.30141	-73.41783	MA	14.69	78.44	1.22	Forested Upland	Mixed Forest
C-300048	41.78446	-70.8707	MA	10.40	60.42	1.03	Forested Upland	Mixed Forest
C-300049	42.26228	-71.5242	MA	7.53	55.13	1.21	Forested Upland	Deciduous Forest
C-300050	42.1933	-70.83828	MA	8.17	55.73	1.07	Forested Upland	Mixed Forest
C-299944	45.31853	-68.06628	ME	7.43	44.15	0.95	Forested Upland	Mixed Forest
C-299946	43.78692	-70.43237	ME	4.58	29.44	1.09	Forested Upland	Deciduous Forest
C-299948	44.60926	-67.59325	ME	10.61	41.81	0.99	Planted/Cultivated	Urban/Recreational Grasses
C-299949	45.98587	-69.48116	ME	12.28	59.74	0.86	Forested Upland	Evergreen Forest
C-299951	46.30203	-69.68707	ME	8.92	33.72	1.05	Forested Upland	Mixed Forest
C-299952	45.42608	-68.46069	ME	6.48	28.12	0.91	Planted/Cultivated	Fallow
C-299953	44.48347	-68.2754	ME	11.23	50.64	0.98	Forested Upland	Mixed Forest
C-299954	44.96941	-68.20536	ME	9.37	51.16	1.08	Forested Upland	Evergreen Forest
C-299955	45.11645	-67.52013	ME	8.29	36.31	1.02	Forested Upland	Mixed Forest
C-299957	45.06961	-69.87852	ME	10.94	51.06	1.15	Planted/Cultivated	Urban/Recreational Grasses
C-299958	45.84673	-69.05939	ME	6.09	30.46	1.01	Forested Upland	Mixed Forest
C-299959	45.12947	-70.76379	ME	9.00	45.14	1.02	Forested Upland	Evergreen Forest
C-299961	44.26921	-69.69787	ME	3.43	11.71	1.05	Planted/Cultivated	Fallow
C-299963	44.24172	-70.48331	ME	2.94	20.58	0.99	Forested Upland	Mixed Forest
C-299966	45.59751	-70.25281	ME	5.63	25.06	1.05	Planted/Cultivated	Fallow

C-299967	45.73192	-69.63612	ME	15.41	79.05	1.05	Forested Upland	Mixed Forest
C-299968	44.52464	-69.35169	ME	27.65	151.20	1.04	Forested Upland	Mixed Forest
C-299971	45.87878	-69.36855	ME	11.17	43.58	1.05	Forested Upland	Evergreen Forest
C-299975	47.13437	-67.95442	ME	8.83	36.31	1.09	Planted/Cultivated	Row Crops
C-299976	45.08792	-68.44065	ME	4.32	16.72	1.02	Forested Upland	Evergreen Forest
C-299985	46.99874	-68.62204	ME	8.62	34.25	1.03	Forested Upland	Mixed Forest
C-299989	46.04231	-70.28357	ME	6.25	24.46	0.86	Forested Upland	Evergreen Forest
C-299990	45.01411	-68.92555	ME	8.41	34.58	0.85	Forested Upland	Evergreen Forest
C-299991	45.00115	-67.61842	ME	4.07	18.38	1.02	Forested Upland	Evergreen Forest
C-299995	46.6994	-68.30666	ME	10.71	43.61	1	Planted/Cultivated	Urban/Recreational Grasses
C-299997	44.91997	-70.86845	ME	9.68	46.51	1	Forested Upland	Mixed Forest
C-300005	43.80293	-70.85599	ME	1.82	10.34	1.04	Forested Upland	Mixed Forest
C-300007	46.12459	-68.56417	ME	11.01	45.68	1.02	Forested Upland	Mixed Forest
C-300010	46.53236	-69.7948	ME	1.28	3.48	0.86	Forested Upland	Mixed Forest
C-300012	44.39347	-70.97105	ME	4.80	24.64	1.04	Forested Upland	Mixed Forest
C-300016	46.35074	-67.91175	ME	11.22	42.92	1.09	Forested Upland	Mixed Forest
C-300018	47.01214	-69.11711	ME	15.08	60.64	1.05	Forested Upland	Evergreen Forest
C-300019	44.95627	-69.51658	ME	6.56	31.66	0.91	Forested Upland	Evergreen Forest
C-300021	45.67234	-68.78963	ME	0.58	4.12	1.01	Forested Upland	Evergreen Forest
C-300024	44.57412	-68.96748	ME	7.13	31.83	1.03	Planted/Cultivated	Urban/Recreational Grasses

