

Supplementary table 1. Pairwise correlations between all combinations of earthworm, enchytraeid, and nematode taxonomic richness and earthworm and enchytraeid density from urban soils of Neuchâtel, Switzerland. Upper half matrix: Kendall or Pearson r, lower half matrix: p-values. Grey and white backgrounds show Kendall and Pearson correlations, respectively, after testing the normality of data with the Shapiro test. Significant correlations (ANOVA, $p < 0.05$) are shown in bold and underlined.

Kendall		Earthworms		Enchytraeids		Nematodes
Pearson		Density	Richness	Density	Richness	Richness
Earthworms	Density		<u>0.435</u>	-0.020	0.176	-0.288
	Richness	0.071		0.391	0.438	-0.145
Enchytraeids	Density	0.940	<u>0.032</u>		<u>0.482</u>	0.062
	Richness	0.484	0.069	<u>0.006</u>		0.184
Nematodes	Richness	0.247	0.567	0.729	0.464	

Supplementary table 2. Correlations between earthworm diversity metrics and community composition from urban soils of Neuchâtel, Switzerland, and environmental variables. Grey and white backgrounds show Kendall and Pearson correlations respectively, after testing the normality of data with the Shapiro test. Best correlations are shown in bold.

Environmental variable	Hill's numbers		Evenness		Epigeic (ind.m ⁻²)		Endogeic (ind.m ⁻²)		Anecic (ind.m ⁻²)	
	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
<i>Soil age</i>	-0.092	0.595	0.093	0.595	-0.071	0.706	-0.020	0.909	0.053	0.761
<i>Physical</i>										
Depth	-0.165	0.356	0.125	0.489	-0.016	0.932	-0.193	0.281	0.125	0.488
Bulk density	-0.004	0.988	-0.394	0.106	-0.267	0.154	0.073	0.676	0.146	0.403
Water content	-0.189	0.452	0.490	0.039	0.523	0.005	0.230	0.184	-0.158	0.362
Coarse fraction	0.223	0.198	-0.251	0.149	0.031	0.867	-0.243	0.161	-0.092	0.595
Clay	0.139	0.583	0.105	0.679	0.249	0.181	0.013	0.940	-0.164	0.343
Silt	-0.014	0.955	-0.113	0.657	-0.351	0.060	0.138	0.426	0.026	0.879
Sand	-0.160	0.527	-0.040	0.875	0.031	0.867	-0.007	0.970	0.198	0.255
<i>Chemical</i>										
pH _{KCl}	0.000	1.000	-0.112	0.534	-0.153	0.423	-0.143	0.422	0.055	0.759
pH _{H2O}	0.000	1.000	-0.027	0.878	-0.202	0.277	-0.485	0.005	0.112	0.519
CaCO ₃	0.258	0.301	0.138	0.584	0.000	1.000	0.013	0.940	-0.072	0.677
CEC	-0.036	0.886	0.336	0.173	-0.126	0.503	0.020	0.909	0.106	0.543
P _{tot}	0.013	0.939	0.106	0.543	0.000	1.000	-0.106	0.544	0.086	0.621
P _{bio}	0.020	0.909	0.179	0.305	0.156	0.403	0.118	0.495	-0.217	0.211
Loss on ignition	0.088	0.727	0.229	0.360	-0.033	0.864	-0.231	0.200	0.084	0.641
C _{org}	0.001	0.998	0.314	0.204	0.047	0.801	-0.053	0.761	-0.020	0.909
N _{tot}	-0.020	0.909	0.258	0.139	0.078	0.676	0.132	0.448	0.007	0.970
C/N	0.319	0.197	-0.124	0.623	0.202	0.277	-0.262	0.130	-0.230	0.184
<i>Functional</i>										
Enzymatic activity (FDA)	-0.073	0.773	0.068	0.790	-0.109	0.558	-0.013	0.940	0.020	0.909
Respiration	0.046	0.791	0.192	0.271	0.423	0.024	0.079	0.649	-0.192	0.271
Bacterial density	0.350	0.154	-0.393	0.107	-0.101	0.587	-0.112	0.519	-0.356	0.040
Ergosterol (fungal biomass)	0.007	1.000	0.046	0.791	-0.218	0.242	-0.092	0.596	-0.059	0.733

Bonferroni-corrected p-value for significance: p-value < 0.0005 (168 combinations)

Supplementary table 3. Correlations between enchytraeid density, diversity metrics and community composition from urban soils of Neuchâtel, Switzerland, and environmental variables. Grey and white backgrounds show Kendall and Pearson correlations respectively, after testing the normality of data with the Shapiro test. Best correlations are shown in bold.

