

Supplementary maps and graphs:

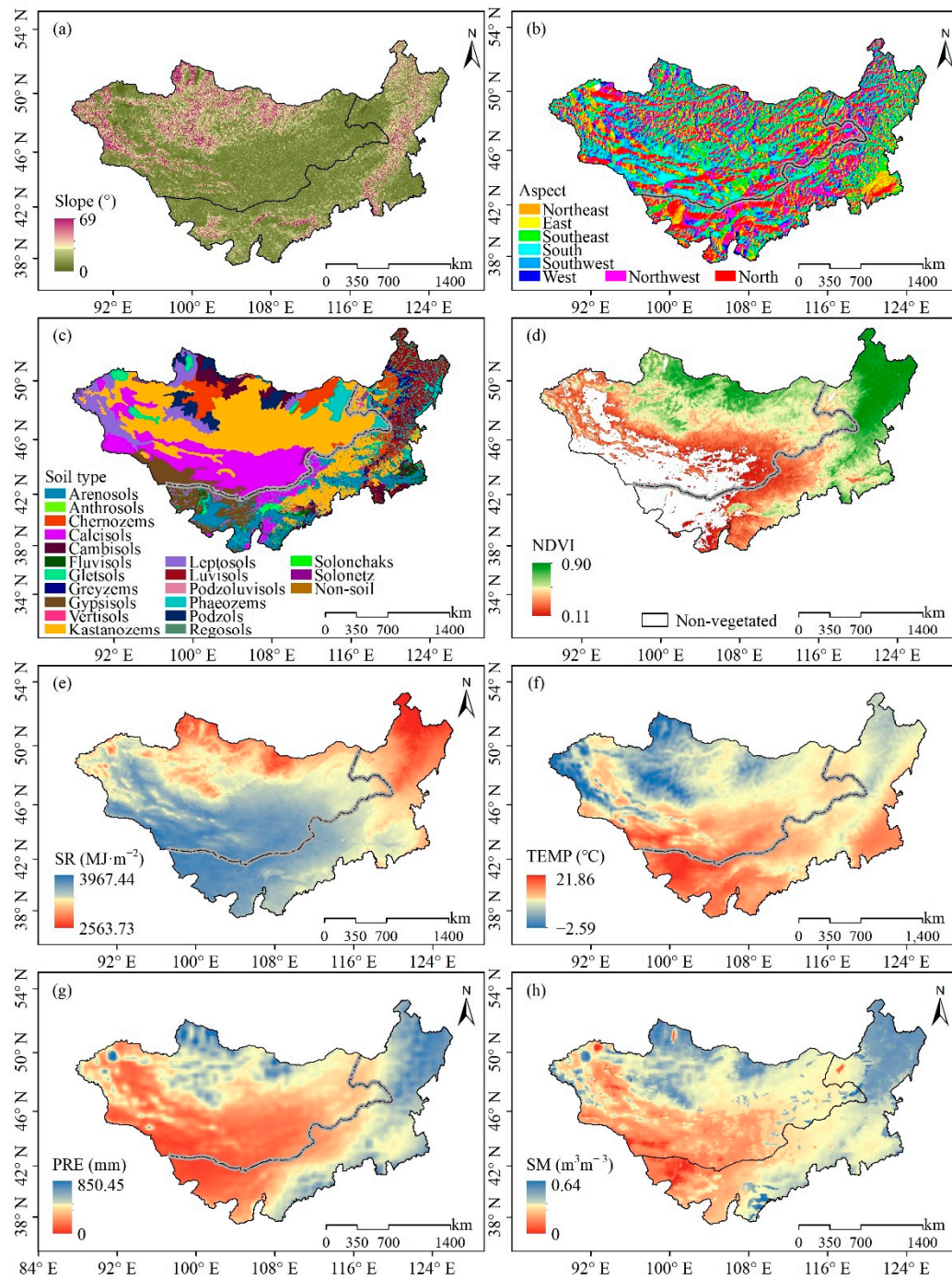


Figure S1. The spatial distribution of different environmental factors in the Mongolian Plateau (MP).

Note: precipitation (PRE), temperature (TEMP), soil moisture (SM), solar radiation (SR), and normalized difference vegetation index (NDVI).

