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Determining the effects of the forest stand age on the soil quality index in afforested areas: A case study in the Palandöken mountains

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Electronic Supplementary Material 2 (ESM 2)

The authors are fully responsible for both the content and the formal aspects of the electronic supplementary material. No editorial adjustments were made.

Principal component analysis results

Table S2_1. Summary statistics

Variable	Observations	Observations with missing data	Observations without missing data	Minimum	Maximum	Mean	SD
Clay	160	0	160	2.833	53.417	23.604	9.850
Sand	160	0	160	20.833	76.167	45.492	11.005
Silt	160	0	160	7.000	60.417	31.357	7.603
MWD	160	0	160	0.438	1.094	0.782	0.120
EC	160	0	160	42.000	562.000	175.863	91.409
AS	160	0	160	60.106	96.329	86.109	7.120
AR	160	0	160	27.500	95.500	71.980	17.242
TN	160	0	160	0.280	0.800	0.439	0.115
TC	160	0	160	2.150	9.470	4.229	1.469

MWD – mean weight diameter; EC – electrical conductivity; AS – aggregate stability; AR – aggregation rate; TN – total nitrogen; TC – total carbon; SD – standard deviation

Table S2_2. Correlation matrix (Pearson (n – 1)):

Variables	Clay	Sand	Silt	MWD	EC	AS	AR	TN	TC
Clay	1	–0.705	–0.255	0.255	0.033	0.079	0.264	–0.287	–0.284
Sand	–0.705	1	–0.473	–0.069	0.165	0.020	–0.098	0.407	0.443
Silt	–0.255	–0.473	1	–0.219	–0.288	–0.126	–0.152	–0.197	–0.245
MWD	0.255	–0.069	–0.219	1	0.439	0.381	0.679	0.247	0.335
EC	0.033	0.165	–0.288	0.439	1	0.337	0.491	0.489	0.508
AS	0.079	0.020	–0.126	0.381	0.337	1	0.485	0.352	0.335
AR	0.264	–0.098	–0.152	0.679	0.491	0.485	1	0.361	0.407
TN	–0.287	0.407	–0.197	0.247	0.489	0.352	0.361	1	0.977
TC	–0.284	0.443	–0.245	0.335	0.508	0.335	0.407	0.977	1

Values in bold are different from 0 with a significance level alpha = 0.05; MWD – mean weight diameter; EC – electrical conductivity; AS – aggregate stability; AR – aggregation rate; TN – total nitrogen; TC – total carbon

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Table S2_3. Principal Component Analysis

	Eigenvalues								
	F1	F2	F3	F4	F5	F6	F7	F8	F9
Eigenvalue	3.506	2.189	1.149	0.689	0.626	0.512	0.295	0.019	0.015
Variability (%)	38.957	24.320	12.764	7.653	6.956	5.692	3.273	0.214	0.170
Cumulative %	38.957	63.277	76.041	83.694	90.650	96.342	99.615	99.830	100.000

Table S2_4. Results after the Varimax rotation (Kaiser normalisation)

	Rotation matrix	
	D1	D2
D1	0.897	0.441
D2	–0.441	0.897

Table S2_5. Percentage of the variance after the Varimax rotation

	D1	D2	F3	F4	F5	F6	F7	F8	F9
Variability (%)	36.106	27.171	12.764	7.653	6.956	5.692	3.273	0.214	0.170
Cumulative %	36.106	63.277	76.041	83.694	90.650	96.342	99.615	99.830	100.000

Table S2_6. Factor loadings after the Varimax rotation

	D1	D2
Clay	0.288	–0.817
Sand	0.018	0.885
Silt	–0.373	–0.203
MWD	0.779	–0.194
EC	0.717	0.198
AS	0.643	0.001
AR	0.842	–0.169
TN	0.606	0.652
TC	0.646	0.651

MWD – mean weight diameter; EC – electrical conductivity; AS – aggregate stability; AR – aggregation rate; TN – total nitrogen; TC – total carbon

Table S2_7. Component score coefficients after the Varimax rotation

	D1	D2
Clay	0.147	–0.366
Sand	–0.055	0.373
Silt	–0.105	–0.060
MWD	0.261	–0.135
EC	0.215	0.035
AS	0.205	–0.043
AR	0.280	–0.129
TN	0.149	0.235
TC	0.162	0.232

MWD – mean weight diameter; EC – electrical conductivity; AS – aggregate stability; AR – aggregation rate; TN – total nitrogen; TC – total carbon

Table S2_8. Correlations between the variables and factors after the Varimax rotation

	D1	D2	Final communality		D1	D2	Final communality
Clay	0.288	–0.817	0.750	AS	0.643	0.001	0.413
Sand	0.018	0.885	0.783	AR	0.842	–0.169	0.737
Silt	–0.373	–0.203	0.180	TN	0.606	0.652	0.792
MWD	0.779	–0.194	0.644	TC	0.646	0.651	0.841
EC	0.717	0.198	0.553				

MWD – mean weight diameter; EC – electrical conductivity; AS – aggregate stability; AR – aggregation rate; TN – total nitrogen; TC – total carbon

