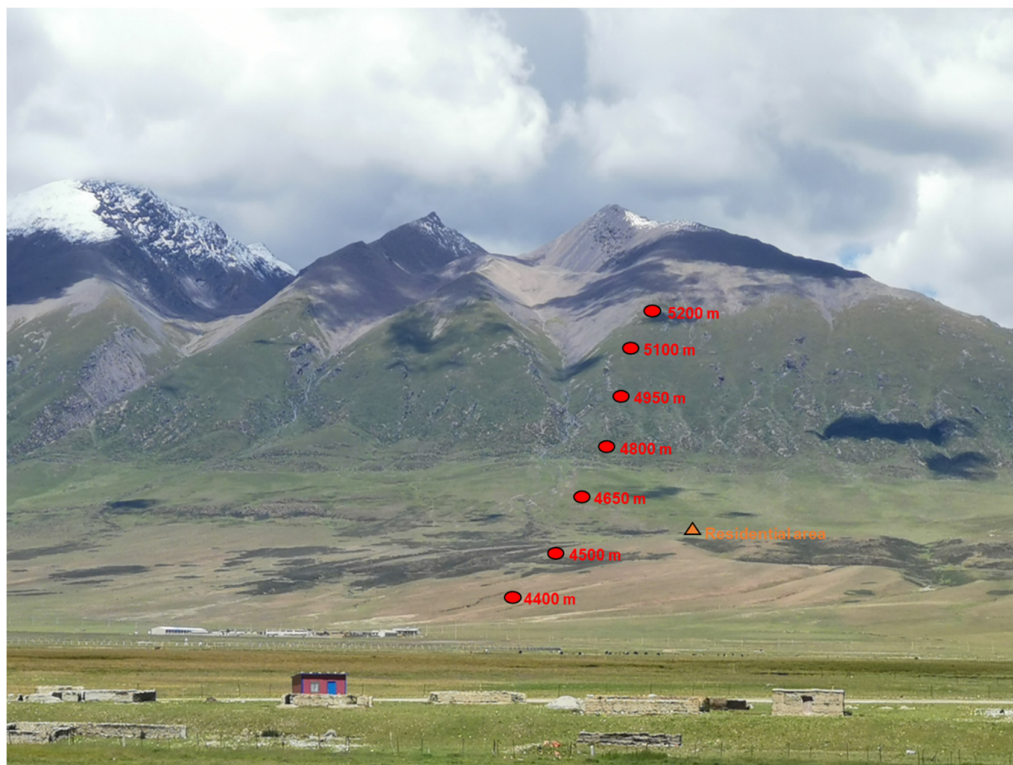
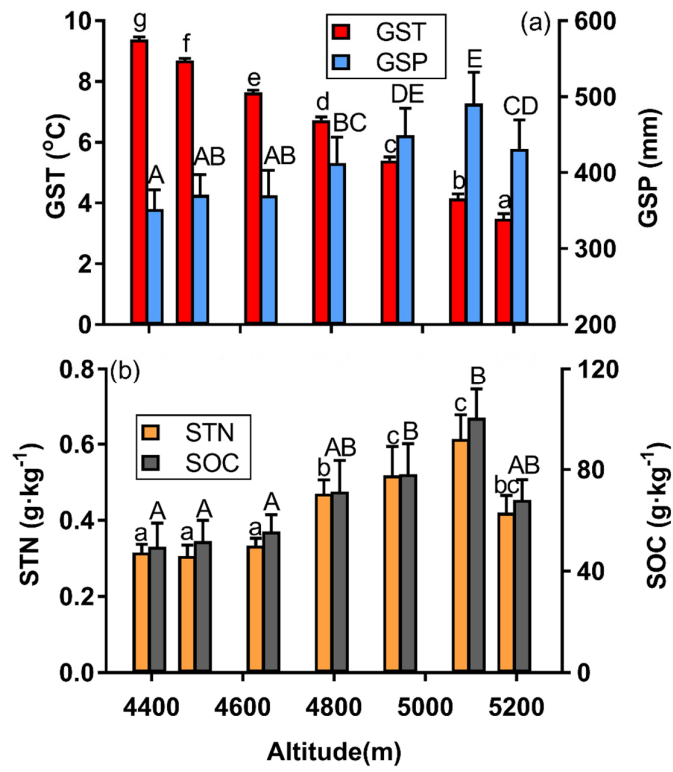


