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Research article

Determining the relative importance of climate and soil properties affecting the scores of visual soil quality indicators with dominance analysis

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Abstract: In this study, we have analyzed the relationships of four manageable soil properties, soil texture, and climate variables on the scores of visual indicators of 132 soils across Europe and China. Correlations differed in acid-to-neutral and alkaline soils, both in strength and direction, which gave rise to the different rankings of the importances of the explanatory variables for each visual indicator. In alkaline soils, higher soil pH values significantly affected the score of the visual indicators and dominated other variables for most visual indicators; in acid soils, only the "presence of a tillage pan" was affected by pH, and, for most visual indicators, soil organic matter (SOM) and labile organic carbon (LOC) dominated other manageable variables. In both soil reaction groups, climate variables covaried similarly in terms of direction but with different significances for different indicators; the dominance of the variables was dependent on soil reaction. Eight out of 16 visual indicators (eight per reaction group) had a statistically significant dominant explanatory variable (soil property or climate variable). The soil pH must be accounted for when interpreting visual indicators of soils with more extreme pH (both acid and alkaline).

Keywords: New Zealand Visual Soil Assessment method; VSA; explanatory variables; Spearman correlations; semi-partial correlations

Supplemental Materials

Table 1. Visual soil quality indicators (Shepherd, 2000) and soil stability (Tongway and Hindley, 1995).

Visual indicator	**Brief Description**	**Ranking**
Soil structure and consistency	Based on a soil volume (0.2 m edge cube)/clods shattering from waist height and aggregate size distribution. Assessment (comparison) with reference photographs.	Indicator status: 0 = poor; 1 = moderate; 2 = good.
Soil porosity	Based on visual observation of a spade slice of soil or clod inspection for macropores. Assessment (comparison) with reference photographs.	Indicator status: 0 = poor; 1 = moderate; 2 = good.
Soil stability (slake test)	Three soil aggregates masses are immersed in the water atop a mesh with 1 cm openings. Time to collapse and percentage of slumping material is observed (after 5-10 min). Reference photographs.	Indicator status: 0 = poor; 1 = moderate; 2 = good.
Soil colour	Comparison of the colour of cultivated soil with the colour of undisturbed soil (e.g. from a nearby fence or other structure). Reference photographs.	Indicator status: 0 = poor; 1 = moderate; 2 = good.
Presence of cultivation pan	Based on visual observation of the face of the hole dug to extract the initial cube, comparison between the lower and upper part of the topsoil profile. Assessment (comparison) with reference photographs.	Indicator status: 0 = poor; 1 = moderate; 2 = good.
Earthworm count	The number of earthworms found in a 5 minutes search in the volume of soil used for *Soil structure and consistency*.	Indicator status: 0 = poor (count < 4); 1 = moderate (4 < count < 8); 2 = good (count > 8).
Surface ponding (under cropping)	Based on the time ponded water took to infiltrate after a heavy rainfall or wet period in winter.	Indicator status: 0 = poor (ponding for more than 3 days); 1 = moderate (ponding up to 3 days); 2 = good (no evidence of ponding after 1 day).
Susceptibility to wind and water erosion	Observed signs of erosion: rills, sedimentation in water streams and drains, differences in topsoil depths between crests and bottom of slopes, size of dust plumes during cultivation, etc.	Indicator status: 0 = poor; 1 = moderate; 2 = good. For further details refer to the citation.

Note: Adapted from Teixeira, F., Basch, G., Alaoui, A., Lemann, T., Wesselink, M., Sukkel, W., Lemesle, J., Ferreira, C., Veiga, A., Garcia-Orenes, F., Morugán-Coronado, A., Mataix-Solera, J., Kosmas, C., Glavan, M., Zoltán, T., Hermann, T., Vizitiu, O., Lipiec, J., Frac, M., Reintam, E., Xu, M., Fu, H., Fan, H. & Fleskens, L. (2021). Manuring effects on visual soil quality indicators and soil organic matter content in different pedoclimatic zones in Europe and China. Soil &Tillage Research, 212, 105033. https://doi.org/10.1016/j.still.2021.105033

Score: Good | Score: Moderate | Score: Poor

Figure 1. Standard photographs for scoring soil stability. Photo Credit: Alaoui, A. and Schwilch, G. (2016) Soil quality and agricultural management practices inventory at case study sites. iSQAPER Report. Available online here: https://www.isqaper-is.eu/soil-quality/visual-soil-assessment/73-soil-slaking-test-soil-stability

Table 2. Soil texture and soil organic carbon measurement methods used at each study site

	Soil texture analysis	Reference	Soil organic carbon	Reference
The Netherlands	Interaction with radiation (near-infrared spectrometry)		Loss on ignition (NEN5754 protocol)	NEN (1992)
Portugal	Sieving and sedimentation (pipette method)	Robinson (1922)	Oxidation at 600°C and quantified through the infrared analyzer (LecoSC-144 DR)	LecoSC-144 DR (2004)
Spain	Sieving and sedimentation (hydrometer method)	Gee and Bauder (1986)	Walkley-Black chromic acid wet oxidation method	Nelson and Sommers, 1982
Slovenia	Sieving and sedimentation (pipette method)	ISO 11277	Dry combustion (elementary analysis)	ISO 10694
Hungary	Sieving and sedimentation (pipette method)		Wet combustion with sulfuric acid by Tjurin method	Vorobyova (1998)
Romania	Sieving and sedimentation (pipette method)		Walkley-Black chromic acid wet oxidation method, modified by (Gogoasa)	
Poland	Interaction with radiation (laser diffraction)		Wet combustion method	Jankauskas et al. (2006)
Estonia	Sieving and sedimentation (pipette method)	ISO 11277	Wet combustion with sulfuric acid by Tjurin method	Vorobyova (1998)
China Qiyang	Sieving and sedimentation	Gee and Bauder (1986)	Walkley-Black chromic acid wet oxidation method	Walkley and Black (1934)
China Suining	Sieving and sedimentation	Gee and Bauder (1986)	Walkley-Black chromic acid wet oxidation method	Walkley and Black (1934)
China Gongzhuling	Interaction with radiation (laser diffraction)	Gee and Bauder (1986)	Walkley-Black chromic acid wet oxidation method	Walkley and Black (1934)

Note: Adapted from Teixeira, F., Basch, G., Alaoui, A., Lemann, T., Wesselink, M., Sukkel, W., Lemesle, J., Ferreira, C., Veiga, A., Garcia-Orenes, F., Morugán-Coronado, A., Mataix-Solera, J., Kosmas, C., Glavan, M., Zoltán, T., Hermann, T., Vizitiu, O., Lipiec, J., Frac, M., Reintam, E., Xu, M., Fu, H., Fan, H. & Fleskens, L. (2021). Manuring effects on visual soil quality indicators and soil organic matter content in different pedoclimatic zones in Europe and China. Soil &Tillage Research, 212, 105033. https://doi.org/10.1016/j.still.2021.105033

Table 3. The arithmetic mean, standard error and kurtosis of the variables for both pH groups.

	pH<7			pH>7		
	Mean	SE	Kurtosis	Mean	SE	Kurtosis
LOC	2.14	2.45	0.32	1.22	1.55	8.60
SOM	2.50	1.85	4.40	2.56	2.32	13.91
pH	6.04	0.70	−0.76	7.79	0.46	−1.26
Sand	48.49	19.73	−0.42	44.64	19.65	−0.64
Silt	37.90	17.57	−0.64	35.71	16.90	−0.48
Clay	13.60	11.32	0.62	19.42	13.42	−0.13
PR	2.16	0.97	0.35	2.88	1.56	−0.86
T	10.01	4.34	−0.64	13.49	4.88	−1.39
P	864.28	341.70	−1.23	637.83	290.29	0.27
PET	738.82	201.92	1.98	996.02	309.34	−0.98
AI	1.22	0.51	0.24	0.73	0.45	2.25

Table 4. Pedoclimatic zones and pH.

		n	Min.	Max.	Median
The Netherlands	Atlantic	3	5.1	5.5	5.4
Portugal	Mediterranean temperate	12	5.5	7.9	7.4
Spain	Mediterranean temperate and semi-arid	12	8.0	8.7	8.3
Greece	Mediterranean temperate	12	6.9	7.9	7.7
Slovenia	Southern sub-continental	13	6.0	7.5	6.8
Hungary	Southern sub-continental	14	5.6	7.5	6.4
Romania	Northern sub-continental	12	6.2	8.5	8.1
Poland	Northern sub-continental	15	4.2	7.6	6.2
Estonia	Boreal to sub-boreal	14	5.9	7.3	6.8
China-Qiyang	Central sub-tropical	7	4.7	7.3	5.2
China-Suining	Central sub-tropical	7	5.7	8.4	8.3
China-Gongzhuling	Middle temperate	6	5.0	7.7	6.1

Table 5. Sample size (number of pairs).

	LOC	SOM	pH	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	85												
pH	125	88											
Sand	111	87	114										
Silt	111	87	114	114									
Clay	111	87	114	114	114								
PR	86	62	89	89	89	89							
T	125	88	128	114	114	114	89						
P	125	88	128	114	114	114	89	132					
PET	125	88	128	114	114	114	89	132	132				
AI	125	88	128	114	114	114	89	132	132	132			
NPP	125	88	128	114	114	114	89	132	132	132	132		
GCI	125	88	128	114	114	114	89	132	132	132	132	132	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index = P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 6. Spearman correlation coefficients between all explanatory variables (irrespective of soil reaction).

	LOC	SOM	pH rk	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	0.57												
pH rk	−0.07	0.05											
Sand	0.02	−0.08	−0.16										
Silt	−0.23	−0.23	0.06	−0.79									
Clay	0.42	0.48	0.20	−0.41	−0.17								
PR	−0.33	0.02	0.24	0.02	−0.09	0.08							
T	−0.05	0.20	0.34	−0.51	0.24	0.43	0.07						
P	0.02	0.14	−0.38	−0.18	0.25	−0.12	−0.10	0.09					
PET	0.02	0.17	0.38	−0.32	−0.03	0.61	0.03	0.80	−0.26				
AI	0.09	0.03	−0.38	−0.09	0.28	−0.34	−0.07	−0.18	0.80	−0.63			
NPP	0.06	0.12	−0.31	−0.23	0.23	−0.01	−0.15	0.20	0.96	−0.10	0.70		
GCI	0.06	−0.12	−0.23	−0.16	0.07	0.18	0.01	−0.23	0.02	−0.18	0.13	0.00	

Table 7. Sample size (number of pairs) for soils with pH≤7.

	LOC	SOM	pH rk	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	36												
pH rk	62	39											
Sand	56	39	59										
Silt	56	39	59	59									
Clay	56	39	59	59	59								
PR	45	28	48	48	48	48							
T	62	39	65	59	59	59	48						
P	62	39	65	59	59	59	48	65					
PET	62	39	65	59	59	59	48	65	65				
AI	62	39	65	59	59	59	48	65	65	65			
NPP	62	39	65	59	59	59	48	65	65	65	65		
GCI	62	39	65	59	59	59	48	65	65	65	65	65	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH rk: ranked; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index = P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 8. Spearman correlation coefficients between all explanatory variables for soils with pH≤7.

	LOC	SOM	pH rk	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	**0.75**												
pH rk	0.00	0.29											
Sand	0.12	0.07	0.05										
Silt	**−0.42**	−0.30	0.09	**−0.83**									
Clay	**0.58**	**0.39**	−0.07	**−0.36**	-0.15								
PR	**−0.48**	−0.34	0.19	0.07	0.13	**-0.34**							
T	−0.21	0.17	−0.07	**−0.46**	0.23	**0.28**	0.09						
P	−0.01	0.31	0.06	**−0.42**	**0.34**	0.11	0.24	**0.57**					
PET	0.03	0.04	**−0.25**	**−0.31**	−0.06	**0.59**	**−0.28**	**0.68**	0.10				
AI	0.06	**0.36**	0.16	−0.24	**0.29**	−0.14	**0.34**	**0.24**	**0.80**	**−0.39**			
NPP	0.02	0.26	−0.02	**−0.40**	**0.25**	0.21	0.15	**0.64**	**0.96**	**0.25**	**0.67**		
GCI	0.12	−0.06	**−0.30**	**−0.41**	0.17	**0.52**	-0.17	0.17	0.00	**0.29**	−0.05	0.03	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH rk: ranked; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 9. Sample size (number of pairs) for soils with pH>7.

	LOC	SOM	pH rk	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	49												
pH rk	63	49											
Sand	55	48	55										
Silt	55	48	55	55									
Clay	55	48	55	55	55								
PR	41	34	41	41	41	41							
T	63	49	63	55	55	55	41						
P	63	49	63	55	55	55	41	63					
PET	63	49	63	55	55	55	41	63	63				
AI	63	49	63	55	55	55	41	63	63	63			
NPP	63	49	63	55	55	55	41	63	63	63	63		
GCI	63	49	63	55	55	55	41	63	63	63	63	63	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH rk: ranked; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 10. Spearman correlation coefficients between all explanatory variables for soils with pH>7.

	LOC	SOM	pH rk	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	**0.38**												
pH rk	−0.01	−0.03											
Sand	−0.08	−0.26	**−0.49**										
Silt	−0.07	-0.14	**0.44**	**−0.77**									
Clay	**0.27**	**0.66**	0.20	**−0.45**	−0.16								
PR	−0.17	**0.41**	0.00	−0.06	−0.24	**0.49**							
T	0.12	**0.30**	**0.38**	**-0.49**	**0.36**	**0.35**	−0.11						
P	−0.02	0.02	**−0.45**	−0.02	0.07	−0.19	−0.08	−0.11					
PET	0.13	**0.41**	**0.37**	**−0.33**	0.08	**0.55**	0.09	**0.84**	**−0.33**				
AI	0.08	−0.27	**−0.45**	0.08	0.13	**−0.47**	−0.29	**−0.40**	**0.78**	**−0.68**			
NPP	0.05	−0.04	**−0.32**	−0.05	0.09	−0.16	−0.15	−0.11	**0.93**	**−0.29**	**0.72**		
GCI	−0.02	−0.08	−0.03	0.01	−0.12	0.01	0.22	**−0.43**	0.02	**−0.54**	0.16	−0.01	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH rk: ranked; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 11. P-values of the Spearman correlation coefficients between the explanatory variables for soils with pH≤7.