C-300026	45.14445	-68.8732	ME	5.25	22.52	0.95	Forested Upland	Mixed Forest
C-300027	46.05467	-70.1127	ME	19.28	121.18	0.86	Forested Upland	Mixed Forest
C-300033	45.49825	-70.17214	ME	1.51	4.58	1.02	Forested Upland	Mixed Forest
C-300035	44.82278	-68.48517	ME	5.54	24.77	1.04	Forested Upland	Mixed Forest
C-300038	44.62011	-68.79375	ME	8.85	40.74	1.08	Planted/Cultivated	Pasture/Hay
C-300042	44.63826	-69.89326	ME	7.38	32.05	1.08	Forested Upland	Mixed Forest
C-300043	43.20119	-70.62038	ME	15.08	79.21	0.95	Forested Upland	Mixed Forest
C-300044	43.64463	-70.46199	ME	12.79	75.43	1.09	Forested Upland	Deciduous Forest
C-300045	45.08446	-70.2168	ME	9.49	41.59	1.05	Forested Upland	Mixed Forest
C-300047	44.51601	-70.55922	ME	4.99	24.81	1.17	Forested Upland	Mixed Forest
C-300051	46.8426	-68.47853	ME	7.75	27.49	0.86	Forested Upland	Evergreen Forest
C-299960	43.99557	-71.33727	NH	8.57	40.01	1.11	Forested Upland	Mixed Forest
C-299962	43.33683	-72.36287	NH	9.53	48.57	1.09	Forested Upland	Deciduous Forest
C-299969	43.85504	-71.65528	NH	7.87	35.40	1.11	Forested Upland	Mixed Forest
C-299972	43.43901	-71.15258	NH	10.51	46.94	1	Forested Upland	Deciduous Forest
C-299979	44.80887	-71.11162	NH	20.80	119.18	1.01	Forested Upland	Mixed Forest
C-299992	42.7648	-71.23061	NH	1.12	7.93	1.14	Forested Upland	Deciduous Forest
C-299999	43.72529	-71.75438	NH	10.59	55.33	1.01	Forested Upland	Deciduous Forest
C-300002	43.17026	-71.99557	NH	8.16	40.24	1.06	Forested Upland	Mixed Forest
C-300003	43.084	-71.47565	NH	5.68	24.62	1.14	Forested Upland	Deciduous Forest
C-300020	43.21637	-71.53718	NH	2.56	12.85	1.14	Planted/Cultivated	Urban/Recreational