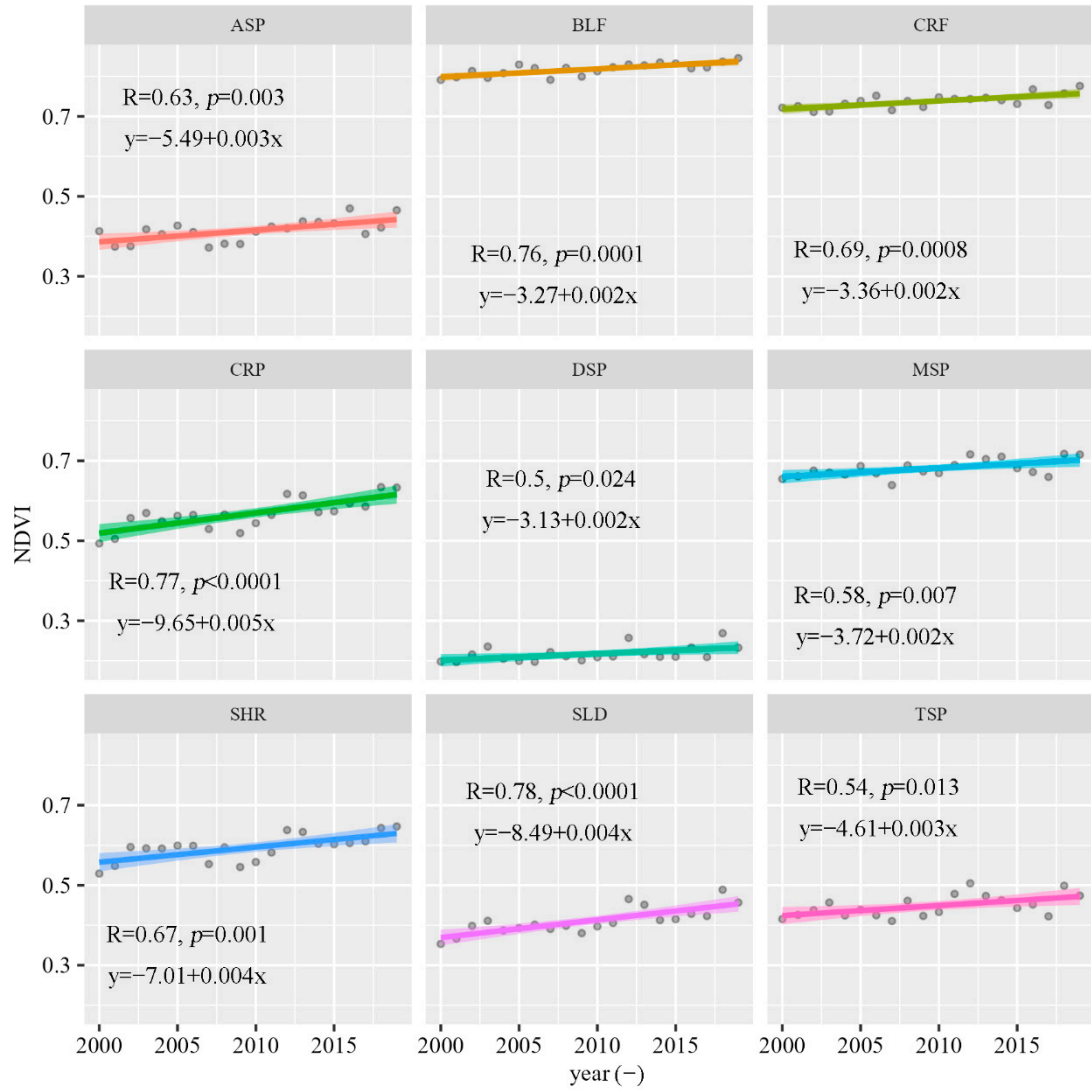


Figure S2. Long-term (2000–2019) NDVI trends for different vegetation types in the MP: alpine steppe (ASP), broad-leaved forest (BLF), coniferous forest (CRF), cropland (CRP), desert steppe (DSP), meadow steppe (MSP), shrub (SHR), sandy land (SLD), typical steppe (TSP).