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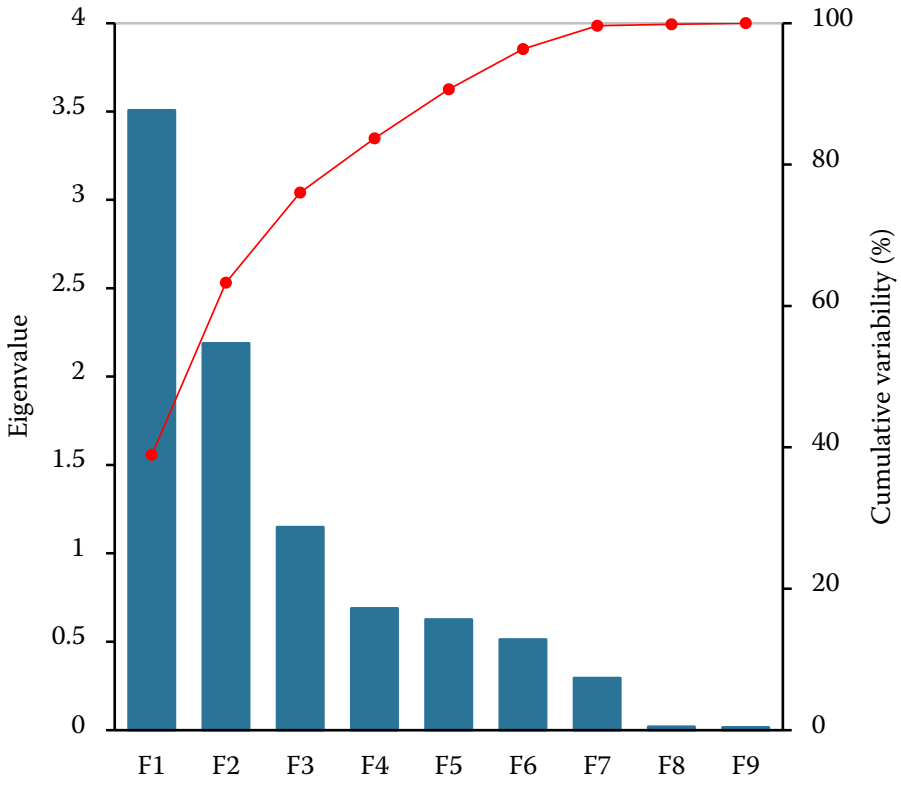

Figure S2_1. Scree plot of the factors

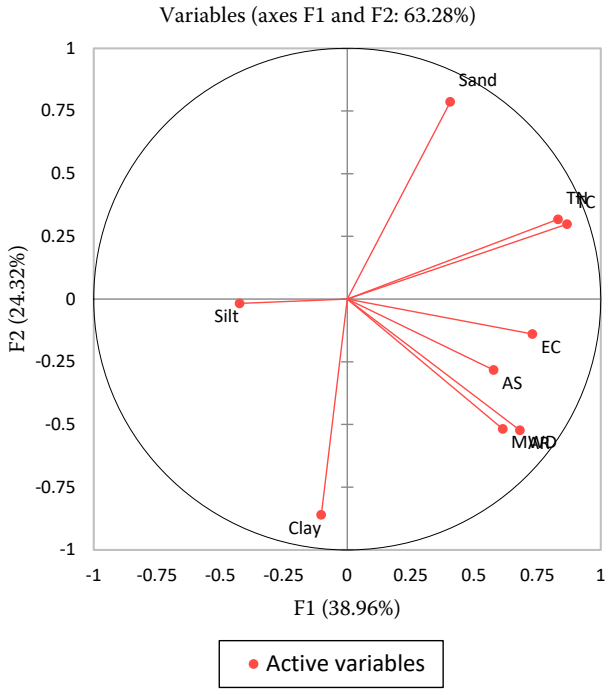

Figure S2_2. Variables

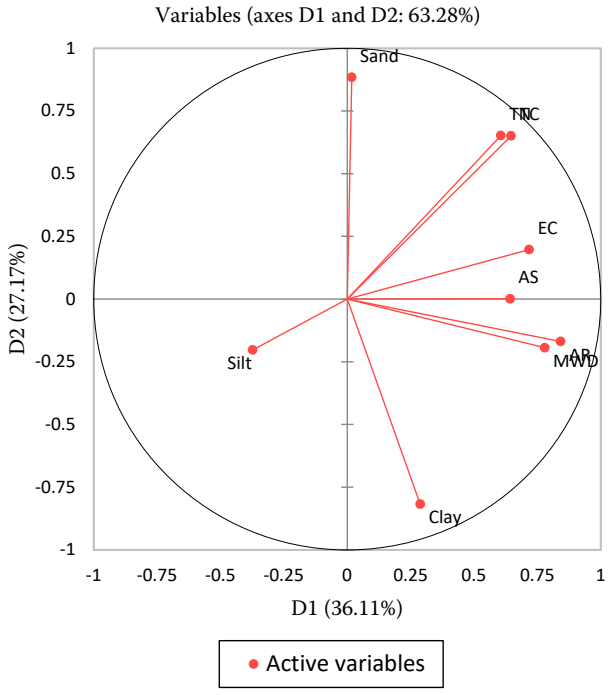

Figure S2_3. Variables after the Varimax rotation