

Supplementary Materials

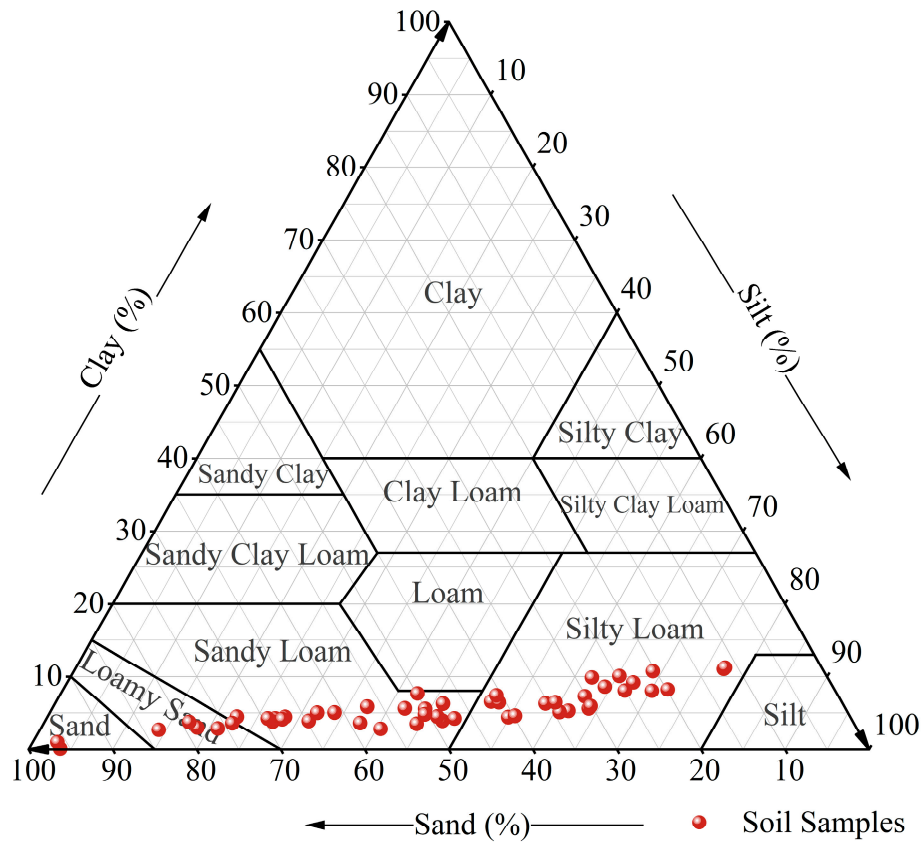
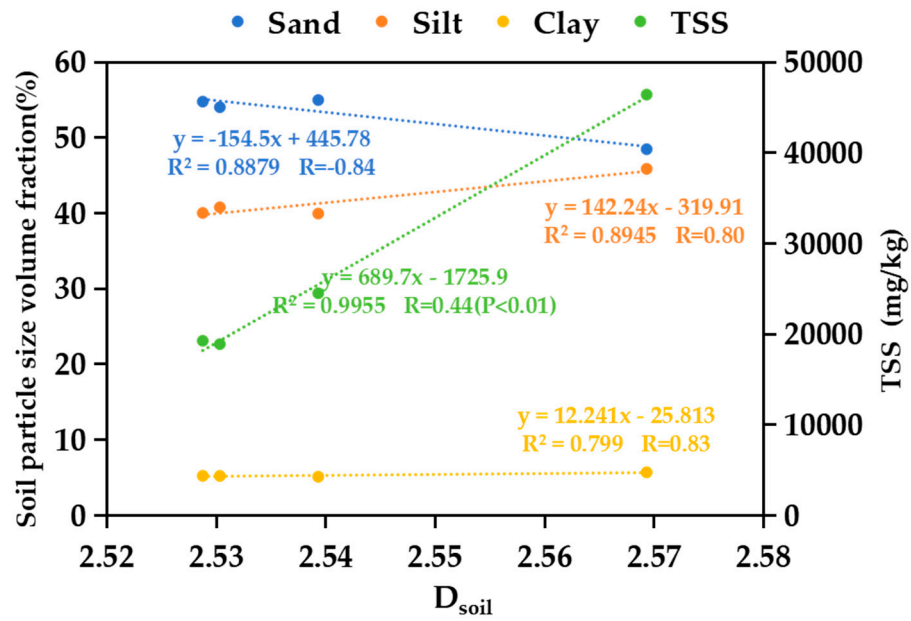


Figure S1. Three-phase plot of soil particle size distribution in the soil surface layer (0-10).