	LOC	SOM	pH	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	0.00												
pH rk	0.98	0.07											
Sand	0.36	0.66	0.72										
Silt	0.00	0.06	0.51	0.00									
Clay	0.00	0.01	0.58	0.00	0.26								
PR	0.00	0.06	0.19	0.61	0.37	0.02							
T	0.14	0.26	0.50	0.00	0.07	0.02	0.64						
P	0.93	0.05	0.60	0.00	0.01	0.38	0.08	0.00					
PET	0.86	0.90	0.03	0.02	0.63	0.00	0.03	0.00	0.52				
AI	0.60	0.02	0.24	0.05	0.02	0.30	0.02	0.03	0.00	0.00			
NPP	0.93	0.10	0.92	0.00	0.03	0.10	0.28	0.00	0.00	0.07	0.00		
GCI	0.36	0.73	0.01	0.00	0.18	0.00	0.23	0.55	0.78	0.01	0.62	0.93	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim= limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 12. P-values of the Spearman correlation coefficients between the explanatory variables for soils with pH>7.

	LOC	SOM	pH	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
LOC													
SOM	0.01												
pH rk	0.93	0.85											
Sand	0.55	0.08	0.00										
Silt	0.57	0.20	0.00	0.00									
Clay	0.05	0.00	0.15	0.00	0.24								
PR	0.29	0.02	0.98	0.68	0.10	0.00							
T	0.36	0.04	0.00	0.00	0.01	0.01	0.50						
P	0.86	0.89	0.00	0.85	0.62	0.10	0.61	0.11					
PET	0.30	0.00	0.00	0.02	0.55	0.00	0.54	0.00	0.00				
AI	0.51	0.06	0.00	0.54	0.32	0.00	0.07	0.00	0.00	0.00			
NPP	0.67	0.77	0.01	0.72	0.52	0.24	0.32	0.33	0.00	0.01	0.00		
GCI	0.87	0.56	0.84	0.97	0.40	0.92	0.17	0.00	0.86	0.00	0.22	0.92	

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index = P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 13. P-values of the Spearman correlation coefficients between the explanatory variables and the visual indicators for soils with pH<=7.

	STR	POR	STA	PAN	COL	EAR	ERO	PON
LOC	0.25	0.04	0.37	0.69	0.00	0.21	0.01	0.22
SOM	0.14	0.00	0.36	0.32	0.02	0.20	0.42	0.63
pH rk	0.83	0.11	0.77	0.01	0.48	0.51	0.41	0.33
Sand	0.90	0.62	0.04	0.61	0.94	0.34	0.23	0.97
Silt	0.65	0.81	0.06	0.65	0.02	0.16	0.45	0.27
Clay	0.45	0.90	0.98	0.73	0.00	0.82	0.11	0.84
PR	0.79	0.95	0.68	0.33	0.01	0.13	0.56	0.39
T	0.36	0.97	0.32	0.87	0.51	0.00	0.77	0.09
P	0.98	0.08	0.00	0.75	0.59	0.78	0.01	0.72
PET	0.51	0.34	0.20	0.57	0.00	0.00	0.83	0.16
AI	0.50	0.07	0.00	0.72	0.05	0.08	0.06	0.87
NPP	0.82	0.18	0.02	0.78	0.93	0.56	0.00	0.59
GCI	0.68	0.66	0.68	0.36	0.08	0.32	0.07	0.01

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 14. P-values of the Spearman correlation coefficients between the explanatory variables and the visual indicators for soils with pH>7.

	STR	POR	STA	PAN	COL	EAR	ERO	PON
LOC	0.09	0.07	0.85	0.30	0.13	0.06	0.76	0.65
SOM	0.18	0.26	0.74	0.01	0.30	0.86	0.42	0.94
pH rk	0.02	0.02	0.04	0.00	0.01	0.25	0.44	0.00
Sand	0.02	0.91	0.54	0.37	0.71	0.84	0.88	0.21
Silt	0.31	0.78	0.07	0.75	0.74	0.74	0.96	0.72
Clay	0.05	0.38	0.04	0.73	0.45	0.06	0.33	0.00
PR	0.04	0.64	0.40	0.17	0.52	0.18	0.52	0.00
T	0.06	0.52	0.32	0.95	0.48	0.33	0.00	0.52
P	0.46	0.31	0.00	0.23	0.00	0.02	0.00	0.07
PET	0.16	0.31	0.50	0.60	0.06	0.03	0.00	0.25
AI	0.78	0.38	0.00	0.26	0.02	0.00	0.01	0.03
NPP	0.47	0.97	0.00	0.58	0.03	0.12	0.00	0.47
GCI	0.44	0.06	0.08	0.91	0.29	0.24	0.04	0.71

Note: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP Lim = limiting value, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index.

Table 15. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil structure and consistency**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil structure and consistency" with LOC (x_1) after the removal of the variance associated with mean annual temperature T (x_2) from LOC, is written in red in the table.

	X_1																							
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			0.18	0.27	-0.03	0.83	0.00	0.99	0.13	0.32	-0.23	0.09	0.03	0.85	-0.05	0.69	0.00	0.98	0.08	0.54	-0.09	0.46	-0.03	0.82	0.03	0.79
SOM	-0.04	0.80			-0.13	0.43	0.00	1.00	0.13	0.40	-0.20	0.20	0.01	0.96	-0.17	0.29	-0.08	0.63	0.07	0.65	-0.18	0.26	-0.09	0.57	0.06	0.69
pH≤7	0.15	0.25	0.25	0.12			0.02	0.89	0.06	0.64	-0.10	0.44	0.03	0.82	-0.11	0.38	0.00	0.99	0.08	0.53	-0.08	0.52	-0.03	0.83	0.04	0.72
Sand	0.15	0.27	0.23	0.15	-0.02	0.87			0.13	0.33	-0.10	0.45	0.04	0.79	-0.12	0.38	0.00	0.98	0.09	0.48	-0.08	0.53	-0.02	0.87	0.06	0.63
Silt	0.19	0.16	0.26	0.10	-0.02	0.89	0.11	0.38			-0.09	0.49	0.03	0.81	-0.11	0.39	-0.02	0.85	0.09	0.51	-0.11	0.42	-0.04	0.74	0.04	0.75
Clay	0.25	0.06	0.29	0.06	-0.03	0.84	-0.02	0.87	0.04	0.73			0.07	0.65	-0.07	0.60	0.01	0.96	0.17	0.18	-0.10	0.45	-0.01	0.96	0.12	0.36
PR	0.19	0.20	0.26	0.16	-0.01	0.93	0.01	0.93	0.05	0.71	-0.09	0.53			-0.19	0.18	-0.01	0.92	0.10	0.50	-0.10	0.47	-0.03	0.82	0.06	0.69
T	0.13	0.32	0.25	0.11	0.01	0.97	-0.04	0.75	0.09	0.51	-0.07	0.59	0.08	0.57			0.07	0.55	0.22	0.08	-0.06	0.64	0.06	0.63	0.07	0.57
P	0.15	0.25	0.25	0.12	-0.03	0.84	0.02	0.90	0.06	0.63	-0.10	0.45	0.04	0.78	-0.14	0.25			0.08	0.50	-0.14	0.27	-0.08	0.50	0.05	0.68
PET	0.14	0.25	0.23	0.15	-0.09	0.46	0.04	0.74	0.06	0.63	-0.18	0.16	0.05	0.71	-0.13	0.30	-0.01	0.92			-0.06	0.65	-0.05	0.69	0.03	0.82
AI	0.15	0.23	0.28	0.08	-0.04	0.76	0.00	0.97	0.09	0.50	-0.11	0.39	0.04	0.79	-0.11	0.36	0.11	0.39	0.05	0.66			0.04	0.75	0.05	0.71
NPP lim	0.15	0.25	0.25	0.12	-0.02	0.87	0.01	0.96	0.07	0.61	-0.10	0.47	0.04	0.79	-0.11	0.36	0.08	0.53	0.09	0.46	-0.09	0.47			0.05	0.68
GCI	0.14	0.26	0.24	0.14	-0.06	0.62	0.04	0.76	0.05	0.70	-0.15	0.26	0.04	0.79	-0.11	0.36	0.00	0.97	0.07	0.57	-0.08	0.51	-0.03	0.82		

Table 16. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil porosity**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil porosity" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																								
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			0.64	0.00	0.19	0.12	0.03	0.80	0.08	0.53	0.08	0.54	-0.01	0.94	0.14	0.27	0.22	0.08	-0.12	0.33	0.21	0.10	0.16	0.20	0.02	0.85
SOM	-0.31	0.06			0.02	0.91	0.02	0.89	0.16	0.32	0.07	0.65	-0.07	0.70	-0.14	0.38	0.03	0.85	-0.14	0.37	0.00	0.98	0.01	0.97	0.09	0.58
pH≤7	0.26	0.04	0.58	0.00			0.06	0.67	-0.05	0.71	-0.02	0.90	0.08	0.58	-0.05	0.68	0.21	0.10	-0.07	0.57	0.20	0.11	0.17	0.17	0.12	0.34
Sand	0.25	0.05	0.61	0.00	0.19	0.14			0.04	0.77	0.01	0.97	0.01	0.95	0.00	0.99	0.27	0.04	-0.10	0.43	0.25	0.05	0.21	0.10	0.09	0.50
Silt	0.27	0.04	0.63	0.00	0.20	0.12	0.07	0.60			-0.01	0.95	0.01	0.94	0.00	0.98	0.24	0.06	-0.12	0.36	0.25	0.06	0.18	0.17	0.06	0.64
Clay	0.33	0.01	0.67	0.00	0.19	0.13	0.06	0.63	-0.03	0.79			0.01	0.93	0.02	0.90	0.22	0.09	-0.13	0.31	0.23	0.08	0.17	0.18	0.07	0.58
PR	0.30	0.04	0.66	0.00	0.20	0.17	0.06	0.66	-0.03	0.82	-0.03	0.85			0.00	0.99	0.22	0.12	-0.12	0.41	0.24	0.10	0.17	0.25	0.06	0.70
T	0.27	0.03	0.62	0.00	0.20	0.11	0.08	0.56	-0.03	0.80	-0.02	0.90	0.01	0.96			0.26	0.03	-0.16	0.18	0.23	0.06	0.21	0.08	0.05	0.66
P	0.26	0.04	0.58	0.00	0.18	0.14	0.17	0.19	-0.11	0.39	-0.06	0.63	-0.02	0.87	-0.18	0.16			-0.14	0.26	0.09	0.49	-0.15	0.22	0.05	0.67
PET	0.26	0.04	0.62	0.00	0.17	0.16	0.03	0.82	-0.04	0.77	0.05	0.70	-0.01	0.93	0.02	0.84	0.23	0.06			0.20	0.11	0.20	0.10	0.09	0.46
AI	0.25	0.05	0.57	0.00	0.16	0.19	0.12	0.34	-0.10	0.43	-0.02	0.90	0.01	0.95	0.00	0.97	0.06	0.63	-0.03	0.80			0.02	0.87	0.06	0.60
NPP lim	0.26	0.04	0.59	0.00	0.20	0.11	0.14	0.27	-0.08	0.56	-0.02	0.90	0.01	0.95	0.00	0.97	0.21	0.09	-0.16	0.18	0.15	0.21			0.05	0.70
GCI	0.26	0.04	0.62	0.00	0.22	0.07	0.10	0.47	-0.04	0.75	-0.02	0.90	0.01	0.95	0.00	0.97	0.22	0.08	-0.14	0.26	0.23	0.06	0.16	0.18		

Table 17. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil stability**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil stability" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																								
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			0.09	0.58	0.04	0.77	-0.28	0.03	0.32	0.01	0.05	0.72	0.05	0.73	0.20	0.11	0.35	0.00	-0.16	0.20	0.42	0.00	0.29	0.02	0.04	0.77
SOM	0.00	0.98			-0.01	0.97	-0.28	0.08	0.30	0.05	0.03	0.87	0.04	0.83	0.09	0.57	0.32	0.04	-0.17	0.30	0.40	0.01	0.26	0.10	0.06	0.71
pH≤7	0.11	0.37	0.14	0.37			-0.27	0.04	0.24	0.06	0.00	0.98	0.08	0.60	0.12	0.34	0.35	0.00	-0.15	0.21	0.43	0.00	0.29	0.02	0.06	0.60
Sand	0.15	0.26	0.17	0.30	0.05	0.70			0.04	0.74	-0.09	0.48	0.06	0.68	0.15	0.25	0.27	0.04	-0.25	0.05	0.37	0.00	0.20	0.12	-0.06	0.63
Silt	0.24	0.07	0.23	0.14	0.02	0.90	-0.11	0.38			-0.07	0.61	0.04	0.80	0.12	0.34	0.29	0.03	-0.15	0.26	0.37	0.00	0.24	0.06	0.01	0.95
Clay	0.14	0.30	0.16	0.32	0.04	0.77	-0.28	0.03	0.25	0.05			0.06	0.68	0.15	0.25	0.35	0.01	-0.20	0.12	0.43	0.00	0.30	0.02	0.06	0.66
PR	0.16	0.27	0.18	0.34	0.03	0.86	-0.27	0.06	0.24	0.09	-0.04	0.79			0.11	0.43	0.35	0.01	-0.15	0.30	0.43	0.00	0.29	0.04	0.06	0.67
T	0.14	0.25	0.13	0.42	0.05	0.71	-0.24	0.07	0.22	0.09	0.02	0.87	0.02	0.90			0.34	0.00	-0.33	0.01	0.41	0.00	0.28	0.02	0.03	0.81
P	0.12	0.36	0.04	0.79	0.02	0.90	-0.13	0.31	0.13	0.30	-0.07	0.59	0.01	0.96	-0.13	0.29			-0.20	0.11	0.24	0.05	-0.16	0.19	0.05	0.69
PET	0.12	0.35	0.16	0.33	0.00	0.98	-0.33	0.01	0.24	0.07	0.10	0.44	0.03	0.83	0.15	0.21	0.37	0.00			0.40	0.00	0.34	0.00	0.10	0.42
AI	0.09	0.49	-0.01	0.96	-0.03	0.80	-0.17	0.20	0.12	0.34	0.00	0.98	0.06	0.68	0.12	0.32	0.01	0.91	0.01	0.95			0.01	0.95	0.07	0.57
NPP lim	0.11	0.39	0.07	0.64	0.04	0.73	-0.16	0.21	0.18	0.17	0.00	0.98	0.06	0.68	0.12	0.32	0.26	0.04	-0.24	0.05	0.31	0.01			0.04	0.74
GCI	0.11	0.39	0.15	0.35	0.05	0.66	-0.27	0.04	0.24	0.06	0.00	0.98	0.06	0.68	0.12	0.32	0.35	0.00	-0.18	0.14	0.43	0.00	0.29	0.02		