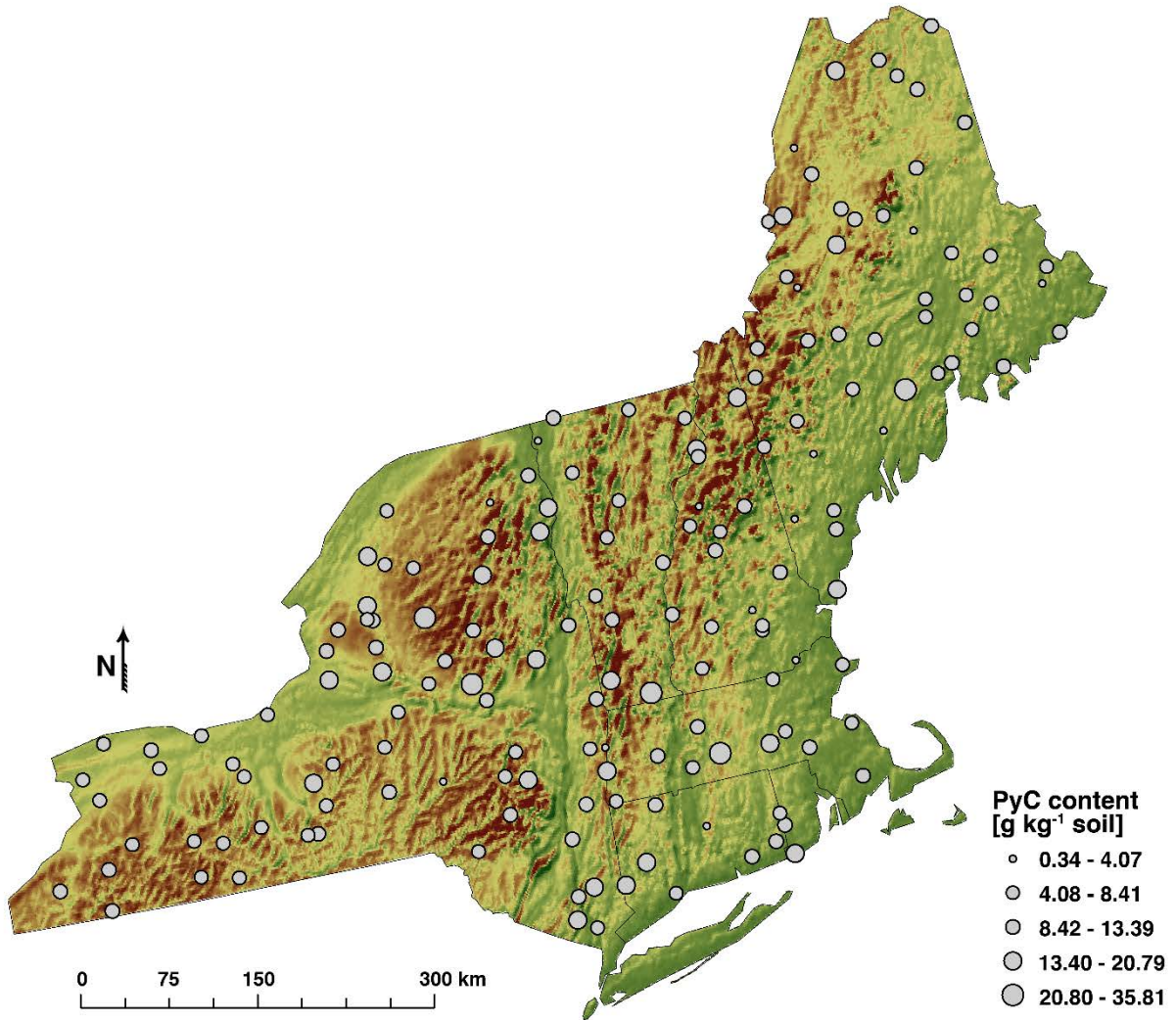
								Grasses
C-300028	42.88286	-72.19922	NH	4.42	24.34	1	Forested Upland	Deciduous Forest
C-300034	43.0498	-71.4878	NH	7.32	27.72	1.16	Forested Upland	Mixed Forest
C-300037	43.95547	-71.95078	NH	5.38	26.03	1.06	Forested Upland	Mixed Forest
C-300039	44.08096	-71.80439	NH	0.96	6.64	1.01	Forested Upland	Deciduous Forest
C-300384	42.26017	-79.21529	NY	9.87	36.45	1.25	Planted/Cultivated	Row Crops
C-300385	43.03385	-74.46812	NY	11.57	53.30	1.27	Forested Upland	Deciduous Forest
C-300386	43.30259	-78.49504	NY	8.08	34.27	1.27	Planted/Cultivated	Small Grains
C-300387	42.49591	-73.53503	NY	5.82	23.35	1.22	Forested Upland	Mixed Forest
C-300388	42.31771	-76.47671	NY	10.92	44.79	1.25	Forested Upland	Mixed Forest
C-300390	43.9345	-75.47679	NY	14.12	65.58	1.18	Forested Upland	Mixed Forest
C-300391	43.39579	-74.79961	NY	13.29	68.88	1.06	Forested Upland	Evergreen Forest
C-300392	43.17844	-74.57777	NY	35.81	176.66	0.59	Forested Upland	Deciduous Forest
C-300393	43.18847	-78.01662	NY	9.39	32.54	1.21	Planted/Cultivated	Fallow
C-300394	43.75028	-74.90763	NY	23.17	129.95	0.98	Shrubland	Shrubland
C-300395	41.4668	-73.82296	NY	15.38	82.19	1.25	Forested Upland	Mixed Forest
C-300397	42.5159	-76.33525	NY	5.59	20.43	1.29	Planted/Cultivated	Row Crops
C-300399	42.35568	-78.67934	NY	8.75	34.05	1.25	Planted/Cultivated	Fallow
C-300401	43.8026	-75.83436	NY	12.14	50.27	1.1	Forested Upland	Evergreen Forest
C-300402	42.1089	-77.36902	NY	5.30	20.46	1.25	Planted/Cultivated	Row Crops
C-300403	42.51692	-75.66773	NY	11.28	48.33	1.25	Forested Upland	Evergreen Forest

