**Table S1** List of all the following references used in the meta-analysis

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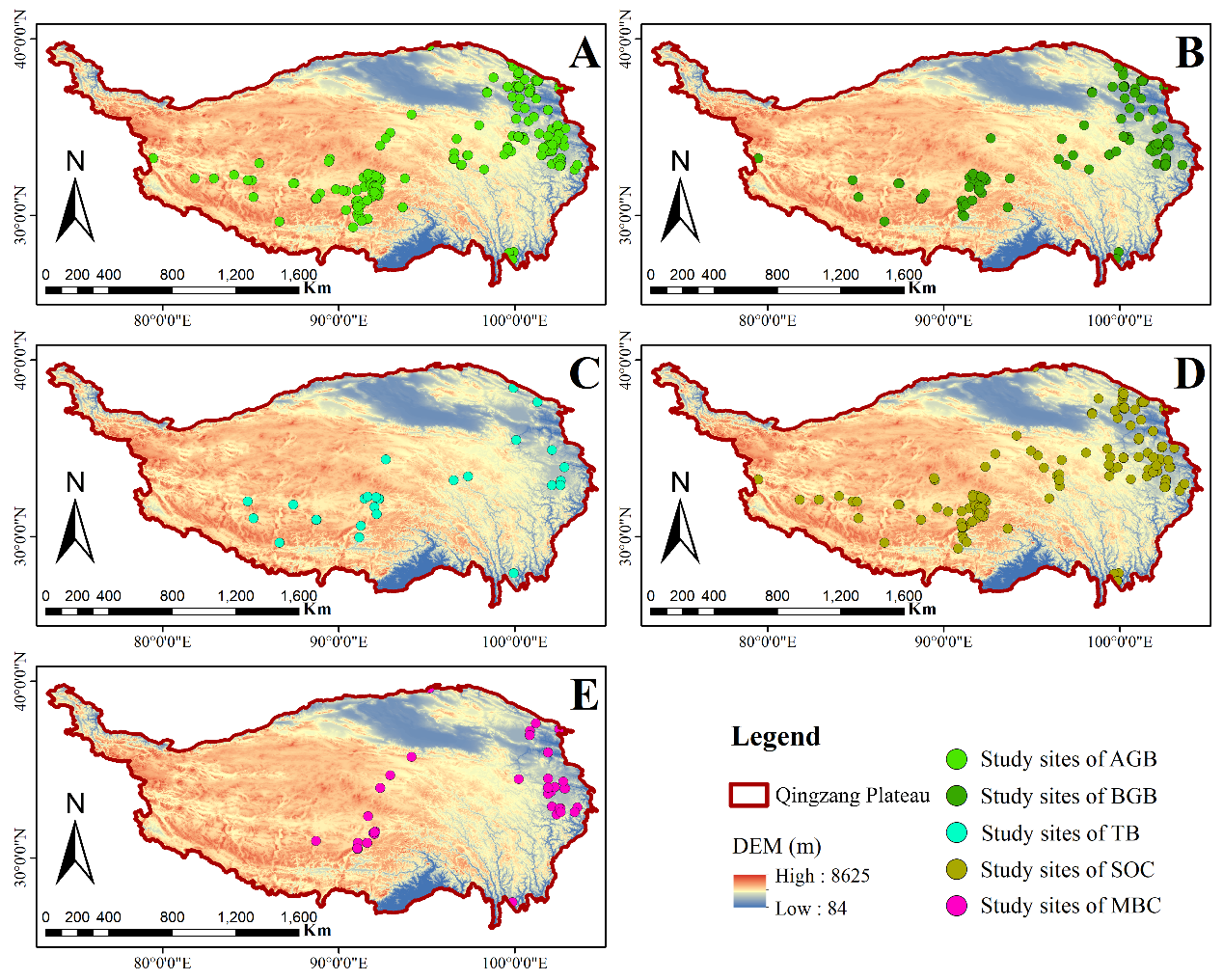
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**Table S2** The effects of annual mean temperature (AMT) and annual mean precipitation (AMP) on ΔCSFI in different grazing exclusion (GE) duration. Explanation degree (*R*2) and significant level (*P*) were estimated by general linear model (GLM).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Ecosystem  type | GE duration  (year) |  | AMP | |  | AMT | |
|  | *R*2 | *P* |  | *R*2 | *P* |
| Alpine  meadow | 1 |  | 0.05 | 0.34 |  | 0.03 | 0.44 |
| 2 |  | 0.04 | 0.27 |  | 0.02 | 0.44 |
|  | 3 |  | 0.001 | 0.87 |  | 0.03 | 0.38 |
|  | 4 |  | 0.24 | 0.003 |  | 0.06 | 0.16 |
|  | 5 |  | 0.38 | 0.04 |  | 0.38 | 0.04 |
|  | 6 |  | 0.34 | 0.001 |  | 0.13 | 0.05 |
|  | 7 |  | 0.02 | 0.41 |  | 0.04 | 0.23 |
|  | 8 |  | 0.03 | 0.53 |  | 0.004 | 0.82 |
|  | 9 |  | 0.34 | 0.002 |  | 0.40 | 0.001 |
|  | 10 |  | 0.33 | 0.005 |  | 0.28 | 0.01 |
|  | 11 |  | 0.61 | 0.003 |  | 0.56 | 0.005 |
| Alpine  steppe | 2 |  | 0.35 | 0.29 |  | 0.35 | 0.29 |
| 3 |  | 0.60 | 0.07 |  | 0.60 | 0.07 |



**Fig. S1** The location of study sites on the Qingzang Plateau. Graph (A), (B), (C), (D), and (E) contains aboveground biomass (AGB), belowground biomass (BGB), total biomass (TB), soil organic carbon (SOC), and microbial biomass carbon (MBC), respectively.