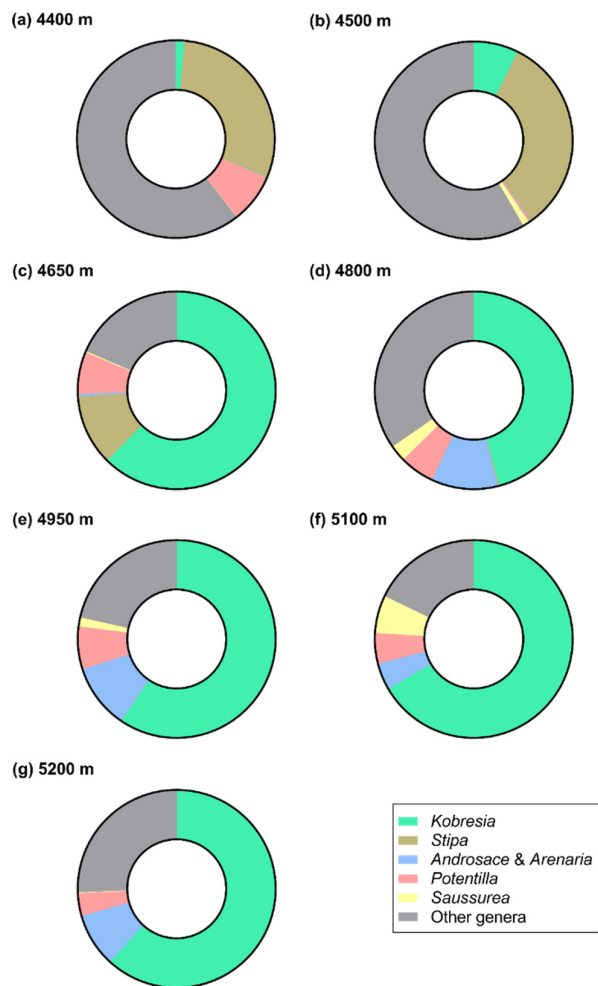
## Supplementary Materials



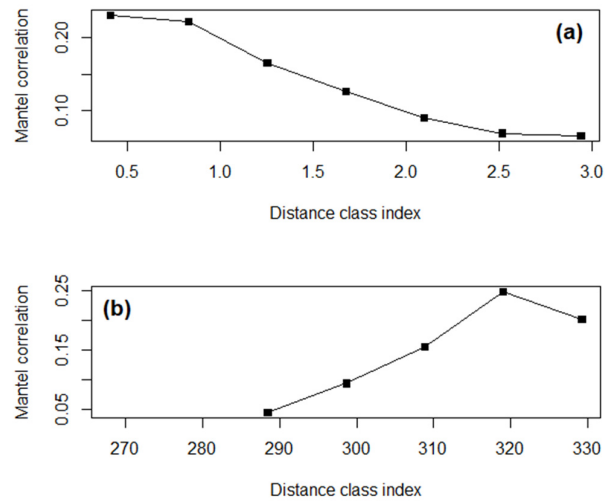
**Figure S1.** Distribution of fenced plots along the altitudinal gradient in Damxung, Tibet.



**Figure S2.** Variations in (a) growing-season mean temperature (GST) and precipitation (GSP) during 2006-2017, and (b) soil total nitrogen (STN) and soil organic carbon (SOC) along the altitudinal gradient. Different letters indicate significant differences among the seven altitudes (ANOVA and Tukey HSD test,  $P < 0.05$ ). Bars indicate SE of the mean.



**Figure S3.** The relative coverage of common genera along the altitude gradient.



**Figure S4.** Relationships of standardized Euclidean distance of environmental factors (including temperature, precipitation, soil C:N ratio, year of enclosure and grazing management treatments) to (a) taxonomic and (b) phylogenetic Bray–Curtis similarity of communities. The Mantel test was used to examine the correlations between pairwise Bray–Curtis similarity and pairwise differences in environmental factors, indicating taxonomic and phylogenetic signal test for ecological niche differences.