Table 18. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**presence of tillage pan**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "presence of tillage pan" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																								
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			0.30	0.07	0.31	0.01	0.07	0.58	-0.09	0.50	-0.02	0.89	0.13	0.38	0.01	0.94	0.04	0.76	-0.07	0.58	0.05	0.71	0.04	0.78	-0.11	0.40
SOM	-0.26	0.11			0.28	0.08	0.06	0.73	-0.01	0.94	-0.12	0.47	0.21	0.27	-0.01	0.97	-0.01	0.95	-0.08	0.63	-0.01	0.93	-0.01	0.97	-0.10	0.52
pH≤7	-0.05	0.68	0.07	0.65			0.05	0.69	-0.09	0.50	-0.02	0.86	0.08	0.57	0.04	0.72	0.02	0.87	0.01	0.95	-0.01	0.96	0.04	0.74	-0.02	0.87
Sand	-0.06	0.65	0.16	0.33	0.31	0.01			-0.01	0.95	-0.02	0.87	0.13	0.35	0.06	0.65	0.07	0.57	-0.05	0.69	0.06	0.63	0.07	0.60	-0.09	0.47
Silt	-0.08	0.53	0.15	0.35	0.32	0.01	0.03	0.81			-0.05	0.68	0.15	0.30	0.04	0.78	0.06	0.63	-0.07	0.57	0.06	0.62	0.05	0.69	-0.10	0.42
Clay	-0.03	0.82	0.19	0.23	0.31	0.01	0.05	0.67	-0.07	0.61			0.13	0.36	0.03	0.79	0.04	0.73	-0.06	0.67	0.04	0.77	0.05	0.73	-0.11	0.42
PR	0.02	0.91	0.22	0.24	0.29	0.04	0.06	0.69	-0.08	0.59	0.00	0.99			0.01	0.95	0.01	0.97	-0.03	0.82	0.00	0.98	0.02	0.92	-0.09	0.53
T	-0.05	0.71	0.16	0.32	0.32	0.01	0.09	0.50	-0.07	0.61	-0.05	0.69	0.14	0.34			0.03	0.79	-0.12	0.35	0.04	0.75	0.03	0.82	-0.12	0.34
P	-0.05	0.69	0.15	0.33	0.31	0.01	0.09	0.48	-0.08	0.55	-0.05	0.70	0.13	0.35	0.00	0.99			-0.08	0.54	0.02	0.87	-0.01	0.94	-0.11	0.36
PET	-0.05	0.70	0.16	0.31	0.31	0.01	0.05	0.71	-0.06	0.62	0.00	0.97	0.12	0.39	0.10	0.44	0.05	0.70			0.02	0.88	0.06	0.66	-0.10	0.44
AI	-0.05	0.67	0.15	0.34	0.31	0.01	0.08	0.54	-0.08	0.56	-0.04	0.76	0.13	0.36	0.01	0.93	0.01	0.96	-0.06	0.64			0.01	0.95	-0.11	0.37
NPP lim	-0.05	0.68	0.16	0.33	0.32	0.01	0.09	0.49	-0.07	0.59	-0.05	0.68	0.14	0.35	0.00	0.99	0.02	0.87	-0.08	0.51	0.03	0.82			-0.11	0.36
GCI	-0.04	0.76	0.15	0.34	0.29	0.02	0.02	0.86	-0.04	0.75	0.02	0.91	0.12	0.40	0.04	0.74	0.04	0.75	-0.04	0.75	0.04	0.75	0.04	0.75		

Table 19. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil colour**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil colour" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																										
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.06	0.74	-0.09	0.50	0.04	0.75	0.13	0.35	-0.45	0.00	0.20	0.17	-0.18	0.16	0.07	0.61	-0.35	0.00	0.27	0.03	0.02	0.89	-0.16	0.19
SOM	-0.24	0.15			0.02	0.92	0.01	0.93	0.19	0.23	-0.52	0.00	0.28	0.14	-0.02	0.90	0.19	0.24	-0.35	0.03	0.40	0.01	0.11	0.51	-0.23	0.14
pH≤7	-0.43	0.00	-0.35	0.03			-0.01	0.96	0.30	0.02	-0.62	0.00	0.41	0.00	-0.09	0.48	0.07	0.56	-0.39	0.00	0.26	0.04	0.01	0.95	-0.25	0.04
Sand	-0.43	0.00	-0.36	0.02	-0.09	0.50			0.50	0.00	-0.66	0.00	0.39	0.01	-0.10	0.46	0.07	0.59	-0.38	0.00	0.25	0.06	0.01	0.96	-0.24	0.07
Silt	-0.34	0.01	-0.28	0.07	-0.11	0.38	0.41	0.00			-0.58	0.00	0.35	0.01	-0.15	0.24	-0.03	0.81	-0.34	0.01	0.16	0.21	-0.06	0.62	-0.27	0.04
Clay	-0.08	0.53	-0.13	0.42	-0.13	0.31	-0.25	0.05	0.20	0.12			0.19	0.20	0.09	0.48	0.14	0.30	0.00	1.00	0.15	0.24	0.14	0.28	0.12	0.35
PR	-0.28	0.06	-0.24	0.20	-0.16	0.26	-0.04	0.79	0.24	0.09	-0.52	0.00			-0.12	0.42	-0.03	0.86	-0.26	0.07	0.12	0.42	-0.05	0.75	-0.15	0.30
T	-0.45	0.00	-0.35	0.03	-0.09	0.45	-0.05	0.68	0.32	0.01	-0.62	0.00	0.39	0.00			0.14	0.26	-0.42	0.00	0.27	0.03	0.08	0.52	-0.20	0.10
P	-0.43	0.00	-0.40	0.01	-0.09	0.46	0.02	0.88	0.28	0.03	-0.63	0.00	0.38	0.01	-0.15	0.24			-0.37	0.00	0.31	0.01	-0.20	0.11	-0.21	0.08
PET	-0.42	0.00	-0.34	0.03	-0.18	0.14	-0.13	0.32	0.27	0.03	-0.50	0.00	0.29	0.04	0.23	0.07	0.11	0.39			0.11	0.38	0.10	0.40	-0.11	0.36
AI	-0.44	0.00	-0.48	0.00	-0.13	0.30	0.05	0.70	0.23	0.07	-0.59	0.00	0.32	0.02	-0.14	0.25	-0.21	0.09	-0.29	0.02			-0.20	0.10	-0.20	0.10
NPP lim	-0.43	0.00	-0.37	0.02	-0.09	0.48	-0.01	0.96	0.30	0.02	-0.63	0.00	0.39	0.01	-0.11	0.36	0.21	0.09	-0.37	0.00	0.31	0.01			-0.21	0.08
GCI	-0.40	0.00	-0.37	0.02	-0.16	0.20	-0.11	0.41	0.33	0.01	-0.59	0.00	0.35	0.01	-0.04	0.72	0.07	0.58	-0.31	0.01	0.23	0.06	0.02	0.89		

Table 20. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**earthworm count**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "earthworm count" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																								
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.49	0.00	0.08	0.52	-0.14	0.28	0.27	0.04	-0.08	0.57	0.34	0.02	-0.37	0.00	-0.03	0.80	-0.38	0.00	0.20	0.11	-0.08	0.55	0.11	0.41
SOM	0.47	0.00			0.15	0.36	-0.11	0.50	0.13	0.43	0.12	0.46	0.16	0.40	-0.36	0.02	0.03	0.85	-0.36	0.02	0.31	0.05	-0.02	0.90	0.11	0.49
pH≤7	0.16	0.21	-0.24	0.14			-0.13	0.33	0.18	0.18	0.04	0.78	0.21	0.15	-0.39	0.00	-0.04	0.75	-0.36	0.00	0.20	0.10	-0.07	0.57	0.15	0.21
Sand	0.17	0.19	-0.20	0.22	0.09	0.50			0.14	0.27	-0.02	0.90	0.23	0.11	-0.51	0.00	-0.09	0.47	-0.43	0.00	0.19	0.14	-0.13	0.30	0.08	0.54
Silt	0.26	0.05	-0.16	0.33	0.07	0.61	0.05	0.72			0.06	0.66	0.20	0.17	-0.45	0.00	-0.10	0.44	-0.36	0.00	0.17	0.20	-0.12	0.35	0.09	0.48
Clay	0.17	0.20	-0.23	0.14	0.08	0.52	-0.12	0.35	0.19	0.15			0.24	0.09	-0.42	0.00	-0.04	0.77	-0.48	0.00	0.22	0.09	-0.08	0.53	0.13	0.33
PR	0.30	0.04	-0.14	0.47	0.04	0.78	-0.14	0.33	0.15	0.28	0.11	0.44			-0.41	0.00	-0.09	0.53	-0.32	0.02	0.15	0.31	-0.11	0.46	0.16	0.26
T	0.08	0.55	-0.14	0.39	0.05	0.67	-0.34	0.01	0.28	0.03	0.14	0.27	0.26	0.07			0.23	0.06	-0.14	0.26	0.32	0.01	0.23	0.06	0.19	0.11
P	0.16	0.21	-0.20	0.20	0.08	0.50	-0.15	0.25	0.21	0.11	0.03	0.80	0.23	0.10	-0.45	0.00			-0.37	0.00	0.40	0.00	-0.14	0.24	0.12	0.32
PET	0.17	0.18	-0.19	0.24	-0.01	0.93	-0.25	0.05	0.16	0.21	0.30	0.02	0.12	0.41	-0.19	0.12	0.00	0.97			0.08	0.54	0.02	0.87	0.24	0.05
AI	0.14	0.25	-0.30	0.06	0.05	0.70	-0.07	0.57	0.13	0.34	0.06	0.64	0.16	0.28	-0.46	0.00	-0.34	0.00	-0.31	0.01			-0.29	0.02	0.13	0.28
NPP lim	0.16	0.21	-0.19	0.23	0.08	0.52	-0.17	0.20	0.21	0.11	0.05	0.72	0.23	0.11	-0.45	0.00	0.13	0.30	-0.36	0.00	0.35	0.00			0.13	0.31
GCI	0.14	0.26	-0.20	0.22	0.12	0.32	-0.08	0.54	0.16	0.21	-0.04	0.76	0.24	0.09	-0.42	0.00	-0.03	0.78	-0.42	0.00	0.22	0.07	-0.08	0.54		

Table 21. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**susceptibility to wind and water erosion**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "susceptibility to wind and water erosion" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																								
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.16	0.34	0.10	0.43	-0.20	0.14	0.25	0.06	0.03	0.83	0.07	0.62	0.11	0.41	0.32	0.01	0.02	0.89	0.21	0.10	0.33	0.01	0.19	0.14
SOM	0.32	0.05			0.07	0.68	-0.17	0.30	0.14	0.37	0.17	0.30	-0.04	0.83	0.01	0.93	0.29	0.07	0.02	0.90	0.19	0.22	0.32	0.04	0.23	0.15
pH≤7	0.31	0.01	0.11	0.51			-0.16	0.22	0.09	0.49	0.21	0.10	-0.11	0.47	0.04	0.72	0.31	0.01	0.05	0.67	0.21	0.08	0.34	0.00	0.26	0.03
Sand	0.33	0.01	0.14	0.38	0.11	0.40			-0.05	0.69	0.16	0.22	-0.07	0.62	-0.04	0.76	0.28	0.03	-0.02	0.86	0.20	0.13	0.30	0.02	0.17	0.18
Silt	0.39	0.00	0.17	0.29	0.09	0.47	-0.13	0.31			0.22	0.09	-0.10	0.50	0.01	0.91	0.30	0.02	0.03	0.81	0.21	0.11	0.33	0.01	0.21	0.11
Clay	0.24	0.08	0.06	0.73	0.12	0.37	-0.09	0.50	0.13	0.32			-0.02	0.91	-0.02	0.87	0.30	0.02	-0.12	0.38	0.26	0.04	0.30	0.02	0.14	0.30
PR	0.31	0.04	0.11	0.57	0.12	0.41	-0.15	0.30	0.11	0.44	0.19	0.19			0.04	0.76	0.35	0.01	0.00	0.99	0.27	0.05	0.36	0.01	0.21	0.14
T	0.33	0.01	0.13	0.43	0.11	0.40	-0.16	0.23	0.09	0.48	0.20	0.12	-0.09	0.54			0.36	0.00	0.00	0.99	0.23	0.07	0.41	0.00	0.22	0.08
P	0.31	0.01	0.04	0.83	0.08	0.51	-0.03	0.84	-0.01	0.95	0.17	0.19	-0.17	0.25	-0.18	0.15			-0.01	0.95	-0.04	0.72	0.13	0.31	0.22	0.07
PET	0.31	0.01	0.13	0.42	0.11	0.37	-0.16	0.23	0.10	0.44	0.23	0.07	-0.08	0.58	0.03	0.84	0.32	0.01			0.26	0.03	0.34	0.00	0.22	0.07
AI	0.30	0.02	0.05	0.75	0.07	0.59	-0.10	0.43	0.03	0.80	0.24	0.06	-0.17	0.23	-0.02	0.88	0.23	0.07	0.12	0.32			0.25	0.04	0.23	0.06
NPP lim	0.30	0.01	0.04	0.79	0.11	0.38	-0.02	0.87	0.01	0.91	0.14	0.29	-0.14	0.35	-0.24	0.06	-0.03	0.80	-0.06	0.62	0.00	1.00			0.21	0.09
GCI	0.29	0.02	0.14	0.37	0.18	0.15	-0.07	0.58	0.06	0.64	0.10	0.42	-0.05	0.75	0.00	0.98	0.32	0.01	-0.04	0.75	0.24	0.05	0.33	0.01		

