Supplementary Materials

Table S1. Comparison in soil properties of the measuring transect (transect 1) and the other two transects (transects 2-3).

Habitat type	Factors	Transect 1	Transects 2-3	*P*
River bank	Soil volumetric water content (%)	19.08±0.86	16.80±1.81	0.18
	Soil organic carbon (g kg^{-1})	13.20±5.70	10.12±1.57	0.50
	Soil salinity content (g kg^{-1})	16.48±3.53	14.93±0.55	0.57
	Soil pH	8.95±0.22	8.70±0.07	0.18
Transitional zone	Soil volumetric water content (%)	10.11±4.95	6.75±4.42	0.41
	Soil organic carbon (g kg^{-1})	4.16±2.14	2.93±1.46	0.44
	Soil salinity content (g kg^{-1})	6.08±3.62	4.18±2.87	0.50
	Soil pH	8.18±0.14	8.00±0.19	0.24
Desert margin	Soil volumetric water content (%)	0.76±0.22	1.21±0.11	0.06
	Soil organic carbon (g kg^{-1})	2.09±0.95	1.26±0.26	0.30
	Soil salinity content (g kg^{-1})	2.17±1.65	1.51±0.42	0.61
	Soil pH	8.01±0.27	8.24±0.24	0.42

Values are means ± standard errors. There were no significant differences between transect 1 and transects 2-3.

Table S2. Multiple regression analysis of soil respiration and related influencing factors within the same plot. H_{max}: Maximum plant height; LL: Leaf length; LT: Leaf thickness; LDMC: Leaf dry matter content; SLA: Specific leaf area; LPC: Leaf phosphorus content; SWC: Soil water content; ST: Soil temperature; pH: Soil pH; AP: Soil available phosphorus; TP: Soil total phosphorus; AN: Soil ammonium nitrogen; NN: Soil nitrate nitrogen; NS, not significant; ND, not determined (removed by the stepwise regression analysis results). *$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

Parameter	Plot 1		Plot 2		Plot 3	
	5 m × 5 m	10 m × 10 m	5 m × 5 m	10 m × 10 m	5 m × 5 m	10 m × 10 m
Adjusted R^2	0.49	0.70	0.23	0.48	0.42	0.36
P value	< 0.001	< 0.001	< 0.05	< 0.005	< 0.005	< 0.001
Intercept	−2.92***	−1.88**	NS	0.30**	0.19**	NS
LL	0.02**	0.01*	ND	ND	−0.06*	ND
LT	NS	ND	ND	ND	−1.23*	ND
LDMC	2.98**	ND	ND	ND	ND	ND
LPC	0.52***	NS	0.12*	-0.09*	ND	ND
SWC	ND	0.04***	ND	0.06**	ND	0.08***
pH	ND	0.19**	ND	ND	ND	ND

AP	0.01*	NS	NS	ND	ND	ND
TP	ND	NS	ND	0.01*	ND	ND
AN	ND	ND	ND	-0.07*	0.07**	ND

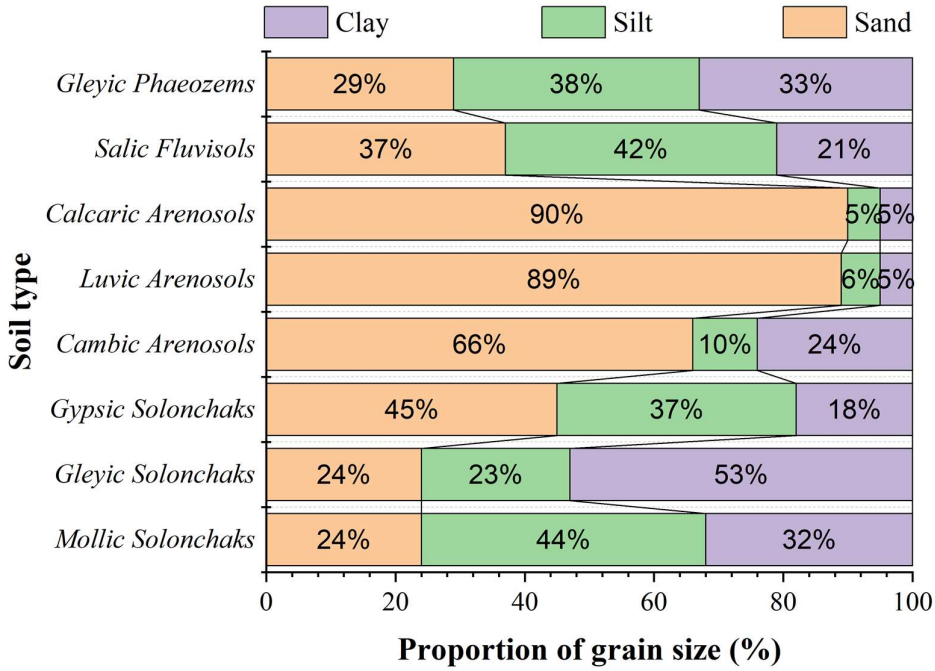

Figure S1. Soil types in the Ebinur Lake Wetland National Nature Reserve.

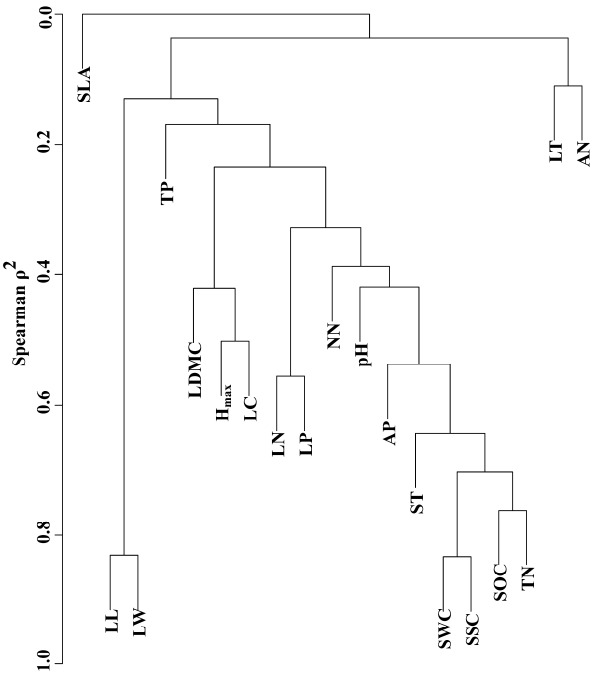

Figure S2. Cluster analysis of the measured environmental variables. H_{max}: Maximum plant height; LL: Leaf length; LW: Leaf width; LT: Leaf thickness; LDMC: Leaf dry matter content; SLA: Specific leaf area; LPC: Leaf phosphorus content; LNC: Leaf nitrogen content; LCC: Leaf carbon content; SWC: Soil water content; ST: Soil temperature; pH: Soil pH; AN: Soil ammonium nitrogen; AP: Soil available phosphorus; TP: Soil total

phosphorus; TN: Total nitrogen content; NN: Soil nitrate nitrogen; SSC: Soil salinity content.