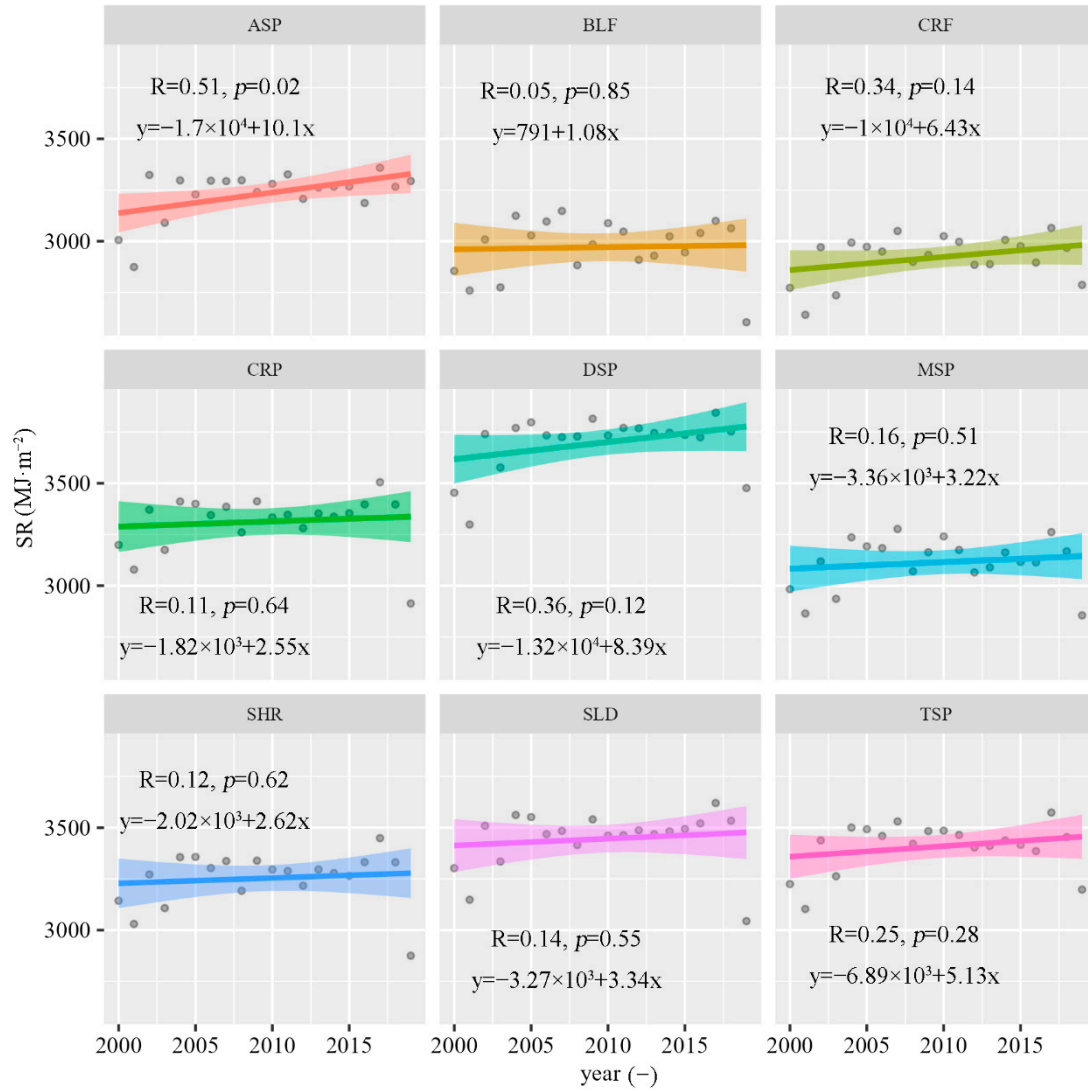


Figure S3. Long-term (2000–2019) trend of SR for different vegetation types in the MP.