Table 22. **pH≤7**. Spearman semi-partial correlation coefficients ($r_{yx1\text{-}x2}$) between "**surface ponding**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha \leq 0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "surface ponding" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																								
	LOC	p-val.	SOM	p-val.	pH≤7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.33	0.05	0.13	0.30	-0.03	0.85	0.25	0.06	-0.08	0.53	0.25	0.09	-0.18	0.17	-0.04	0.73	-0.18	0.16	0.01	0.93	-0.07	0.59	0.28	0.02
SOM	0.36	0.03			0.16	0.31	0.00	0.99	0.14	0.40	0.07	0.67	0.12	0.54	-0.19	0.22	-0.02	0.91	-0.17	0.29	0.06	0.73	-0.04	0.78	0.30	0.06
pH≤7	0.17	0.19	-0.13	0.41			-0.01	0.93	0.15	0.26	0.04	0.77	0.12	0.42	-0.20	0.11	-0.05	0.67	-0.15	0.24	0.00	1.00	-0.06	0.61	0.36	0.00
Sand	0.17	0.21	-0.09	0.59	0.13	0.31			0.27	0.04	0.03	0.83	0.14	0.33	-0.24	0.07	-0.05	0.70	-0.18	0.15	0.02	0.88	-0.07	0.57	0.33	0.01
Silt	0.25	0.05	-0.04	0.79	0.12	0.37	0.22	0.09			0.05	0.69	0.12	0.41	-0.25	0.05	-0.10	0.43	-0.17	0.20	-0.03	0.84	-0.11	0.40	0.28	0.03
Clay	0.18	0.17	-0.11	0.50	0.13	0.31	0.01	0.97	0.16	0.21			0.16	0.27	-0.22	0.08	-0.05	0.71	-0.24	0.07	0.03	0.85	-0.07	0.57	0.33	0.01
PR	0.27	0.07	-0.04	0.82	0.11	0.46	-0.02	0.92	0.14	0.34	0.08	0.58			-0.22	0.12	-0.08	0.58	-0.14	0.33	-0.03	0.84	-0.09	0.55	0.33	0.02
T	0.13	0.32	-0.05	0.74	0.12	0.35	-0.11	0.38	0.21	0.11	0.09	0.50	0.16	0.27			0.09	0.47	-0.04	0.72	0.07	0.56	0.09	0.49	0.34	0.00
P	0.17	0.19	-0.08	0.63	0.13	0.28	-0.03	0.84	0.18	0.16	0.03	0.80	0.15	0.29	-0.22	0.07			-0.17	0.17	0.09	0.45	-0.08	0.50	0.30	0.01
PET	0.17	0.17	-0.08	0.62	0.09	0.47	-0.06	0.64	0.15	0.26	0.16	0.22	0.09	0.52	-0.12	0.33	-0.03	0.83			-0.05	0.68	-0.02	0.85	0.37	0.00
AI	0.17	0.19	-0.10	0.52	0.13	0.30	0.00	1.00	0.16	0.23	0.03	0.81	0.14	0.33	-0.22	0.08	-0.10	0.41	-0.18	0.15			-0.11	0.38	0.30	0.01
NPP lim	0.17	0.18	-0.07	0.65	0.13	0.30	-0.03	0.79	0.18	0.17	0.04	0.74	0.15	0.30	-0.21	0.08	0.07	0.58	-0.16	0.19	0.09	0.48			0.30	0.01
GCI	0.13	0.30	-0.07	0.66	0.23	0.06	0.13	0.32	0.11	0.42	-0.15	0.25	0.19	0.18	-0.26	0.03	-0.05	0.71	-0.27	0.03	0.03	0.78	-0.08	0.54		

Table 23. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil structure and consistency**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil structure and consistency" with LOC (x_1) after the removal of the variance associated with mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			**-0.30**	**0.04**	**-0.28**	**0.02**	**0.32**	**0.02**	-0.12	0.36	**-0.33**	**0.01**	**-0.31**	**0.04**	-0.15	0.25	-0.09	0.48	-0.21	0.10	0.02	0.89	-0.10	0.42	0.10	0.42
SOM	**0.31**	**0.03**			-0.21	0.15	0.26	0.07	-0.17	0.25	-0.18	0.22	**-0.38**	**0.02**	-0.17	0.22	-0.09	0.53	-0.11	0.45	-0.02	0.90	-0.10	0.49	0.08	0.57
pH>7	0.21	0.10	-0.20	0.16			0.19	0.16	-0.02	0.90	-0.21	0.12	-0.21	0.17	-0.14	0.26	-0.25	0.05	-0.08	0.52	-0.10	0.41	-0.19	0.13	0.09	0.48
Sand	0.24	0.08	-0.12	0.41	-0.16	0.23			0.15	0.27	-0.14	0.31	**-0.32**	**0.04**	-0.20	0.14	-0.09	0.52	-0.08	0.53	0.01	0.94	-0.08	0.58	0.10	0.48
Silt	0.20	0.13	-0.21	0.14	**-0.31**	**0.02**	**0.31**	**0.02**			**-0.29**	**0.03**	**-0.34**	**0.03**	-0.23	0.08	-0.08	0.53	-0.17	0.21	0.05	0.69	-0.08	0.56	0.08	0.55
Clay	**0.29**	**0.03**	-0.03	0.85	**-0.28**	**0.03**	0.21	0.12	-0.18	0.18			**-0.34**	**0.02**	-0.26	0.05	-0.15	0.28	-0.04	0.75	-0.10	0.46	-0.13	0.32	0.10	0.46
PR	0.16	0.31	-0.07	0.71	-0.14	0.37	0.28	0.07	-0.22	0.15	-0.12	0.46			0.08	0.63	-0.12	0.45	-0.15	0.34	-0.06	0.70	-0.14	0.37	0.17	0.27
T	0.24	0.05	-0.13	0.37	-0.21	0.09	0.22	0.11	-0.06	0.67	-0.19	0.15	**-0.41**	**0.01**			-0.12	0.34	0.03	0.80	-0.06	0.62	-0.12	0.35	0.00	0.99
P	0.21	0.09	-0.19	0.18	**-0.30**	**0.01**	**0.30**	**0.02**	-0.13	0.33	**-0.28**	**0.03**	**-0.34**	**0.03**	-0.24	0.05			-0.22	0.08	0.17	0.17	-0.01	0.94	0.10	0.43
PET	0.24	0.06	-0.13	0.36	-0.22	0.08	0.26	0.05	-0.12	0.36	-0.19	0.15	-0.29	0.06	**-0.34**	**0.01**	-0.16	0.20			-0.12	0.36	-0.15	0.24	0.00	0.99
AI	0.21	0.09	-0.19	0.18	**-0.30**	**0.02**	**0.30**	**0.02**	-0.14	0.29	**-0.28**	**0.04**	**-0.32**	**0.04**	-0.23	0.06	-0.19	0.12	-0.21	0.09			-0.17	0.18	0.09	0.46
NPP lim	0.22	0.08	-0.20	0.17	**-0.30**	**0.02**	**0.30**	**0.02**	-0.13	0.33	**-0.28**	**0.04**	**-0.32**	**0.04**	-0.23	0.06	-0.03	0.84	-0.21	0.09	0.14	0.25			0.10	0.45
GCI	0.21	0.09	-0.18	0.19	**-0.28**	**0.02**	**0.30**	**0.02**	-0.13	0.34	-0.26	0.05	**-0.32**	**0.04**	-0.23	0.06	-0.10	0.45	-0.15	0.23	0.02	0.87	-0.09	0.48		

Table 24. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil porosity**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil porosity" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			0.08	0.57	**-0.28**	**0.02**	0.03	0.80	-0.02	0.87	0.25	0.07	0.09	0.59	0.03	0.80	0.13	0.29	-0.16	0.21	0.09	0.47	-0.02	0.90	0.24	0.05
SOM	0.18	0.22			-0.28	0.05	0.06	0.68	-0.02	0.91	0.14	0.32	0.12	0.50	-0.15	0.30	0.13	0.38	-0.21	0.13	0.16	0.27	0.00	0.99	0.25	0.08
pH>7	0.22	0.08	0.15	0.28			-0.14	0.30	0.09	0.49	0.12	0.38	0.24	0.12	0.02	0.90	0.00	0.98	-0.03	0.83	-0.02	0.87	-0.10	0.43	0.23	0.07
Sand	0.23	0.09	0.17	0.24	**-0.31**	**0.02**			-0.04	0.76	0.13	0.35	0.07	0.64	-0.08	0.55	0.13	0.34	-0.13	0.33	0.11	0.42	0.00	0.98	0.24	0.08
Silt	0.22	0.10	0.16	0.28	**-0.29**	**0.03**	-0.02	0.87			0.14	0.30	0.07	0.66	-0.08	0.55	0.13	0.33	-0.13	0.35	0.12	0.39	0.00	0.99	0.23	0.08
Clay	0.20	0.14	0.11	0.45	**-0.31**	**0.02**	0.08	0.57	-0.02	0.88			0.08	0.60	-0.07	0.61	0.15	0.26	-0.23	0.08	0.19	0.16	0.01	0.91	0.23	0.08
PR	0.24	0.12	0.14	0.41	-0.28	0.07	0.02	0.90	-0.02	0.89	0.09	0.56			-0.27	0.08	0.13	0.39	-0.14	0.39	0.14	0.38	0.01	0.97	0.22	0.15
T	0.23	0.06	0.19	0.17	**-0.27**	**0.03**	-0.03	0.84	-0.01	0.94	0.09	0.51	0.05	0.74			0.12	0.34	-0.11	0.38	0.08	0.51	-0.01	0.91	0.22	0.08
P	0.23	0.07	0.16	0.27	**-0.25**	**0.04**	0.02	0.89	-0.05	0.73	0.14	0.30	0.09	0.55	-0.07	0.59			-0.09	0.47	0.02	0.90	-0.34	0.01	0.23	0.06
PET	0.24	0.05	0.23	0.10	**-0.25**	**0.04**	-0.03	0.84	-0.03	0.83	0.12	0.38	0.10	0.51	-0.15	0.23	0.09	0.47			0.03	0.81	-0.04	0.73	0.20	0.12
AI	0.21	0.09	0.20	0.17	**-0.26**	**0.04**	0.01	0.96	-0.05	0.69	0.12	0.38	0.07	0.64	-0.08	0.52	0.07	0.59	-0.07	0.56			-0.12	0.34	0.22	0.08
NPP lim	0.22	0.07	0.16	0.26	**-0.30**	**0.02**	0.02	0.91	-0.04	0.78	0.12	0.38	0.07	0.64	-0.08	0.52	**0.36**	**0.00**	-0.14	0.28	0.16	0.20			0.24	0.06
GCI	0.23	0.07	0.18	0.21	**-0.27**	**0.03**	0.01	0.91	-0.01	0.93	0.12	0.38	0.07	0.64	-0.08	0.52	0.12	0.33	0.00	0.98	0.07	0.56	0.00	0.99		

Table 25. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil stability**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil stability" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.04	0.77	**-0.25**	**0.04**	-0.09	0.53	0.24	0.07	**-0.32**	**0.02**	-0.13	0.39	0.13	0.30	**0.50**	**0.00**	-0.08	0.52	**0.42**	**0.00**	**0.43**	**0.00**	-0.22	0.08
SOM	-0.01	0.96			-0.25	0.07	-0.10	0.49	0.24	0.10	-0.28	0.05	-0.15	0.39	0.15	0.28	**0.50**	**0.00**	-0.07	0.62	**0.42**	**0.00**	**0.43**	**0.00**	-0.22	0.12
pH>7	-0.03	0.83	-0.05	0.70			-0.24	0.07	**0.39**	**0.00**	**-0.27**	**0.04**	-0.01	0.95	0.23	0.07	**0.43**	**0.00**	0.01	0.95	**0.34**	**0.01**	**0.37**	**0.00**	-0.23	0.07
Sand	-0.03	0.82	-0.07	0.62	**-0.34**	**0.01**			0.28	0.03	**-0.27**	**0.04**	-0.13	0.40	0.12	0.38	**0.50**	**0.00**	-0.12	0.38	**0.42**	**0.00**	**0.42**	**0.00**	-0.22	0.10
Silt	-0.01	0.96	-0.01	0.92	**-0.40**	**0.00**	0.16	0.23			**-0.38**	**0.00**	-0.11	0.50	0.13	0.35	**0.48**	**0.00**	-0.10	0.44	**0.39**	**0.00**	**0.41**	**0.00**	-0.19	0.15
Clay	0.05	0.70	0.18	0.22	-0.20	0.13	-0.23	0.08	0.20	0.13			-0.15	0.32	0.10	0.47	**0.46**	**0.00**	0.08	0.56	**0.33**	**0.01**	**0.39**	**0.00**	-0.22	0.11
PR	-0.05	0.77	0.01	0.97	-0.25	0.10	-0.09	0.56	0.22	0.16	-0.24	0.12			**0.44**	**0.00**	**0.49**	**0.00**	-0.07	0.64	**0.40**	**0.01**	**0.41**	**0.01**	-0.19	0.21
T	-0.04	0.76	-0.09	0.53	**-0.32**	**0.01**	-0.02	0.86	0.21	0.11	-0.24	0.07	-0.10	0.52			**0.52**	**0.00**	**-0.36**	**0.00**	**0.51**	**0.00**	**0.45**	**0.00**	-0.18	0.15
P	-0.01	0.92	-0.06	0.69	-0.03	0.81	-0.07	0.60	0.21	0.12	-0.20	0.14	-0.06	0.72	0.18	0.14			0.09	0.50	0.04	0.74	-0.10	0.41	-0.23	0.07
PET	-0.01	0.91	-0.01	0.92	-0.24	0.06	-0.12	0.38	0.25	0.06	**-0.27**	**0.04**	-0.12	0.46	0.10	0.43	**0.50**	**0.00**			**0.49**	**0.00**	**0.42**	**0.00**	**-0.31**	**0.01**
AI	-0.06	0.64	0.07	0.64	-0.07	0.58	-0.12	0.38	0.19	0.16	**-0.27**	**0.04**	-0.13	0.40	0.13	0.32	**0.28**	**0.02**	**0.27**	**0.03**			0.18	0.14	**-0.29**	**0.02**
NPP lim	-0.05	0.71	-0.03	0.83	-0.12	0.34	-0.06	0.64	0.21	0.12	**-0.27**	**0.04**	-0.13	0.40	0.13	0.32	**0.28**	**0.02**	0.04	0.76	0.16	0.22			-0.21	0.09
GCI	-0.03	0.82	-0.07	0.64	**-0.26**	**0.04**	-0.08	0.54	0.22	0.10	**-0.27**	**0.04**	-0.13	0.40	0.13	0.32	**0.51**	**0.00**	-0.24	0.06	**0.46**	**0.00**	**0.43**	**0.00**		