C-300406	42.44856	-77.75486	NY	6.24	24.49	1.25	Planted/Cultivated	Fallow
C-300407	42.855	-77.11505	NY	5.81	20.69	1.32	Planted/Cultivated	Pasture/Hay
C-300408	41.9284	-74.90013	NY	6.72	31.09	1.29	Forested Upland	Mixed Forest
C-300410	42.85104	-73.34689	NY	11.37	50.57	1.27	Forested Upland	Mixed Forest
C-300411	43.81663	-75.45255	NY	12.42	54.12	1.19	Forested Upland	Mixed Forest
C-300412	44.62725	-73.49059	NY	8.73	41.00	1.19	Planted/Cultivated	Row Crops
C-300413	42.96716	-77.2031	NY	8.36	30.85	1.3	Planted/Cultivated	Row Crops
C-300414	43.22405	-77.46788	NY	7.62	34.24	1.34	Forested Upland	Deciduous Forest
C-300415	43.60938	-75.48082	NY	13.40	52.07	1.17	Forested Upland	Evergreen Forest
C-300416	44.13872	-74.91113	NY	6.42	40.53	0	Forested Upland	Deciduous Forest
C-300417	42.47786	-73.37787	NY	0.74	4.05	1.27	Planted/Cultivated	Urban/Recreational Grasses
C-300421	44.21192	-75.1991	NY	4.82	29.55	1.19	Forested Upland	Deciduous Forest
C-300422	42.60244	-74.29633	NY	6.27	25.97	1.25	Forested Upland	Mixed Forest
C-300423	43.25021	-73.86319	NY	15.27	74.17	1.27	Forested Upland	Deciduous Forest
C-300424	44.60905	-75.05299	NY	8.22	36.42	1.23	Forested Upland	Evergreen Forest
C-300425	42.81176	-76.18085	NY	7.68	30.32	1.25	Planted/Cultivated	Fallow
C-300432	44.49254	-73.95511	NY	3.51	21.56	0.98	Forested Upland	Deciduous Forest
C-300434	41.25315	-74.06594	NY	19.89	111.68	1.25	Forested Upland	Evergreen Forest
C-300436	42.88638	-78.64373	NY	6.31	25.18	1.23	Forested Upland	Mixed Forest
C-300437	42.37366	-74.23187	NY	19.08	84.44	1.28	Forested Upland	Deciduous Forest

C-300438	41.16161	-73.88693	NY	5.41	30.13	0	Forested Upland	Evergreen Forest
C-300443	43.25433	-75.02127	NY	6.20	24.23	1.27	Forested Upland	Mixed Forest
C-300444	42.16935	-77.75347	NY	7.93	30.38	1.25	Planted/Cultivated	Fallow
C-300445	42.856	-75.61595	NY	5.96	22.75	1.32	Planted/Cultivated	Row Crops
C-300446	43.96963	-74.21358	NY	19.85	90.22	0.98	Forested Upland	Mixed Forest
C-300447	43.44627	-73.45094	NY	9.96	32.40	1.29	Forested Upland	Deciduous Forest
C-300450	41.85764	-73.92915	NY	11.06	45.75	1.23	Forested Upland	Mixed Forest
C-300451	44.24275	-74.06122	NY	11.45	63.57	0.98	Forested Upland	Mixed Forest
C-300452	43.41917	-75.46979	NY	16.80	77.93	1.11	Forested Upland	Deciduous Forest
C-300453	42.0428	-78.72072	NY	9.83	35.00	1.33	Forested Upland	Mixed Forest
C-300454	43.03975	-77.96654	NY	7.09	27.68	1.32	Planted/Cultivated	Fallow
C-300455	42.09286	-73.70601	NY	10.47	41.06	1.22	Forested Upland	Deciduous Forest
C-300456	44.35242	-73.36382	NY	13.54	58.78	1.27	Forested Upland	Mixed Forest
C-300457	42.45122	-77.04475	NY	7.31	26.35	1.25	Planted/Cultivated	Row Crops
C-300459	43.66317	-75.99866	NY	9.35	42.50	1.23	Forested Upland	Mixed Forest
C-300461	43.44404	-76.03621	NY	14.47	74.77	1.23	Forested Upland	Deciduous Forest
C-300464	43.09374	-75.39737	NY	7.59	24.29	1.3	Planted/Cultivated	Fallow
C-300465	41.42339	-74.00153	NY	11.41	49.40	1.25	Planted/Cultivated	Urban/Recreational Grasses
C-300466	43.06273	-78.77614	NY	6.02	22.09	1.31	Planted/Cultivated	Fallow
C-300467	43.40755	-74.25797	NY	16.46	80.09	0.98	Forested Upland	Mixed Forest