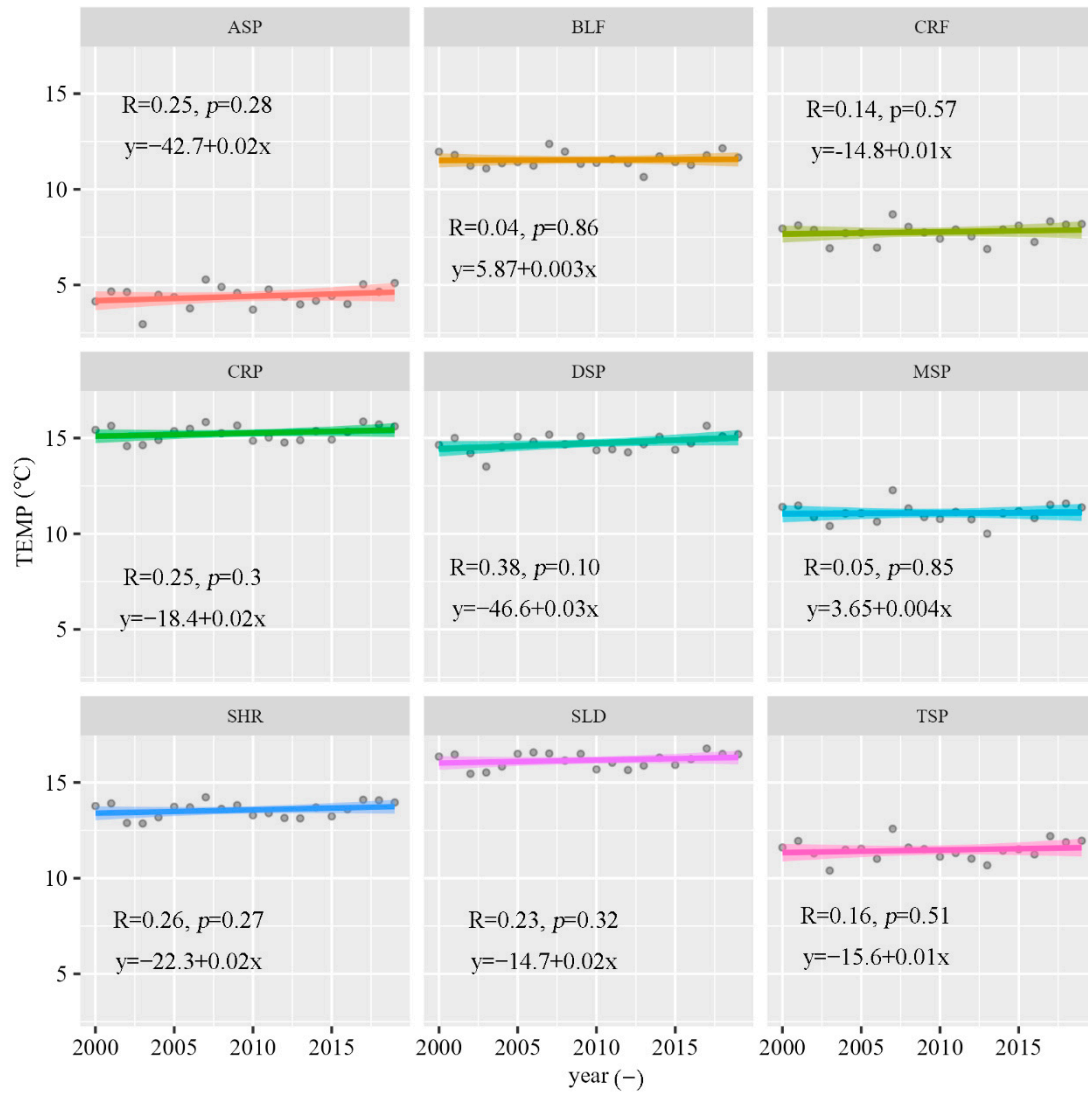


Figure S4. Long-term (2000–2019) trend of TEMP for different vegetation types in the MP.

