

Supplementary material 1

Table 1S. Characteristics of the study sites

Environmental parameters	Site								
	Krasnobrodskii open-pit coal mine					Kedrovskii open-pit coal mine			
	Krb1 54°08'40.88"N 86°27'27.04"E	Krb2 54°09'06.84"N 86°31'19.09"E	Krb3 54°09'16.99"N 86°31'40.73"E	Krb4 54°09'19.2"N 86°32'18.1"E	Krb5 54°12'10.76"N 86°31'41.34"E	Kedr1 55°30'38.56"N 86°04'00.44"E	Kedr2 55°30'31.46"N 86°04'12.43"E	Kedr3 55°30'29.70"N 86°04'52.64"E	Kedr4 55°33'26.17"N 86°10'02.75"E
Community	Pioneer and ruderal vegetation at the plateau-like terrace of the 2-year-old dump	Initial stage of meadow community's formation at the flat top of the 7-year-old dump	Mixed forest at the terrace of the 25-year-old dump	Motley-grass meadow at the foot of the 25-year-old dump	Birch groves within open cereal and motley-grass meadow communities (control site)	Newly planted young pine forest at the levelled top of the 7-year-old dump	Motley-grass meadow with the inclusion of trees and shrubs at the flat top of the 7-year-old dump	Birch groves at the foot of the 25-year-old dump	Aspen-fir forest (control site)
Dominant plant species	<i>Tusilago farfara</i> , <i>Convolvulus arvensis</i> , <i>Taraxacum officinale</i>	<i>Artemisia sericea</i> , <i>Centaurea scabiosa</i> , <i>Dactylis glomerata</i> , <i>Echium vulgare</i>	<i>Betula pendula</i> , <i>Pinus sylvestris</i> , <i>Populus tremula</i> , <i>Padus avium</i> , <i>Achillea millefolium</i>	<i>Achillea millefolium</i> , <i>Calamagrostis epigeios</i> , <i>Galium mollugo</i> , <i>Lathyrus pratensis</i> , <i>Vicia cracca</i>	<i>Betula pendula</i> , <i>Agrimonia pilosa</i> , <i>Calamagrostis epigeios</i> , <i>Trisetum sibiricum</i> , <i>Pteridium aquilinum</i>	<i>Pinus sylvestris</i> , <i>Hippophae rhamnoides</i> , <i>Elytrigia repens</i> , <i>Taraxacum officinale</i> , <i>Trifolium pratense</i>	<i>Dactylis glomerata</i> , <i>Elytrigia repens</i> , <i>Poa pratensis</i> , <i>Chamaenerion angustifolium</i>	<i>Betula pendula</i> , <i>Filipendula ulmaria</i> , <i>Cirsium setosum</i> , <i>Brachypodium pinnatum</i>	<i>Populus tremula</i> , <i>Abies sibirica</i> , <i>Filipendula ulmaria</i> , <i>Aconitum septentrionale</i> , <i>Saussurea latifolia</i>
Soil pH	8.47 ± 0.02	9.19 ± 0.06	8.25 ± 0.12	7.37 ± 0.14	7.41 ± 0.06	9.01 ± 0.08	8.34 ± 0.16	6.47 ± 0.04	5.56 ± 0.15
Hydrothermal Coefficient of Selyaninov (HTC)	0.16 ± 0.15	0.23 ± 0.36	0.23 ± 0.37	0.23 ± 0.37	0.22 ± 0.36	0.14 ± 0.09	0.15 ± 0.12	0.14 ± 0.1	0.12 ± 0.1
Vegetation cover (Veg.Cov) (%)	16.95 ± 15.13	21.66 ± 10.38	47.25 ± 12.9	78.84 ± 3.57	98.09 ± 2.43	57.05 ± 11.08	75.67 ± 3.00	87.5 ± 4.34	96.26 ± 2.18
Turf extent (Tur.ext) (%)	1.78 ± 4.35	4.16 ± 3.67	24.06 ± 3.53	39.0 ± 3.33	40.0 ± 0.1	3.98 ± 1.25	51.08 ± 2.27	31.25 ± 2.17	20.01 ± 0.01
Soil organic carbon (SOC) (%)	1.25 ± 0.3	2.39 ± 0.64	9.05 ± 0.37	10.59 ± 0.26	12.07 ± 0.05	1.95 ± 1.11	4.94 ± 0.47	10.37 ± 0.04	6.61 ± 0.6
Total Nitrogen (TotalN) (%)	0.07 ± 0.01	0.09 ± 0.01	0.26 ± 0.02	0.49 ± 0.04	0.76 ± 0.02	0.13 ± 0.04	0.29 ± 0.03	0.53 ± 0.01	0.35 ± 0.01

Table 2S. The results of the ANOVA evaluation for the “Diplopoda” group

Factor	Krasnobrodskii open-pit coal mine		Kedrovskii open-pit coal mine	
	Deviance	<i>p</i> -value	Deviance	<i>p</i> -value
addition of variables				
pH	150.83516	0.0000	216.09414	0.0000
SOC	501.08753	0.0000	62.56273	0.0000
Total.N	36.26326	0.0000	80.57114	0.0000
HTC	29.5037	0.0000	102.58707	0.0000
Veg.Cov	100.49106	0.0012	129.69747	0.0001
Tur.ext	94.31572	0.0000	107.81731	0.0000
removal of variables				
pH	-15.9	0.0093	-34.2	0.0070
SOC	-2.4	0.0000	-9.1	0.0069
Total.N	-1.8	0.0001	-0.8	0.0075
HTC	-20.3	0.0159	-22.7	0.0006
Veg.Cov	-52.5	0.0021	-20.8	0.0006
Tur.ext	-43.2	0.0000	-33.7	0.0003

Table 3S. The results of the ANOVA evaluation for the “Chilopoda” group

Factor	Krasnobrodskii open-pit coal mine		Kedrovskii open-pit coal mine	
	Deviance	<i>p</i> -value	Deviance	<i>p</i> -value
addition of variables				
pH	95.726702	0.0053	164.429699	0.0000
SOC	77.955130	0.0000	346.081955	0.0000
Total.N	196.984870	0.0000	69.176419	0.0000
HTC	10.682097	0.0046	43.352219	0.0000
Veg.Cov	87.009313	0.0000	31.354034	0.0000
Tur.ext	54.300595	0.0000	37.020371	0.0001
removal of variables				
pH	-22.6	0.0000	-16.7	0.0005
SOC	-4.7	0.0027	-13.1	0.0009
Total.N	-9.0	0.0082	-3.2	0.0001
HTC	-1.3	0.0397	-24.0	0.0000
Veg.Cov	-94.1	0.0000	-19.2	0.0052
Tur.ext	-62.0	0.0000	-21.1	0.0000