Environmental variable	Hill's numbers		Evenness		Proportion of <i>r</i> -strategists	
	r	p-value	r	p-value	r	p-value
<i>Soil age</i>	-0.304	0.081	0.272	0.119	-0.343	0.048
<i>Physical</i>						
Depth	-0.110	0.538	0.262	0.144	-0.179	0.317
Bulk density	0.106	0.544	0.325	0.063	-0.288	0.247
Water content	-0.289	0.095	-0.157	0.363	0.341	0.166
Coarse fraction	0.144	0.404	-0.407	0.019	0.118	0.495
Clay	0.098	0.601	-0.105	0.544	-0.029	0.908
Silt	-0.131	0.448	0.223	0.197	-0.115	0.648
Sand	0.000	1.000	-0.144	0.404	0.133	0.599
<i>Chemical</i>						
pH _{KCl}	0.168	0.352	0.033	0.849	-0.042	0.816
pH _{H2O}	-0.149	0.400	0.144	0.404	-0.136	0.444
CaCO ₃	0.203	0.260	-0.354	0.041	0.109	0.668
CEC	-0.203	0.260	0.026	0.879	0.105	0.679
P _{tot}	-0.066	0.704	0.013	0.940	-0.066	0.704
P _{bio}	0.033	0.850	-0.289	0.095	0.138	0.426
Loss on ignition	-0.124	0.501	-0.184	0.288	0.381	0.119
C _{org}	-0.046	0.790	-0.223	0.197	0.337	0.172
N _{tot}	-0.086	0.622	-0.118	0.495	0.257	0.139
C/N	0.007	1.000	-0.380	0.028	0.104	0.683
<i>Functional</i>						
Enzymatic activity (FDA)	0.007	1.000	-0.131	0.448	0.227	0.365
Respiration	-0.178	0.306	-0.223	0.198	0.243	0.161
Bacterial density	0.249	0.150	-0.092	0.596	-0.149	0.554
Ergosterol (fungal biomass)	0.007	1.000	0.066	0.705	-0.059	0.765

Bonferroni-corrected p-value for significance: p-value < 0.0005 (126 combinations)

Supplementary table 4. Correlations between nematode diversity metrics and community composition from urban soils of Neuchâtel, Switzerland, and environmental variables. Grey and white backgrounds show Kendall and Pearson correlations respectively, after testing the normality of data with the Shapiro test. Best correlations are shown in bold.

Environmental variable	Hill's numbers		Evenness		MI 1-5		EI		SI	
	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
<i>Soil age</i>	-0.159	0.376	0.054	0.760	0.201	0.253	-0.046	0.790	0.298	0.087
<i>Physical</i>										
Depth	-0.159	0.376	0.211	0.247	0.126	0.487	-0.117	0.513	0.097	0.590
Bulk density	-0.277	0.266	0.274	0.272	0.022	0.930	-0.192	0.271	-0.272	0.119
Water content	0.395	0.105	-0.332	0.180	-0.423	0.080	0.454	0.009	0.362	0.037
Coarse fraction	0.020	0.909	0.140	0.424	0.04	0.819	-0.178	0.306	0.270	0.120
Clay	0.226	0.367	-0.256	0.305	-0.011	0.965	0.092	0.596	0.079	0.650
Silt	0.050	0.844	-0.128	0.613	-0.107	0.672	-0.125	0.471	-0.204	0.240
Sand	-0.324	0.190	0.423	0.081	0.102	0.686	-0.059	0.733	-0.033	0.850
<i>Chemical</i>										
pH _{KCl}	-0.189	0.295	0.215	0.222	0.085	0.641	-0.049	0.786	0.028	0.877
pH _{H2O}	-0.170	0.339	0.113	0.518	0.289	0.107	-0.211	0.236	0.184	0.302
CaCO ₃	-0.237	0.344	0.287	0.248	0.349	0.155	-0.157	0.363	0.066	0.705
CEC	0.612	0.007	-0.600	0.008	-0.381	0.119	0.262	0.130	0.315	0.069
P _{tot}	-0.192	0.270	0.167	0.342	0.241	0.170	-0.192	0.270	-0.113	0.518
P _{bio}	0.053	0.761	-0.007	0.970	-0.06	0.732	0.119	0.494	-0.106	0.544
Loss on ignition	0.479	0.044	-0.398	0.101	-0.451	0.061	0.262	0.130	0.052	0.762
C _{org}	0.615	0.007	-0.546	0.019	-0.456	0.057	0.306	0.080	0.133	0.447
N _{tot}	0.277	0.111	-0.260	0.138	-0.247	0.159	0.304	0.081	0.106	0.544
C/N	0.431	0.074	-0.285	0.252	-0.174	0.491	0.131	0.448	0.092	0.596
<i>Functional</i>										
Enzymatic activity (FDA)	0.357	0.146	-0.329	0.183	-0.425	0.079	0.249	0.150	0.052	0.762
Respiration	0.224	0.197	-0.153	0.382	-0.207	0.238	0.304	0.081	0.224	0.197
Bacterial density	-0.165	0.512	0.129	0.609	0.199	0.428	-0.112	0.519	-0.164	0.343
Ergosterol (fungal biomass)	0.170	0.324	-0.153	0.382	-0.139	0.425	0.066	0.705	-0.092	0.596

Bonferroni-corrected p-value for significance: p-value < 0.0005 (147 combinations)