Table 26. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**presence of tillage pan**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to $\alpha>0.05$. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "presence of tillage pan" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			**0.34**	**0.02**	**-0.36**	**0.00**	0.13	0.33	-0.03	0.81	0.01	0.91	-0.21	0.18	0.07	0.60	0.16	0.22	-0.08	0.51	0.13	0.30	0.06	0.62	0.02	0.90
SOM	-0.01	0.96			**-0.36**	**0.01**	0.22	0.12	0.01	0.95	0.01	0.95	-0.13	0.45	-0.15	0.30	0.15	0.31	-0.24	0.10	0.25	0.08	0.08	0.55	0.04	0.76
pH>7	0.13	0.31	**0.35**	**0.01**			-0.07	0.62	0.13	0.34	-0.05	0.73	-0.04	0.80	0.13	0.32	-0.01	0.92	0.07	0.56	-0.03	0.83	-0.05	0.69	0.00	0.97
Sand	0.14	0.29	**0.41**	**0.00**	**-0.35**	**0.01**			0.08	0.56	-0.12	0.36	-0.21	0.17	0.00	0.97	0.16	0.25	-0.03	0.84	0.13	0.33	0.08	0.58	0.01	0.92
Silt	0.13	0.34	**0.36**	**0.01**	**-0.39**	**0.00**	0.14	0.31			-0.03	0.80	-0.22	0.16	-0.01	0.95	0.16	0.25	-0.06	0.65	0.15	0.27	0.07	0.59	0.01	0.95
Clay	0.15	0.27	**0.52**	**0.00**	**-0.36**	**0.01**	0.11	0.41	-0.05	0.71			-0.22	0.16	-0.01	0.92	0.15	0.28	-0.05	0.72	0.14	0.31	0.06	0.64	0.01	0.92
PR	0.10	0.54	**0.50**	**0.00**	**-0.37**	**0.02**	0.11	0.49	-0.10	0.53	0.08	0.59			0.32	0.03	0.14	0.39	-0.05	0.77	0.08	0.59	0.04	0.81	0.06	0.69
T	0.13	0.29	**0.38**	**0.01**	**-0.39**	**0.00**	0.13	0.32	-0.04	0.75	-0.06	0.67	-0.23	0.14			0.15	0.23	-0.11	0.38	0.15	0.23	0.07	0.58	0.01	0.93
P	0.13	0.28	**0.36**	**0.01**	**-0.33**	**0.01**	0.12	0.35	-0.05	0.69	-0.02	0.87	-0.19	0.21	0.01	0.94			-0.02	0.90	0.04	0.77	-0.20	0.11	0.01	0.94
PET	0.14	0.26	**0.43**	**0.00**	**-0.37**	**0.00**	0.11	0.43	-0.04	0.78	-0.05	0.73	-0.21	0.19	-0.04	0.75	0.14	0.27			0.13	0.29	0.05	0.67	-0.03	0.84
AI	0.12	0.34	**0.42**	**0.00**	**-0.34**	**0.01**	0.11	0.42	-0.06	0.64	-0.05	0.73	-0.21	0.17	-0.01	0.95	0.07	0.60	0.04	0.74			-0.05	0.71	-0.01	0.94
NPP lim	0.13	0.31	**0.37**	**0.01**	**-0.36**	**0.00**	0.12	0.36	-0.05	0.72	-0.05	0.73	-0.21	0.17	-0.01	0.95	0.24	0.05	-0.05	0.71	0.13	0.29			0.01	0.91
GCI	0.13	0.30	**0.36**	**0.01**	**-0.37**	**0.00**	0.12	0.37	-0.04	0.76	-0.05	0.73	-0.21	0.17	-0.01	0.95	0.15	0.23	-0.07	0.58	0.14	0.26	0.07	0.58		

Table 27. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**soil colour**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "soil colour" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			0.08	0.57	**-0.32**	**0.01**	0.07	0.62	-0.03	0.82	-0.16	0.24	-0.07	0.66	-0.11	0.37	**0.39**	**0.00**	**-0.26**	**0.04**	**0.28**	**0.03**	**0.26**	**0.04**	0.14	0.27
SOM	0.15	0.31			**-0.32**	**0.02**	0.09	0.52	-0.02	0.87	-0.26	0.06	-0.18	0.30	-0.14	0.33	**0.39**	**0.01**	**-0.32**	**0.02**	**0.34**	**0.01**	0.27	0.05	0.15	0.30
pH>7	0.19	0.13	0.14	0.33			-0.13	0.35	0.11	0.42	-0.04	0.78	-0.10	0.52	0.04	0.76	**0.27**	**0.03**	-0.12	0.34	0.16	0.21	0.17	0.18	0.13	0.32
Sand	0.20	0.14	0.17	0.25	**-0.35**	**0.01**			-0.01	0.95	-0.09	0.51	-0.10	0.54	-0.07	0.58	**0.39**	**0.00**	-0.23	0.09	**0.29**	**0.03**	**0.27**	**0.04**	0.13	0.32
Silt	0.19	0.16	0.14	0.32	**-0.34**	**0.01**	0.03	0.85			-0.11	0.42	-0.11	0.47	-0.08	0.56	**0.39**	**0.00**	-0.23	0.09	**0.30**	**0.02**	**0.27**	**0.04**	0.13	0.33
Clay	0.23	0.09	**0.29**	**0.04**	**-0.31**	**0.02**	0.01	0.97	-0.06	0.65			-0.06	0.72	-0.06	0.67	**0.38**	**0.00**	-0.21	0.12	**0.27**	**0.04**	0.25	0.06	0.14	0.31
PR	0.18	0.25	0.21	0.22	**-0.33**	**0.03**	0.05	0.77	-0.07	0.65	-0.06	0.70			-0.10	0.52	**0.38**	**0.01**	-0.22	0.15	0.27	0.08	0.25	0.10	0.16	0.31
T	0.20	0.10	0.18	0.20	**-0.32**	**0.01**	0.01	0.96	-0.01	0.92	-0.08	0.58	-0.11	0.48			**0.38**	**0.00**	**-0.29**	**0.02**	**0.28**	**0.03**	**0.26**	**0.04**	0.11	0.40
P	0.20	0.11	0.14	0.32	-0.17	0.17	0.06	0.66	-0.07	0.60	-0.03	0.83	-0.07	0.66	-0.05	0.71			-0.11	0.39	-0.02	0.88	**-0.26**	**0.04**	0.13	0.32
PET	0.22	0.07	0.27	0.06	**-0.26**	**0.04**	-0.03	0.85	-0.03	0.85	0.03	0.82	-0.08	0.62	0.20	0.11	**0.33**	**0.01**			0.18	0.15	0.21	0.10	0.01	0.92
AI	0.17	0.18	0.24	0.10	-0.22	0.08	0.03	0.84	-0.08	0.53	0.04	0.77	-0.02	0.91	0.03	0.82	**0.26**	**0.04**	-0.05	0.70			0.08	0.52	0.09	0.48
NPP lim	0.18	0.16	0.16	0.26	**-0.26**	**0.04**	0.06	0.64	-0.07	0.62	-0.06	0.66	-0.06	0.70	-0.06	0.64	**0.39**	**0.00**	-0.16	0.20	0.14	0.26			0.14	0.27
GCI	0.19	0.12	0.16	0.26	**-0.32**	**0.01**	0.05	0.71	-0.03	0.83	-0.10	0.44	-0.13	0.40	-0.04	0.78	**0.39**	**0.00**	-0.19	0.13	**0.27**	**0.03**	**0.27**	**0.03**		

Table 28. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**earthworm count**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "earthworm count" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.12	0.39	-0.14	0.26	0.05	0.73	0.06	0.64	**-0.33**	**0.01**	-0.17	0.27	-0.15	0.23	**0.29**	**0.02**	**-0.30**	**0.02**	**0.35**	**0.00**	0.18	0.15	0.15	0.22
SOM	0.26	0.06			-0.15	0.31	0.02	0.88	0.04	0.77	**-0.31**	**0.03**	-0.22	0.21	-0.12	0.40	**0.29**	**0.04**	-0.28	0.05	**0.38**	**0.01**	0.19	0.18	0.15	0.30
pH>7	0.23	0.06	-0.03	0.84			-0.05	0.71	0.12	0.37	-0.23	0.09	-0.21	0.18	-0.07	0.57	0.25	0.05	-0.23	0.07	**0.34**	**0.01**	0.15	0.22	0.15	0.25
Sand	0.24	0.08	-0.02	0.90	-0.15	0.26			0.10	0.44	-0.27	0.05	-0.21	0.19	-0.12	0.36	**0.29**	**0.03**	**-0.27**	**0.04**	**0.37**	**0.00**	0.19	0.15	0.15	0.27
Silt	0.24	0.08	-0.02	0.90	-0.18	0.17	0.10	0.47			-0.25	0.07	-0.20	0.20	-0.15	0.27	**0.28**	**0.03**	**-0.27**	**0.04**	**0.37**	**0.00**	0.19	0.16	0.16	0.25
Clay	**0.31**	**0.02**	0.18	0.20	-0.10	0.47	-0.10	0.48	0.01	0.96			-0.10	0.54	-0.04	0.78	0.24	0.07	-0.15	0.25	**0.29**	**0.03**	0.15	0.25	0.15	0.26
PR	0.20	0.19	0.07	0.70	-0.15	0.35	0.02	0.92	0.00	0.98	-0.17	0.28			-0.14	0.36	0.27	0.08	-0.25	0.11	**0.33**	**0.03**	0.16	0.30	0.20	0.20
T	0.25	0.05	0.01	0.93	-0.11	0.40	-0.04	0.79	0.10	0.48	-0.22	0.10	-0.22	0.16			**0.27**	**0.03**	**-0.30**	**0.01**	**0.35**	**0.00**	0.18	0.15	0.11	0.39
P	0.24	0.05	-0.03	0.83	-0.02	0.88	0.04	0.80	0.03	0.85	-0.20	0.14	-0.18	0.24	-0.09	0.47			-0.18	0.15	0.24	0.06	-0.20	0.10	0.14	0.26
PET	**0.27**	**0.03**	0.09	0.52	-0.05	0.69	-0.06	0.65	0.07	0.62	-0.12	0.36	-0.18	0.24	0.19	0.13	0.21	0.09			**0.26**	**0.04**	0.12	0.33	0.01	0.95
AI	0.20	0.10	0.08	0.58	0.03	0.83	0.00	0.99	0.00	0.97	-0.08	0.53	-0.10	0.51	0.03	0.82	-0.01	0.96	-0.02	0.88			-0.11	0.38	0.09	0.47
NPP lim	0.22	0.07	-0.02	0.90	-0.09	0.49	0.04	0.78	0.03	0.83	-0.22	0.10	-0.18	0.25	-0.10	0.42	**0.29**	**0.02**	-0.22	0.08	**0.34**	**0.01**			0.15	0.23
GCI	0.24	0.06	-0.01	0.93	-0.14	0.26	0.03	0.84	0.06	0.64	-0.25	0.06	-0.25	0.11	-0.06	0.61	**0.28**	**0.02**	-0.22	0.08	**0.35**	**0.00**	0.19	0.12		