Table S1. Soil texture types at different soil depths.

Soil Depth(cm)	D _{soil}	Clay	Silt	Sand	Soil texture type
0-10	2.57	5.64	45.32	49.04	Sandy, loamy sandy , sandy loam, silty loam
10-20	2.54	5.07	39.47	55.46	Sandy, loamy sandy, sandy loam, silty loam
20-40	2.53	5.04	39.51	55.45	Sandy, loamy, loamy sandy , sandy loam, silty loam
40-60	2.53	5.23	40.64	54.12	Sandy, loamy, silt, loamy sandy, sandy loam, silty loam



Correlation is significant at the 0.01 level
Figure S2. Soil fractal dimensions in relation to clay, silt, sand, and TSS.

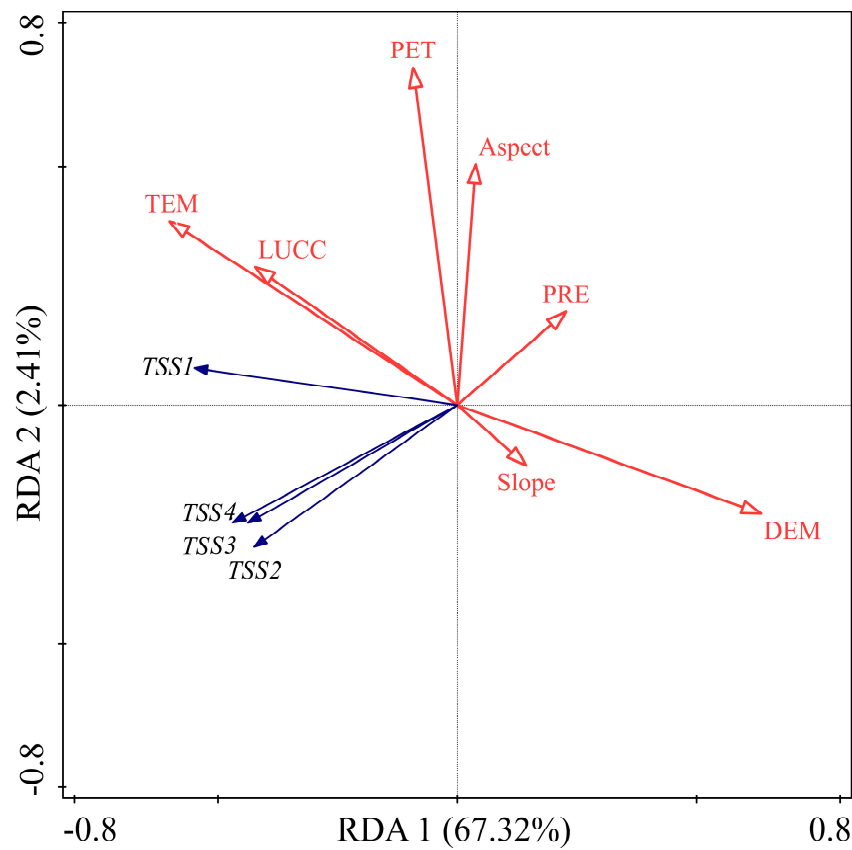


Figure S3. The relationship between total salt content at different depths and related factors. Notes: TS1, TSS2, TSS3, and TSS4 represent soil salinity at depths of 0-10, 10-20, 20-40, and 40-60 cm, respectively; DEM represents digital elevation model; Aspect refers to slope aspect; Slope indicates slope steepness; PRE refers to precipitation in August 2023; TEM denotes the average temperature in August 2023; LUCC represents land use/land cover in 2023.

Table S2. A ranking of environmental factors based on Monte Carlo testing.

Impact Factor	Explains %	Contribution %	pseudo-F	P
DEM	11.2	37.2	6	0.012
TEM	6.7	22.3	3.8	0.036
PET	6.9	23.1	4.2	0.036
PRE	1.5	4.8	0.9	0.39
Aspect	1.6	5.2	0.9	0.324
Slope	1.5	4.9	0.9	0.388
LUCC	0.8	2.6	0.5	0.594