

Supplementary information

Title: The pyrogenic archives of anthropogenically transformed soils in Central Russia

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Table S1. Anthracomass (AM) properties in anthropogenically transformed soil horizons.

Site	Age	Layer, horizon	Thickness, cm	Total AM weight, g	AM concentration, ppm	Actual AM stocks, kg/m ²	Normalized AM stocks, kg/m ²	
Avdeevo	Upper Paleolithic, 23-21 ky BP	CL, pit fill	15	0.27	312	6.59	4.39	
		Control	20	0.042	72	2.73	1.36	
Khotylevo-2	Upper Paleolithic, 24-21 ky BP	Hearth	11	8.80	16996	58.42	53.11	
		Early Iron Age, the 3 rd – 5 th centuries AD	CL, House fill	11	0.39	584	6.76	6.14
		Control	11	0.0008	1	0.016	0.014	
Yudinovo-1	Upper Paleolithic, 14-12 ky BP	CL1	7	1.57	2355	21.3	30.43	
		CL2	7	0.063	94	0.78	1.11	
		Control	10	0.045	62	0.85	0.85	
Yaroslavl	1220-1238 AD	CL1	7	1.27	2839	22.34	34.91	
	Early 13 th century AD	CL2	9	0.70	1842	15.86	17.62	
	Middle of the 12 th century AD	CL3	9	5.15	9436	86.63	96.25	
	8 th – 10 th centuries AD	Ap1	7	1.75	2920	32.74	46.77	
	Early Iron Age	Ap2	6	0.13	243	1.79	2.98	
	Control	20	0.0018	2	0.06	0.03		

Table S2. The particle-size distribution and identification of charred materials.

Site	Age	Layer, horizon	Contents (%) of particle-size fractions (mm) of anthracomass and charcoal identification			
			> 5 mm	5-2 mm	2-1 mm	1-0.5 mm
Avdeevo	Upper Paleolithic, 23-21 ky BP	CL, pit fill	74.86 Bone	20.98 Bone	2.32	1.84
		Control	0	19.19	37.68	43.13
Khotylevo-2	Upper Paleolithic, 24-21 ky BP	Hearth	10.03 Bone	5.99 Bone	41.97	42.01
		Early Iron Age, 3 rd – 5 th centuries AD	0	30.21 <i>Picea, Betula</i>	40.54	29.25
	Control	0	0	0	100	
Yudinovo-1	Upper Paleolithic, 14-12 ky BP	CL1	48.51 Bone	45.53 Bone	3.80	2.16
		CL2	0	4.64 Bone	30.40	64.96
		Control	0	0	3.13	96.87
Yaroslavl	1220-1238 AD	CL1	6.35 <i>Quercus,</i> <i>Betula,</i> <i>Juniperus</i>	19.12 <i>Quercus,</i> <i>Betula, Pinus,</i> <i>Populus, Salix,</i> <i>Juniperus</i>	50.51	24.02
		CL2	0	27.54 Bone, <i>Pinus,</i> <i>Quercus,</i> <i>Betula</i>	32.03	40.43
	Middle of the 12 th century AD	CL3	36.91 <i>Pinus, Betula,</i> <i>Salix, Juniperus</i>	23.78 <i>Populus,</i> <i>Pinus, Salix,</i> <i>Betula</i>	29.31	10.00
		8 th – 10 th centuries AD	Ap1	41.70 <i>Tilia, Betula,</i> <i>Juniperus</i>	37.07 <i>Tilia, Betula,</i> <i>Salix, Pinus,</i> <i>Juniperus</i>	14.36
	Early Iron Age	Ap2	0	65.03 <i>Betula</i>	20.95	14.02
		Control	0	0	0	100