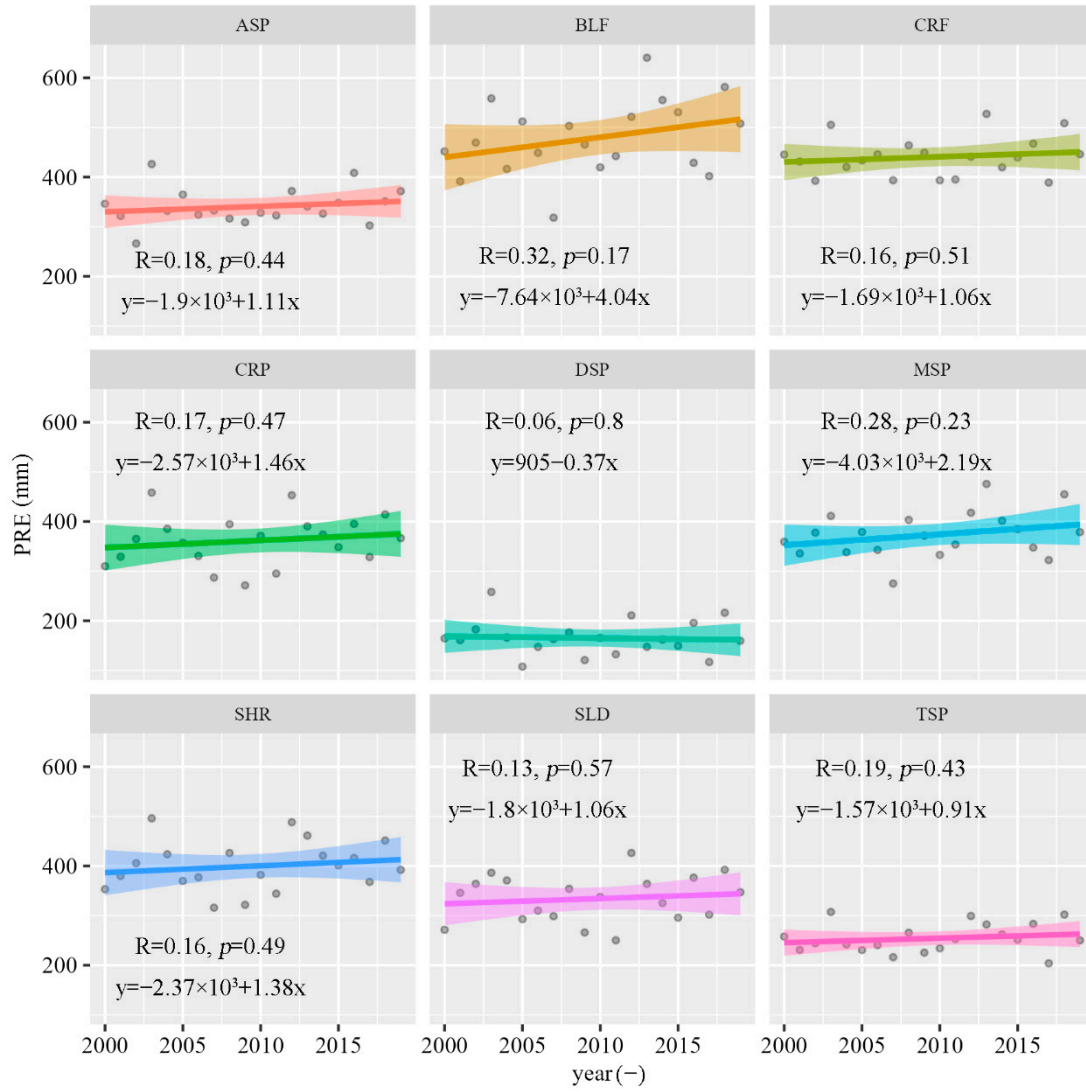


Figure S5. Long-term (2000–2019) trend of PRE for different vegetation types in the MP.