Table 29. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**susceptibility to wind and water erosion**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "susceptibility to wind and water erosion" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.11	0.44	-0.10	0.44	0.02	0.90	0.00	0.98	-0.12	0.35	-0.11	0.49	**-0.35**	**0.00**	**0.39**	**0.00**	**-0.37**	**0.00**	**0.35**	**0.00**	**0.40**	**0.00**	**0.26**	**0.04**
SOM	0.01	0.97			-0.10	0.48	-0.01	0.94	-0.01	0.94	-0.07	0.62	-0.06	0.74	**-0.34**	**0.02**	**0.39**	**0.00**	**-0.35**	**0.01**	**0.32**	**0.02**	**0.39**	**0.00**	0.25	0.08
pH>7	-0.04	0.75	-0.12	0.41			-0.03	0.81	0.05	0.69	-0.11	0.40	-0.10	0.52	**-0.34**	**0.01**	**0.39**	**0.00**	**-0.36**	**0.00**	**0.33**	**0.01**	**0.39**	**0.00**	**0.26**	**0.04**
Sand	-0.04	0.78	-0.11	0.43	-0.10	0.45			0.03	0.80	-0.14	0.31	-0.10	0.53	**-0.40**	**0.00**	**0.39**	**0.00**	**-0.38**	**0.00**	**0.34**	**0.01**	**0.40**	**0.00**	0.26	0.05
Silt	-0.04	0.78	-0.12	0.42	-0.11	0.41	0.04	0.77			-0.13	0.33	-0.10	0.52	**-0.38**	**0.00**	**0.39**	**0.00**	**-0.37**	**0.00**	**0.35**	**0.01**	**0.40**	**0.00**	0.26	0.05
Clay	0.00	0.98	-0.04	0.78	-0.07	0.59	-0.04	0.74	-0.01	0.92			-0.04	0.79	**-0.33**	**0.01**	**0.37**	**0.00**	**-0.35**	**0.01**	**0.32**	**0.02**	**0.38**	**0.00**	0.26	0.05
PR	-0.06	0.72	-0.08	0.64	-0.10	0.53	0.01	0.93	-0.02	0.91	-0.09	0.55			**-0.37**	**0.02**	**0.38**	**0.01**	**-0.36**	**0.02**	**0.33**	**0.03**	**0.39**	**0.01**	0.29	0.06
T	0.00	0.98	-0.01	0.95	0.04	0.75	-0.18	0.18	0.14	0.28	-0.01	0.95	-0.14	0.38			**0.35**	**0.00**	-0.12	0.32	0.22	0.08	**0.36**	**0.00**	0.12	0.34
P	-0.03	0.81	-0.12	0.39	0.09	0.50	0.03	0.83	-0.02	0.88	-0.06	0.67	-0.07	0.66	**-0.31**	**0.01**			**-0.25**	**0.04**	0.06	0.61	0.10	0.44	**0.25**	**0.04**
PET	0.01	0.94	0.04	0.78	0.04	0.75	-0.11	0.44	0.04	0.79	0.08	0.53	-0.07	0.67	-0.09	0.50	**0.28**	**0.02**			0.13	0.31	**0.31**	**0.01**	0.07	0.56
AI	-0.07	0.60	-0.02	0.87	0.06	0.61	-0.01	0.95	-0.04	0.77	0.03	0.80	0.00	0.99	-0.24	0.06	0.19	0.12	-0.18	0.14			0.22	0.08	0.21	0.10
NPP lim	-0.06	0.64	-0.10	0.49	0.03	0.80	0.04	0.77	-0.03	0.83	-0.07	0.61	-0.04	0.80	**-0.31**	**0.01**	0.05	0.69	**-0.26**	**0.03**	0.08	0.52			**0.26**	**0.03**
GCI	-0.03	0.79	-0.09	0.51	-0.09	0.47	0.02	0.89	0.04	0.79	-0.13	0.32	-0.16	0.30	**-0.27**	**0.03**	**0.38**	**0.00**	**-0.27**	**0.03**	**0.31**	**0.01**	**0.40**	**0.00**		

Table 30. **pH>7**. Spearman semi-partial correlation coefficients ($r_{yx1|x2}$) between "**surface ponding**" and soil properties and climate variables. All variables were ranked. Records from the control groups were used. The significance level was set to α>0.05. Values written in bold are statistically significant. How to read: choose the variable x_1 (columns) and see the correlation coefficient conditioned by variable x_2 (rows). For example, the semi-partial correlation coefficient of "surface ponding" with LOC (x_1) after the removal of the influence of mean annual temperature T (x_2) from LOC, is written in red in the table.

X_1																						
	LOC	p-val.	SOM	p-val.	pH>7	p-val.	SAND	p-val.	SILT	p-val.	CLAY	p-val.	PR	p-val.	T	p-val.	P	p-val.	PET	p-val.	AI	p-val.	NPP	p-val.	GCI	p-val.
LOC			-0.04	0.80	**-0.37**	**0.00**	0.18	0.18	0.05	0.69	**-0.46**	**0.00**	**-0.48**	**0.00**	0.08	0.55	0.23	0.06	-0.16	0.21	**0.27**	**0.03**	0.09	0.47	0.05	0.70
SOM	0.07	0.64			**-0.37**	**0.01**	0.18	0.22	0.05	0.73	**-0.56**	**0.00**	**-0.52**	**0.00**	0.09	0.53	0.23	0.10	-0.16	0.27	**0.28**	**0.04**	0.09	0.51	0.05	0.74
pH>7	0.05	0.67	-0.02	0.88			-0.01	0.94	0.24	0.08	**-0.36**	**0.01**	**-0.48**	**0.00**	0.24	0.05	0.07	0.57	-0.01	0.93	0.12	0.34	-0.03	0.83	0.04	0.76
Sand	0.07	0.59	0.03	0.81	**-0.33**	**0.01**			**0.29**	**0.03**	**-0.39**	**0.00**	**-0.47**	**0.00**	0.19	0.15	0.24	0.08	-0.10	0.48	0.26	0.05	0.10	0.45	0.05	0.73
Silt	0.06	0.64	0.00	0.98	**-0.44**	**0.00**	**0.33**	**0.01**			**-0.42**	**0.00**	**-0.48**	**0.00**	0.07	0.61	0.23	0.09	-0.15	0.26	**0.27**	**0.04**	0.09	0.51	0.05	0.69
Clay	0.18	0.18	**0.36**	**0.01**	**-0.29**	**0.03**	-0.02	0.87	-0.02	0.90			**-0.31**	**0.04**	0.25	0.07	0.15	0.25	0.10	0.45	0.09	0.52	0.03	0.84	0.05	0.69
PR	-0.02	0.90	0.20	0.23	**-0.37**	**0.01**	0.15	0.35	-0.07	0.67	-0.22	0.16			0.03	0.84	0.19	0.21	-0.10	0.51	0.15	0.35	0.02	0.89	0.16	0.32
T	0.05	0.70	-0.04	0.79	**-0.44**	**0.00**	0.25	0.06	0.02	0.87	**-0.49**	**0.00**	**-0.47**	**0.00**			0.24	0.05	**-0.41**	**0.00**	**0.34**	**0.01**	0.10	0.41	0.09	0.47
P	0.06	0.61	-0.02	0.91	**-0.30**	**0.01**	0.18	0.18	0.03	0.80	**-0.39**	**0.00**	**-0.46**	**0.00**	0.11	0.39			-0.08	0.55	0.15	0.22	**-0.34**	**0.01**	0.04	0.74
PET	0.08	0.53	0.05	0.70	**-0.34**	**0.01**	0.13	0.32	0.06	0.64	**-0.41**	**0.00**	**-0.47**	**0.00**	**0.39**	**0.00**	0.19	0.12			0.24	0.05	0.05	0.67	-0.04	0.77
AI	0.04	0.78	0.07	0.64	**-0.28**	**0.03**	0.15	0.26	0.01	0.92	**-0.34**	**0.01**	**-0.42**	**0.01**	0.21	0.09	0.03	0.84	0.05	0.67			-0.15	0.22	0.00	0.97
NPP lim	0.05	0.67	-0.01	0.96	**-0.36**	**0.00**	0.18	0.18	0.04	0.75	**-0.42**	**0.00**	**-0.47**	**0.00**	0.09	0.46	**0.40**	**0.00**	-0.13	0.32	**0.30**	**0.01**			0.05	0.70
GCI	0.06	0.64	-0.01	0.96	**-0.37**	**0.00**	0.17	0.20	0.06	0.68	**-0.43**	**0.00**	**-0.50**	**0.00**	0.11	0.37	0.23	0.06	-0.14	0.25	**0.27**	**0.03**	0.09	0.45		

Table 31. The arithmetic mean of the square of Spearman's semi-partial correlation coefficients between the visual soil quality indicators and each independent variable controlled for all other variables.

		LOC	SOM	pH≤7	pH>7	Sand	Silt	Clay	PR	T	P	PET	AI	NPP	GCI
STR	pH≤7	0.03	0.06	0.00		0.00	0.01	0.02	0.00	0.02	0.00	0.01	0.01	0.00	0.00
	pH>7	0.05	0.03		0.07	0.07	0.02	0.06	0.11	0.05	0.02	0.02	0.01	0.01	0.01
POR	pH≤7	0.07	0.38	0.03		0.01	0.01	0.00	0.00	0.01	0.04	0.02	0.04	0.03	0.01
	pH>7	0.05	0.03		0.08	0.00	0.00	0.02	0.01	0.01	0.02	0.02	0.01	0.01	0.05
STA	pH≤7	0.02	0.02	0.00		0.06	0.05	0.00	0.00	0.02	0.10	0.04	0.15	0.07	0.00
	pH>7	0.00	0.01		0.06	0.02	0.06	0.08	0.01	0.03	0.21	0.03	0.15	0.15	0.05
PAN	pH≤7	0.01	0.03	0.10		0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01
	pH>7	0.02	0.16		0.13	0.02	0.00	0.00	0.04	0.01	0.02	0.01	0.02	0.01	0.00
COL	pH≤7	0.14	0.11	0.01		0.02	0.08	0.34	0.11	0.02	0.02	0.11	0.06	0.01	0.04
	pH>7	0.04	0.04		0.09	0.00	0.00	0.01	0.01	0.01	0.13	0.05	0.06	0.06	0.02
EAR	pH≤7	0.05	0.06	0.01		0.03	0.04	0.01	0.05	0.17	0.02	0.13	0.06	0.02	0.02
	pH>7	0.06	0.01		0.01	0.00	0.00	0.05	0.04	0.01	0.07	0.06	0.11	0.03	0.02
ERO	pH≤7	0.10	0.01	0.01		0.02	0.01	0.03	0.01	0.01	0.09	0.00	0.04	0.10	0.04
	pH>7	0.00	0.01		0.01	0.00	0.00	0.01	0.01	0.10	0.12	0.10	0.08	0.13	0.06
PON	pH≤7	0.04	0.02	0.02		0.01	0.03	0.01	0.02	0.05	0.00	0.03	0.00	0.01	0.10
	pH>7	0.01	0.02		0.13	0.03	0.01	0.17	0.21	0.03	0.05	0.03	0.06	0.02	0.00

Note: Str: Soil structure; Por: Soil porosity; Sta: Soil stability (Slake Test); Pan: Presence of a tillage pan; Col: Soil colour; Ear: Earthworm count; Ero: Susceptibility to wind and water erosion; Pon: Surface ponding. The following variables were ranked ordinally: LOC: labile organic carbon (mg/g); SOM: soil organic matter (%); pH: ranked; PR: penetration resistance (MPa); Sand, Silt and Clay (%); T: mean annual temperature (°C); P: mean annual precipitation (mm); PET: mean annual potential evapotranspiration (mm); AI: Aridity index=P annual mean/PET annual mean, dimensionless; NPP:net primary production potential, NPP temperature or NPP precipitation (g (DM) m^{-2} yr^{-1}); GCI: Gorczynski continentality index

Table 32. Dominance analysis (pairwise comparison). Soil variables in the acid group. Variables written in red had the squared correlation and all semi-partial correlations higher. When there was no correlation (<0.10), the word "NO" was used. How to read the table: i) Columns Var. 1 and 2 depict the variables compared and their relative importance (Spearman correlations); ii) Columns Var. 3, 4, 5, 6 and 7 depict the variables that are controlled for (semi-partial correlation) and the dominance; iii) for example, in the first row below, we compare LOC with SOM (SOM dominates, i.e. has a higher squared correlation with soil structure (STR)), and we compare LOC with SOM controlled for the variables pH, sand, silt, clay and penetration resistance (PR), and SOM also dominates LOC.

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
STR		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	pH<7	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		LOC	NO	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		LOC	SILT	LOC	LOC	LOC	LOC
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		LOC	CLAY	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		LOC	NO	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	CLAY	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		NO	NO	pH	SAND	NO	NO
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		NO	SILT	SILT	SILT	NO	NO
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	NO	NO
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		NO	NO	pH	NO	NO	NO
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		NO	SILT	SILT	NO	NO	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	NO	NO

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		NO	NO	NO	NO	PR	NO
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	SILT	NO
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		NO	SILT	SILT	NO	SILT	NO
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	NO
POR		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	NO	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	SILT	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		pH	pH	NO	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		pH	pH	NO	pH	pH	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		NO	NO	SILT	NO	NO	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		NO	NO	NO	NO	NO	NO
		Sand	PR	LOC	SOM	pH	Silt	Clay

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance		NO	NO	NO	NO	NO	NO
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		NO	NO	SILT	NO	NO	NO
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		NO	NO	SILT	NO	NO	NO
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		NO	NO	NO	NO	NO	NO
STA		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	LOC	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	NO	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		SAND	SAND	SAND	LOC	SAND	SAND
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		SILT	SILT	SILT	LOC	SILT	SILT
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		LOC	NO	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		LOC	NO	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	NO	SOM	SOM	SOM	SOM
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SAND	SAND	SAND	SOM	SAND	SAND
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SILT	SILT	SILT	SOM	SILT	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	NO	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	NO	SOM	SOM	SOM	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		SAND	SAND	SAND	SAND	SAND	SAND
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		SILT	SILT	SILT	NO	SILT	SILT
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		NO	NO	NO	NO	NO	NO
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		NO	NO	NO	NO	NO	NO
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SAND	SILT	SILT	SAND	SAND	SAND
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		SAND	SAND	SAND	SAND	SAND	SAND
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		SAND	SAND	SAND	SAND	SAND	SAND