C-300468	42.50566	-75.096	NY	2.40	7.86	1.29	Forested Upland	Mixed Forest
C-300472	42.32224	-76.58524	NY	7.78	31.08	1.25	Planted/Cultivated	Row Crops
C-300475	42.70076	-76.41895	NY	14.87	56.91	1.29	Forested Upland	Deciduous Forest
C-300477	42.43827	-74.45669	NY	4.52	16.23	1.23	Forested Upland	Mixed Forest
C-300478	44.18806	-73.50923	NY	15.65	72.28	1.23	Forested Upland	Mixed Forest
C-300480	43.28214	-76.74345	NY	7.34	31.50	1.25	Planted/Cultivated	Row Crops
C-300481	42.14584	-74.49419	NY	10.62	44.08	1.28	Forested Upland	Deciduous Forest
C-300483	42.39068	-77.4642	NY	5.99	23.52	1.25	Planted/Cultivated	Row Crops
C-300486	43.57584	-74.44133	NY	9.89	54.18	0.91	Forested Upland	Mixed Forest
C-300487	42.51131	-78.39162	NY	6.94	25.28	1.25	Planted/Cultivated	Fallow
C-300488	44.30143	-75.35882	NY	14.97	74.85	1.36	Forested Upland	Deciduous Forest
C-299947	41.34735	-71.74693	RI	14.27	77.27	1.11	Forested Upland	Deciduous Forest
C-300036	41.57489	-71.77261	RI	10.67	66.59	1.18	Forested Upland	Mixed Forest
C-299977	42.96226	-73.15399	VT	17.25	101.99	1.29	Forested Upland	Mixed Forest
C-299998	43.40812	-72.98917	VT	10.88	51.76	1.1	Forested Upland	Deciduous Forest
C-300014	43.61436	-73.09815	VT	6.00	24.38	1.14	Forested Upland	Deciduous Forest
C-300032	42.79828	-72.77689	VT	23.52	135.54	0.93	Forested Upland	Deciduous Forest
C-300428	44.56675	-73.02458	VT	7.11	28.23	1.29	Planted/Cultivated	Pasture/Hay
C-300429	44.75953	-71.71382	VT	5.37	34.52	1	Forested Upland	Mixed Forest
C-300439	44.02555	-72.83229	VT	5.30	24.39	0.87	Forested Upland	Deciduous Forest
C-300440	45.00732	-73.08343	VT	9.46	42.49	1.21	Forested Upland	Deciduous Forest

C-300442	43.73595	-72.32247	VT	11.55	58.63	0.96	Planted/Cultivated	Pasture/Hay
C-300463	44.44982	-71.6768	VT	11.78	56.41	0.98	Forested Upland	Mixed Forest
C-300469	43.8333	-75.50819	VT	5.28	27.92	1.34	Forested Upland	Mixed Forest
C-300473	44.51036	-71.67488	VT	16.39	91.54	0.98	Forested Upland	Mixed Forest
C-300474	44.86612	-73.30202	VT	0.34	3.45	1.26	Forested Upland	Mixed Forest
C-300484	44.2764	-72.61863	VT	4.80	21.97	1.08	Forested Upland	Mixed Forest
C-300489	44.92862	-72.27716	VT	6.80	30.38	1	Planted/Cultivated	Pasture/Hay



Supplementary Fig. S1. PyC content [g kg⁻¹ soil] at 165 sampling locations in the northeastern United States. Cartographic base: Physical map from naturalearthdata.com.

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