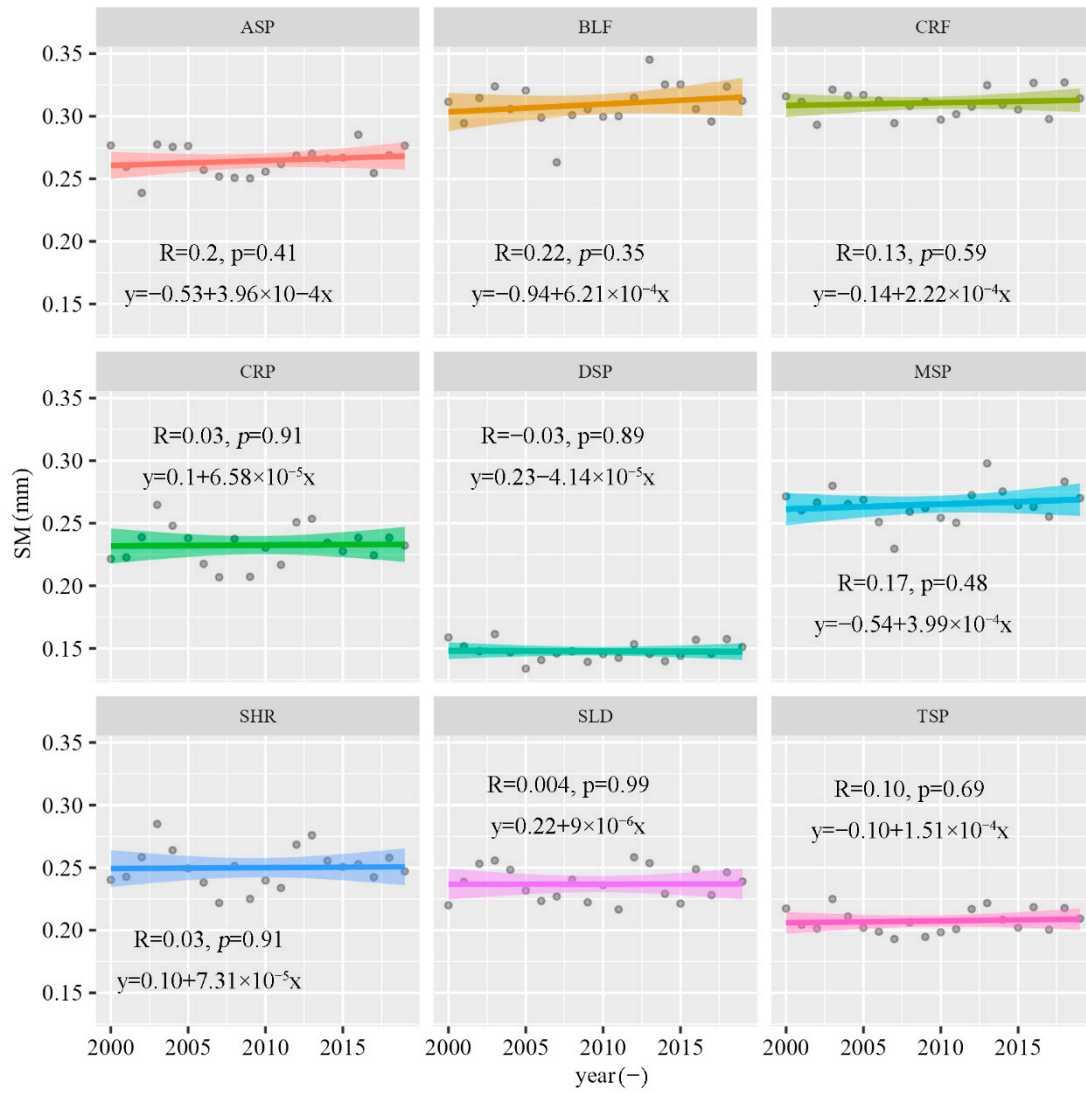


Figure S6. Long-term (2000–2019) trend of SM for different vegetation types in the MP.

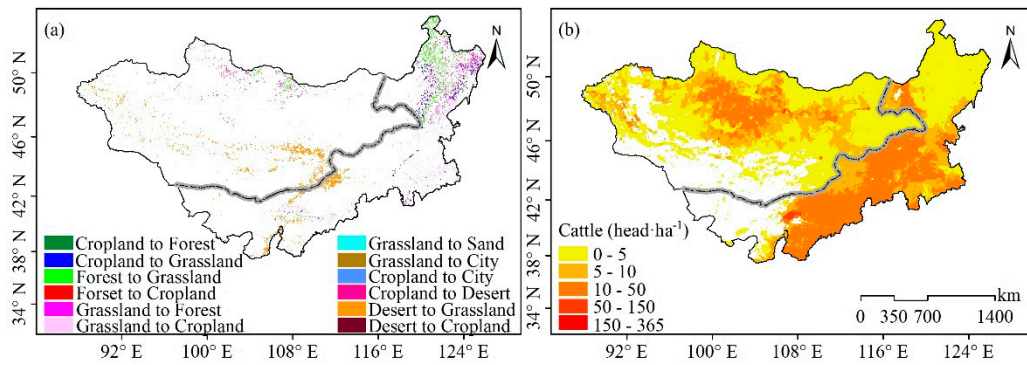


Figure S7. Distribution of land use type shift (a) and livestock population (b) in the MP.

Figure S7 Data source

MCD12Q1 vegetation classification data for 2000 and 2019 (with spatial and temporal resolution of 500 m·year⁻¹ (accessed on 8 August 2022), gathered by the International

Geosphere-Biosphere Programme (IGBP), were selected and redivided into five types, i.e., forest, grassland, cropland, city and sandy land, to reflect the change in direction of the plateau's land-cover types. Using the biomass density data for cattle, horse, sheep and goats published in 2010 by the Livestock System of the Food and Agriculture Organization of the United Nations (UN FAO, <https://data.apps.fao.org/> (accessed on 8 August 2022), the distribution data of grazing activities were analyzed and their spatial resolution was found to be 0.08°.