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		SILT	SILT	SILT	SILT	NO	SILT
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		SILT	SILT	SILT	SILT	NO	SILT
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		NO	NO	NO	NO	NO	NO
PAN		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		SOM	NO	SOM	SOM	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		NO	LOC	NO	NO	NO	NO
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		NO	LOC	NO	NO	NO	NO
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		NO	LOC	NO	NO	NO	NO
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		PR	LOC	NO	PR	PR	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	SOM	NO	SOM	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	NO	SOM	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	SOM	NO	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	SOM	NO	SOM	PR	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		pH	pH	pH	pH	pH	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		NO	NO	NO	NO	NO	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		NO	NO	CLAY	NO	NO	NO
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	NO	PR	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance		NO	NO	CLAY	NO	NO	NO
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		PR	PR	PR	NO	PR	PR
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		PR	PR	PR	NO	PR	PR
COL		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	SOM	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	pH	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	SAND	SAND	LOC
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	SILT	SILT	LOC
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		LOC	PR	LOC	LOC	PR	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	NO	SOM	SOM	pH	SOM
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	NO	SOM	SAND	SAND	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SILT	SOM	SILT	SILT	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		NO	NO	NO	SAND	SAND	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SAND	SILT
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	PR	SAND	SAND
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		PR	PR	PR	PR	SILT	SILT
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
EAR		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	LOC	SOM	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		SILT	LOC	SILT	LOC	SILT	LOC
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		PR	LOC	PR	PR	LOC	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SAND
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	SOM	SOM	PR	PR	PR
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		SAND	SAND	pH	NO	SAND	SAND
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		SILT	SILT	pH	SILT	SILT	SILT
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		NO	NO	pH	NO	NO	CLAY
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		SAND	SAND	CLAY	SAND	NO	SAND
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		Silt	PR	LOC	SOM	pH	Sand	Clay

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance		PR	PR	PR	PR	PR	PR
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		PR	PR	PR	PR	PR	PR
ERO		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SAND	SAND	SAND	SOM	NO	SAND
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SILT	SOM	SOM	SILT	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	SOM	CLAY	CLAY	CLAY	CLAY
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	SOM	SOM	SOM	SOM	NO
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		SAND	SAND	SAND	SAND	pH	SAND
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	SILT	SILT	pH	SILT	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	pH	CLAY	CLAY	CLAY	CLAY
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		pH	pH	NO	pH	PR	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SAND	SILT	SAND	SAND	SILT	SAND
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	SAND	CLAY	CLAY	CLAY	CLAY
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		SAND	SAND	SAND	SAND	SAND	NO
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	SILT	CLAY	CLAY	CLAY	CLAY
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		NO	SILT	SILT	PR	NO	SILT

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance	Clay	PR CLAY	LOC NO	SOM CLAY	pH CLAY	Sand CLAY	Silt CLAY
PON		LOC	SOM	pH<7	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH<7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH<7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	SILT	LOC	LOC
		LOC	CLAY	SOM	pH<7	Sand	Silt	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH<7	Sand	Silt	Clay
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	SOM	pH	pH	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		NO	SOM	SOM	SAND	SOM	NO
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SILT	SOM	SILT	SILT	SILT	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		NO	SOM	SOM	NO	NO	NO
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	SOM	SOM	PR	PR	PR
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	SAND	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		SILT	SILT	pH	SILT	SILT	SILT
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	pH	PR	PR	PR
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		NO	NO	NO	NO	SAND	NO
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	PR	SAND	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		SILT	PR	SILT	SILT	SILT	SILT
		Clay	PR	LOC	SOM	pH	Sand	Silt

	Corr (Y,X_n)		Semi-partial correlations (Corr ($Y,X|X_n$))				
	Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
Dominance	PR		PR	PR	PR	PR	PR

Table 33. Dominance analysis (pairwise comparison). **Soil variables in the alkaline group**. Variables written in red had the squared correlation and all semi-partial correlations higher. When there was no correlation (<0.10), the word "NO" was used. How to read the table: i) Columns Var. 1 and 2 depict the variables compared and their relative importance (Spearman correlations); ii) Columns Var. 3, 4, 5, 6 and 7 depict the variables that are controlled for (semi-partial correlation) and the dominance; iii) for example, in the first row below, we compare LOC with SOM (LOC dominates, i.e. has a higher squared correlation with soil structure (STR)), and we compare LOC with SOM controlled for the variables pH, sand, silt, clay and penetration resistance (PR), and LOC also dominates except when the variables are controlled for silt.

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
STR		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	SOM	LOC	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		pH	LOC	LOC	pH	LOC	LOC
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		SAND	LOC	LOC	SAND	LOC	SAND
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	SILT
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		CLAY	LOC	CLAY	LOC	CLAY	LOC
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	SOM	pH	pH	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SAND	SAND	SOM	SAND	SAND	SAND
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SILT	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		SAND	SAND	SAND	SAND	pH	SAND
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	pH	SILT
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		pH	CLAY	pH	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SAND	SAND	SAND	SAND	SAND	SAND

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		SAND	CLAY	SAND	CLAY	SAND	SAND
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	SAND	PR	PR	PR	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	SILT	SILT
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		PR	CLAY	PR	PR	PR	PR
POR		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		LOC	LOC	PR	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	NO	SOM	SOM	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	NO	SOM	SOM	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	CLAY	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	NO	PR	SOM	SOM	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		pH	pH	pH	pH	pH	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		NO	NO	NO	SAND	NO	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance		CLAY	CLAY	CLAY	SAND	CLAY	NO
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		NO	NO	PR	PR	NO	NO
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	NO
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		NO	NO	PR	PR	NO	NO
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	CLAY	PR	CLAY	CLAY
STA		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		NO	NO	NO	NO	SOM	NO
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		NO	SAND	SAND	SAND	SAND	NO
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		PR	PR	NO	PR	PR	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		NO	NO	SAND	SAND	SAND	NO
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	PR	NO	PR	PR	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	SAND	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	SILT	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		pH	pH	pH	pH	pH	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SILT	SILT	SILT	SILT	SAND	SILT
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	SAND	SAND	SAND
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	SILT	SILT	CLAY
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		SILT	SILT	SILT	SILT	SILT	SILT
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
PAN		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		LOC	SAND	LOC	SAND	LOC	SAND
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		LOC	NO	SILT	LOC	LOC	SILT
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		LOC	NO	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		PR	PR	LOC	PR	PR	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	pH	SOM	pH	SOM	SOM
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	SOM	SOM	SOM	SOM	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		pH	pH	pH	pH	pH	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SAND	SAND	SAND	SILT	SAND	SAND
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		SAND	SAND	SAND	NO	SAND	SAND
		Sand	PR	LOC	SOM	pH	Silt	Clay

		Corr (Y,X_n)		Semi-partial correlations (Corr ($Y,X|X_n$))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance	SAND		PR	SAND	NO	PR	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance	NO		NO	NO	SILT	CLAY	SILT
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance	PR		PR	PR	SILT	PR	PR
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance	PR		PR	PR	NO	PR	PR
COL		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance	LOC		LOC	LOC	LOC	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance	pH		pH	pH	pH	pH	pH
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance	LOC		LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance	LOC		LOC	LOC	LOC	LOC	LOC
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance	LOC		CLAY	LOC	LOC	LOC	LOC
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance	LOC		PR	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance	pH		pH	pH	pH	pH	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance	SOM		NO	SOM	SOM	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance	SOM		NO	SOM	SOM	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance	SOM		CLAY	SOM	SOM	SOM	SOM
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance	SOM		NO	SOM	SOM	SOM	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance	pH		pH	pH	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance	pH		pH	pH	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance	pH		pH	pH	pH	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance	pH		pH	pH	pH	pH	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance	NO		NO	NO	SAND	NO	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance	CLAY		CLAY	CLAY	SAND	CLAY	NO
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance	PR		NO	PR	SAND	PR	NO

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	SILT	NO	NO
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		PR	NO	PR	SILT	PR	NO
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	CLAY	PR	PR	PR
EAR		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		CLAY	CLAY	LOC	CLAY	CLAY	LOC
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		LOC	LOC	LOC	LOC	LOC	LOC
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	SOM	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		NO	SOM	NO	SAND	SOM	NO
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		NO	SOM	SILT	SILT	SOM	NO
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	pH
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		NO	NO	NO	SILT	SAND	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR

		Corr (Y,X_n)		Semi-partial correlations (Corr ($Y,X|X_n$))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
ERO		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	NO	NO
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		NO	pH	pH	pH	NO	pH
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		NO	NO	NO	NO	NO	NO
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		NO	NO	NO	NO	NO	NO
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		CLAY	NO	CLAY	CLAY	CLAY	NO
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		PR	NO	PR	PR	PR	NO
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	NO	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	NO	NO
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		SOM	SOM	SOM	SOM	NO	NO
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	CLAY	SOM	CLAY	CLAY	NO
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		SOM	SOM	SOM	SOM	SOM	NO
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		NO	pH	pH	pH	no	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		NO	pH	pH	pH	no	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	CLAY	pH	CLAY	CLAY	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	pH	pH	PR	NO
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		NO	NO	NO	NO	NO	NO
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	CLAY	NO	CLAY	CLAY	NO
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	NO	PR	PR	NO
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	NO	CLAY	CLAY	NO

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|X_n))				
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
		Silt	PR	LOC	SOM	pH	Sand	Clay
	Dominance		PR	PR	NO	PR	PR	NO
		Clay	PR	LOC	SOM	pH	Sand	Silt
	Dominance		CLAY	CLAY	NO	CLAY	CLAY	CLAY
PON		LOC	SOM	pH>7	Sand	Silt	Clay	PR
	Dominance		NO	NO	NO	NO	SOM	SOM
		LOC	pH	SOM	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		LOC	SAND	SOM	pH>7	Silt	Clay	PR
	Dominance		SAND	SAND	NO	SAND	LOC	SAND
		LOC	SILT	SOM	pH>7	Sand	Clay	PR
	Dominance		NO	NO	pH	pH	LOC	NO
		LOC	CLAY	SOM	pH>7	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		LOC	PR	SOM	pH>7	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		SOM	pH	LOC	Sand	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	SOM	pH
		SOM	SAND	LOC	pH	Silt	Clay	PR
	Dominance		SAND	SAND	NO	SAND	SOM	SOM
		SOM	SILT	LOC	pH	Sand	Clay	PR
	Dominance		NO	NO	SILT	SILT	SOM	SOM
		SOM	CLAY	LOC	pH	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		SOM	PR	LOC	pH	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	SOM
		pH	SAND	LOC	SOM	Silt	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	SILT	LOC	SOM	Sand	Clay	PR
	Dominance		pH	pH	pH	pH	pH	pH
		pH	CLAY	LOC	SOM	Sand	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	pH	pH
		pH	PR	LOC	SOM	Sand	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Sand	SILT	LOC	SOM	pH	Clay	PR
	Dominance		SAND	SAND	SAND	SILT	NO	SAND
		Sand	CLAY	LOC	SOM	pH	Silt	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		Sand	PR	LOC	SOM	pH	Silt	Clay
	Dominance		PR	PR	PR	PR	PR	PR
		Silt	CLAY	LOC	SOM	pH	Sand	PR
	Dominance		CLAY	CLAY	CLAY	CLAY	CLAY	CLAY
		Silt	PR	LOC	SOM	pH	Sand	Clay

	Corr (Y,X_n)		Semi-partial correlations (Corr ($Y,X|X_n$))				
	Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6	Var. 7
Dominance	PR		PR	PR	PR	PR	PR
	Clay	PR	LOC	SOM	pH	Sand	Silt
Dominance	PR		PR	CLAY	PR	PR	PR

Table 34. Dominance analysis (pairwise comparison). **Climate features in the acid group.** Variables written in red had the squared correlation and all semi-partial correlations higher. When there was no correlation (<0.10), the word "NO" was used. How to read the table: i) columns Var. 1 and 2 depict the variables compared and their relative importance (Spearman correlations); ii) columns Var. 3, 4, 5, 6 and 7 depict the variables that are controlled for (semi-partial correlation) and the dominance; iii) for example, in the first row below, we compare T with P, and we compare P with T controlled for the variables PET, AI, NPP and GCI, and P dominates T when the variables are controlled for AI.

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
STR		T	P	PET	AI	NPP	GCI
	Dominance		T	T	P	T	T
		T	PET	P	AI	NPP	GCI
	Dominance		T	T	T	T	T
		T	AI	P	PET	NPP	GCI
	Dominance		T	T	T	T	T
		T	NPP	P	PET	AI	GCI
	Dominance		T	T	T	T	T
		T	GCI	P	PET	AI	NPP
	Dominance		T	T	T	T	T
		P	PET	T	AI	NPP	GCI
	Dominance		NO	PET	P	NO	NO
		P	AI	T	PET	NPP	GCI
	Dominance		NO	NO	NO	NO	NO
		P	NPP	T	PET	AI	GCI
	Dominance		NO	NO	NO	P	NO
		P	GCI	T	PET	AI	NPP
	Dominance		NO	NO	NO	P	NO
		PET	AI	T	P	NPP	GCI
	Dominance		NO	PET	AI	NO	NO
		PET	NPP	T	P	AI	GCI
	Dominance		NO	PET	NO	NO	NO
		PET	GCI	T	P	AI	NPP
	Dominance		NO	PET	NO	NO	NO
		AI	NPP	T	P	PET	GCI
	Dominance		NO	NO	AI	NO	NO
		AI	GCI	T	P	PET	NPP
	Dominance		NO	NO	AI	NO	NO
		NPP	GCI	T	P	PET	AI
	Dominance		NO	NO	NO	NO	NO
POR		T	P	PET	AI	NPP	GCI
	Dominance		P	P	NO	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	T	NO	PET	PET
		T	AI	P	PET	NPP	GCI

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
	Dominance		AI	T	AI	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	T	NPP	NO	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		NO	T	NO	NO	NO
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	NO	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		AI	P	P	P	AI
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	NO	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	NO	P
		PET	AI	T	P	NPP	GCI
	Dominance		AI	AI	PET	PET	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NPP	NPP	NPP	NO	NPP
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	PET	NO	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	NPP	NPP	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	NO	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	NPP	NPP	NO
STA		T	P	PET	AI	NPP	GCI
	Dominance		P	P	T	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	PET	T	PET	PET
		T	AI	P	PET	NPP	GCI
	Dominance		AI	AI	AI	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	NPP	NPP	T	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		T	T	T	T	T
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	NO	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		AI	AI	AI	AI	AI
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	NO	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	NO	P

