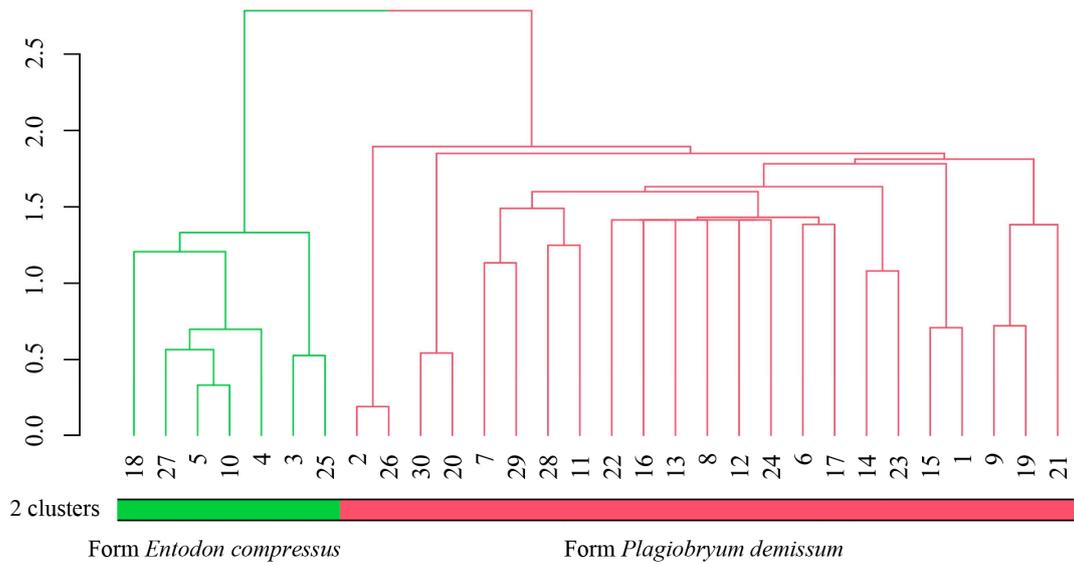
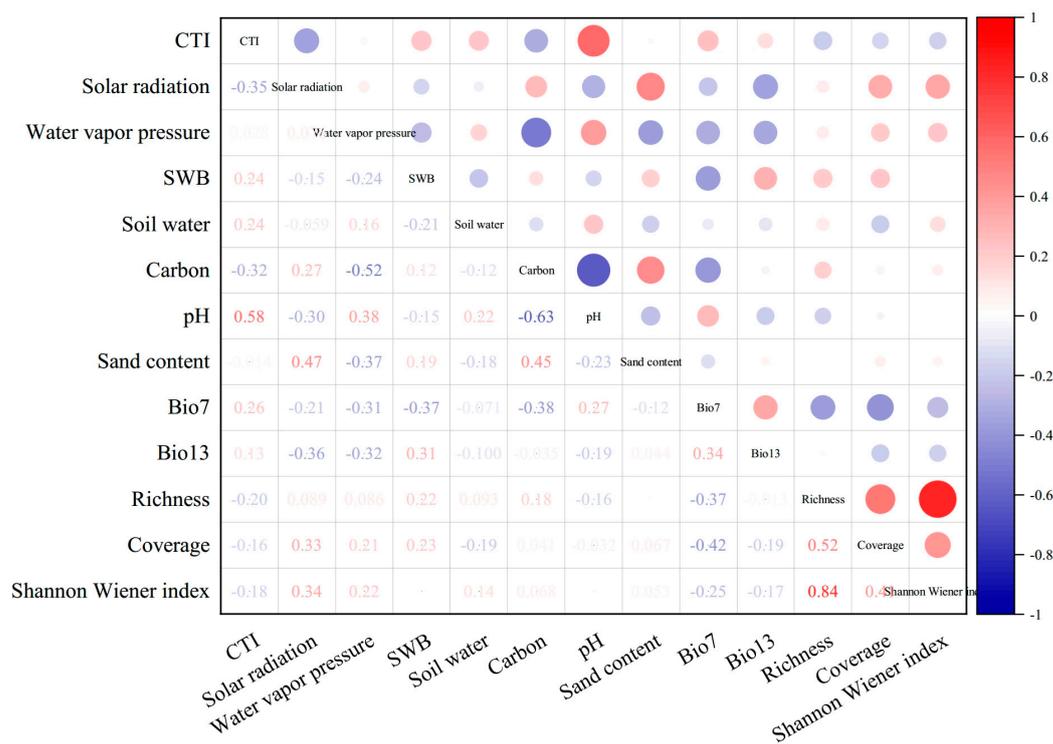


**Figure S1.** Correlations between environmental factors. The figure illustrates pairwise comparisons between environmental factors, using a color gradient to represent Pearson's correlation coefficient. TWI, topographic wetness index; CTI, compound topographic index; WVP, water vapor pressure; GDD, annual mean growing degree days; SWB, site water balance. PET, potential evapotranspiration; Bio1, annual mean temperature; Bio2, mean diurnal range; Bio3, isothermality; Bio4, temperature seasonality; Bio5, max temperature of warmest month; Bio6, min temperature of coldest month; Bio7, temperature annual range; Bio8, mean temperature of wettest quarter; Bio9, mean temperature of driest quarter; Bio10, mean temperature of warmest quarter; Bio11, mean temperature of coldest quarter; Bio12, annual precipitation; Bio13, precipitation of wettest month; Bio14, precipitation of driest month; Bio15, precipitation seasonality; Bio16, precipitation of wettest quarter; Bio17, precipitation of driest quarter; Bio18, precipitation of warmest quarter; Bio19, precipitation of coldest quarter.



**Figure S2.** Cluster tree of sample plot based on environmental factors. There are 2 forms, and colors represent forms. The numbers represent the 30 plot numbers.



**Figure S3.** Correlations between environment variables and moss diversity. The figure illustrates pairwise comparisons between environmental factors, using a color gradient to represent Pearson's correlation coefficient. CTI, compound topographic index; WVP, water vapor pressure; SWB, site water balance. Bio7, temperature annual range; Bio13, precipitation of wettest month.

**Table S1.** Relative coverage, relative frequency, and importance values of dominant species in different cluster.

Cluster	Dominant species	Relative frequency	Relative coverage	Important value
I	<i>Entodon compressus</i>	0.2188	0.4108	0.3148
I	<i>Entodon smaragdinus</i>	0.0938	0.1578	0.1258
I	<i>Plagiomnium succulentum</i>	0.0625	0.1777	0.1201
II	<i>Plagiobryum demissum</i>	0.0574	0.0734	0.0654
II	<i>Hyophila nymaniana</i>	0.0574	0.0724	0.0649
II	<i>Trichostomum platyphyllum</i>	0.0328	0.0968	0.0648