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
		PET	AI	T	P	NPP	GCI
	Dominance		AI	AI	AI	AI	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NPP	PET	PET	NO	NPP
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	PET	NO	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	AI	AI	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	AI	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	NPP	NPP	NO
PAN		T	P	PET	AI	NPP	GCI
	Dominance		NO	T	NO	NO	NO
		T	PET	P	AI	NPP	GCI
	Dominance		NO	NO	NO	NO	NO
		T	AI	P	PET	NPP	GCI
	Dominance		NO	NO	NO	NO	NO
		T	NPP	P	PET	AI	GCI
	Dominance		NO	NO	T	NO	NO
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	NO	GCI	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		NO	PET	NO	NO	NO
		P	AI	T	PET	NPP	GCI
	Dominance		NO	NO	NO	NO	NO
		P	NPP	T	PET	AI	GCI
	Dominance		NO	NO	NO	NO	NO
		P	GCI	T	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		PET	AI	T	P	NPP	GCI
	Dominance		NO	PET	NO	NO	NO
		PET	NPP	T	P	AI	GCI
	Dominance		NO	NO	NO	NO	NO
		PET	GCI	T	P	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		AI	NPP	T	P	PET	GCI
	Dominance		NO	NO	NO	NO	NO
		AI	GCI	T	P	PET	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		NPP	GCI	T	P	PET	AI
	Dominance		GCI	GCI	GCI	GCI	GCI
COL		T	P	PET	AI	NPP	GCI

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
	Dominance		NO	T	P	P	NO
		T	PET	P	AI	NPP	GCI
	Dominance		PET	PET	PET	PET	PET
		T	AI	P	PET	NPP	GCI
	Dominance		AI	AI	T	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NO	NPP	T	NPP	NO
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	T	GCI	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		PET	PET	PET	PET	PET
		P	AI	T	PET	NPP	GCI
	Dominance		AI	AI	AI	AI	AI
		P	NPP	T	PET	AI	GCI
	Dominance		NO	P	P	P	NO
		P	GCI	T	PET	AI	NPP
	Dominance		GCI	GCI	GCI	P	GCI
		PET	AI	T	P	NPP	GCI
	Dominance		PET	PET	PET	PET	PET
		PET	NPP	T	P	AI	GCI
	Dominance		PET	PET	PET	PET	PET
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	PET	PET	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	AI	AI	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	AI	GCI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		GCI	GCI	GCI	GCI	NPP
EAR		T	P	PET	AI	NPP	GCI
	Dominance		T	T	T	T	T
		T	PET	P	AI	NPP	GCI
	Dominance		T	T	T	T	PET
		T	AI	P	PET	NPP	GCI
	Dominance		T	T	T	T	T
		T	NPP	P	PET	AI	GCI
	Dominance		T	T	T	T	T
		T	GCI	P	PET	AI	NPP
	Dominance		T	T	GCI	T	T
		P	PET	T	AI	NPP	GCI
	Dominance		PET	P	P	PET	PET
		P	AI	T	PET	NPP	GCI
	Dominance		AI	AI	NO	AI	AI

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
		P	NPP	T	PET	AI	GCI
	Dominance		NO	P	NO	P	NO
		P	GCI	T	PET	AI	NPP
	Dominance		GCI	P	GCI	P	P
		PET	AI	T	P	NPP	GCI
	Dominance		PET	AI	AI	PET	PET
		PET	NPP	T	P	AI	GCI
	Dominance		PET	NPP	PET	PET	PET
		PET	GCI	T	P	AI	NPP
	Dominance		PET	GCI	PET	PET	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	AI	NO	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	AI	GCI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		GCI	NPP	NPP	GCI	NPP
ERO		T	P	PET	AI	NPP	GCI
	Dominance		P	P	P	T	P
		T	PET	P	AI	NPP	GCI
	Dominance		NO	T	PET	T	NO
		T	AI	P	PET	NPP	GCI
	Dominance		AI	T	AI	T	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	T	NPP	NPP	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	T
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	P	NO	P
		P	AI	T	PET	NPP	GCI
	Dominance		P	P	P	NO	P
		P	NPP	T	PET	AI	GCI
	Dominance		NPP	NPP	NPP	NPP	NPP
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	GCI	GCI
		PET	AI	T	P	NPP	GCI
	Dominance		AI	AI	NO	NO	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NPP	NPP	NPP	NPP	NPP
		PET	GCI	T	P	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		AI	NPP	T	P	PET	GCI
	Dominance		NPP	NPP	NPP	NPP	NPP
		AI	GCI	T	P	PET	NPP

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
	Dominance		AI	AI	GCI	AI	GCI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	GCI	NPP	NPP
PON		T	P	PET	AI	NPP	GCI
	Dominance		T	T	T	T	T
		T	PET	P	AI	NPP	GCI
	Dominance		T	T	T	T	PET
		T	AI	P	PET	NPP	GCI
	Dominance		T	T	T	T	T
		T	NPP	P	PET	AI	GCI
	Dominance		T	T	T	T	T
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		PET	NO	PET	PET	PET
		P	AI	T	PET	NPP	GCI
	Dominance		NO	NO	NO	NO	NO
		P	NPP	T	PET	AI	GCI
	Dominance		NO	NO	NO	NPP	NO
		P	GCI	T	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		PET	AI	T	P	NPP	GCI
	Dominance		PET	NO	PET	PET	PET
		PET	NPP	T	P	AI	GCI
	Dominance		PET	NO	PET	PET	PET
		PET	GCI	T	P	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		AI	NPP	T	P	PET	GCI
	Dominance		NO	NO	NO	NO	NO
		AI	GCI	T	P	PET	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		NPP	GCI	T	P	PET	AI
	Dominance		GCI	GCI	GCI	GCI	GCI

Table 35. Dominance analysis (pairwise comparison). **Climate features in the alkaline group**. Variables written in red had the squared correlation and all semi-partial correlations higher. When there was no correlation (<0.10), the word "NO" was used. How to read the table: i) columns Var. 1 and 2 depict the variables compared and their relative importance (Spearman correlations); ii) columns Var. 3, 4, 5, 6 and 7 depict the variables that are controlled for (semi-partial correlation) and the dominance; iii) for example, in the first row below, we compare T with P, and we compare P with T controlled for the variables PET, AI, NPP and GCI, and P dominates T when the variables are controlled for AI.

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
STR		T	P	PET	AI	NPP	GCI
	Dominance		T	T	T	T	T
		T	PET	P	AI	NPP	GCI
	Dominance		T	T	T	T	T
		T	AI	P	PET	NPP	GCI
	Dominance		T	T	T	T	T
		T	NPP	P	PET	AI	GCI
	Dominance		T	T	T	T	T
		T	GCI	P	PET	AI	NPP
	Dominance		T	T	T	T	T
		P	PET	T	AI	NPP	GCI
	Dominance		PET	P	PET	PET	PET
		P	AI	T	PET	NPP	GCI
	Dominance		NO	P	P	AI	P
		P	NPP	T	PET	AI	GCI
	Dominance		NO	P	P	P	P
		P	GCI	T	PET	AI	NPP
	Dominance		NO	P	P	P	GCI
		PET	AI	T	P	NPP	GCI
	Dominance		PET	NO	PET	PET	PET
		PET	NPP	T	P	AI	GCI
	Dominance		PET	NPP	PET	PET	PET
		PET	GCI	T	P	AI	NPP
	Dominance		PET	NO	PET	PET	PET
		AI	NPP	T	P	PET	GCI
	Dominance		NO	AI	NPP	AI	NO
		AI	GCI	T	P	PET	NPP
	Dominance		NO	NO	AI	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NO	NPP	GCI	NPP	NPP
POR		T	P	PET	AI	NPP	GCI
	Dominance		P	T	NO	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	NO	NO	PET	NO
		T	AI	P	PET	NPP	GCI

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
	Dominance		AI	NO	T	AI	NO
		T	NPP	P	PET	AI	GCI
	Dominance		NO	NPP	T	NPP	NO
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		PET	P	NO	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		P	P	NO	P	P
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	NO	NPP	P
		P	GCI	T	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	P
		PET	AI	T	P	NPP	GCI
	Dominance		PET	PET	NO	AI	NO
		PET	NPP	T	P	AI	GCI
	Dominance		PET	PET	NPP	NPP	NO
		PET	GCI	T	P	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		AI	NPP	T	P	PET	GCI
	Dominance		AI	NO	NPP	NO	NO
		AI	GCI	T	P	PET	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		NPP	GCI	T	P	PET	AI
	Dominance		GCI	GCI	NPP	GCI	GCI
STA		T	P	PET	AI	NPP	GCI
	Dominance		P	P	P	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		T	T	PET	T	PET
		T	AI	P	PET	NPP	GCI
	Dominance		AI	T	AI	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	T	NPP	NPP	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	GCI	GCI	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	P	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		P	P	P	P	P
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	P	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	GCI	P

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
		PET	AI	T	P	NPP	GCI
	Dominance		AI	AI	NO	AI	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NPP	NPP	NPP	PET	NPP
		PET	GCI	T	P	AI	NPP
	Dominance		GCI	PET	GCI	GCI	GCI
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	NPP	AI	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	GCI	AI	GCI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	GCI	NPP	GCI
PAN		T	P	PET	AI	NPP	GCI
	Dominance		P	P	NO	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		NO	NO	NO	NO	NO
		T	AI	P	PET	NPP	GCI
	Dominance		AI	NO	AI	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NO	NPP	NO	NO	NO
		T	GCI	P	PET	AI	NPP
	Dominance		NO	NO	NO	NO	NO
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	NO	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		P	P	P	P	P
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	NO	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	NO	P
		PET	AI	T	P	NPP	GCI
	Dominance		AI	AI	NO	AI	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NO	PET	NPP	NO	NO
		PET	GCI	T	P	AI	NPP
	Dominance		NO	PET	NO	NO	NO
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	NPP	AI	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	NO	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NO	NO	NPP	NO	NO
COL		T	P	PET	AI	NPP	GCI

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
	Dominance		P	P	P	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	PET	NO	PET	PET
		T	AI	P	PET	NPP	GCI
	Dominance		AI	NO	T	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	NPP	NPP	NO	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	T	NO	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	P	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		P	P	P	P	P
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	P	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	P	P
		PET	AI	T	P	NPP	GCI
	Dominance		AI	PET	PET	PET	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NPP	PET	NPP	NO	NPP
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	GCI	NO	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	NPP	NPP	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	GCI	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	NPP	NPP	NO
EAR		T	P	PET	AI	NPP	GCI
	Dominance		P	P	NO	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	PET	NO	PET	PET
		T	AI	P	PET	NPP	GCI
	Dominance		AI	AI	AI	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	NPP	T	NPP	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		GCI	GCI	T	NO	GCI
		P	PET	T	AI	NPP	GCI
	Dominance		P	PET	NO	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		AI	AI	AI	AI	AI

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	NPP	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	NO	P
		PET	AI	T	P	NPP	GCI
	Dominance		AI	AI	AI	AI	AI
		PET	NPP	T	P	AI	GCI
	Dominance		PET	PET	NPP	NPP	PET
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	PET	NO	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	AI	AI	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	AI	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	NPP	NPP	NPP
ERO		T	P	PET	AI	NPP	GCI
	Dominance		P	P	T	T	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	T	T	T	T
		T	AI	P	PET	NPP	GCI
	Dominance		T	T	AI	T	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NPP	T	NPP	T	NPP
		T	GCI	P	PET	AI	NPP
	Dominance		T	T	NO	T	T
		P	PET	T	AI	NPP	GCI
	Dominance		P	P	P	PET	P
		P	AI	T	PET	NPP	GCI
	Dominance		P	P	P	NO	P
		P	NPP	T	PET	AI	GCI
	Dominance		NPP	NPP	NPP	NPP	NPP
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	GCI	GCI
		PET	AI	T	P	NPP	GCI
	Dominance		PET	AI	PET	PET	AI
		PET	NPP	T	P	AI	GCI
	Dominance		NPP	NPP	PET	NPP	NPP
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	PET	GCI	PET
		AI	NPP	T	P	PET	GCI
	Dominance		NPP	NPP	NPP	NPP	NPP
		AI	GCI	T	P	PET	NPP

		Corr (Y,X_n)		Semi-partial correlations (Corr (Y,X|$\mathbf{X_n}$))			
		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Var. 6
	Dominance		AI	AI	GCI	AI	GCI
		NPP	GCI	T	P	PET	AI
	Dominance		NPP	NPP	GCI	NPP	NPP
PON		T	P	PET	AI	NPP	GCI
	Dominance		P	T	T	P	P
		T	PET	P	AI	NPP	GCI
	Dominance		PET	T	T	PET	PET
		T	AI	P	PET	NPP	GCI
	Dominance		AI	AI	T	AI	AI
		T	NPP	P	PET	AI	GCI
	Dominance		NO	NPP	T	T	T
		T	GCI	P	PET	AI	NPP
	Dominance		NO	T	T	T	NO
		P	PET	T	AI	NPP	GCI
	Dominance		P	PET	NO	P	P
		P	AI	T	PET	NPP	GCI
	Dominance		AI	AI	AI	P	AI
		P	NPP	T	PET	AI	GCI
	Dominance		P	P	P	NPP	P
		P	GCI	T	PET	AI	NPP
	Dominance		P	P	P	NO	P
		PET	AI	T	P	NPP	GCI
	Dominance		AI	PET	AI	AI	AI
		PET	NPP	T	P	AI	GCI
	Dominance		PET	PET	NPP	NPP	PET
		PET	GCI	T	P	AI	NPP
	Dominance		PET	PET	NO	NO	PET
		AI	NPP	T	P	PET	GCI
	Dominance		AI	AI	NPP	AI	AI
		AI	GCI	T	P	PET	NPP
	Dominance		AI	AI	AI	AI	AI
		NPP	GCI	T	P	PET	AI
	Dominance		NO	NPP	NPP	NO	NPP