Dear Zhaoguo Wang,

We would like to thank you for the thoughtful and valuable comments and suggestions on our manuscript entitled “Excess radiation exacerbates drought stress impacts on stomatal conductance along aridity gradients” (bg-2022-50). We have carefully revised our manuscript to take account of your comments and suggestions. Meanwhile, we have rephrased our manuscript title as “Excess radiation exacerbates drought stress impacts on canopy conductance along aridity gradients”. Here are the point-to-point responses (responses in upright Roman in black front) to the comments (original queries in Italic in blue front). The changed figures and tables are presented in the Appendix 1 and Appendix 2 (listed at the end of the “Response to community comment #2”).

Specific comments:

1) There are expressions like “drought”, “dryness”, “low soil moisture” and “soil moisture stress” in this manuscript. I don’t think these have the same meaning. Please check and use it properly. Similarly, this manuscript focused on gs, but sometimes there are expressions like “canopy gs”.
Response: Thank you very much for your comment. We have replaced “dryness” with “drought”, and “soil moisture stress” with “low soil moisture” throughout the manuscript. Meanwhile, we used gs to present stomatal conductance at leaf level, and Gs to present canopy conductance.

2) I think hypothesis should be based on the information provided in the introduction. In terms of the hypothesis 2 “excess solar radiation and low temperatures will result in differences in gs among transects”, I don’t understand how low temperatures will affect gs according to the information in introduction.

Response: Thank you very much for your comment. We respond to this comment from three aspects.

(1) We clarified that “However, previous studies showed that the direction and intensity of solar radiation and temperature on gs strongly depend on their distribution range and the relationship with aridity. For example, the response of gs to solar radiation and temperature generally shows an increasing trend up to optimum values (Xu et al. 2021), while excess radiation (Costa et al. 2015; Doupis et al. 2020; Zeuthen et al. 1997) and high temperature associated high VPD or low SM (Seneviratne et al. 2010) would suppress gs.”

(2) We added the basic climatic context for the three grassland transect in the last paragraph of “1 Instruction” section: “The grassland transect span gradients of precipitation, SM, VPD, solar radiation, and temperature, provide an ideal platform for exploration of interactive effects of multiple stressors and biotic factors on Gs (Table S1). In addition, the three grassland transects experienced with different soil radiation and temperature conditions at a given aridity, due to the difference in the geographical location of the three plateaus. The order of mean annual temperature and solar radiation is LP>MP>TP and LP<MP<TP, respectively.”

(3) We rephrased the second hypothesis as: “high solar radiation and low temperatures will jointly suppress Gs at a given aridity among transects.”

3) The last paragraph should be the last but one paragraph or in the methods.

Response: This paragraph has been revised and removed to section “2.2.3 Stable isotope analysis”: “Given that leaf δ¹⁸O at species level was affected by the leaf water evaporation process, variability in gs should show up in leaf δ¹⁸O (Barbour 2007; Barbour & Farquhar 2000; Farquhar et al. 1998). Negative relationship between △¹⁸O and gs has been observed at species (Barbour & Farquhar 2000; Cabrera-Bosquet et al. 2011; Grams et al.
2007; Moreno-Gutierrez et al. 2012) and canopy scales (Cabrera et al. 2021; Hirl et al. 2021), and among communities along soil (Ramirez et al. 2009) and climatic (Keitel et al. 2006) gradients. Consequently, we selected $1/\Delta^{18}O$ was used as a proxy for $g_s$ in this study.

4) There may be interspecific difference in $g_s$, so information on plant species and species composition of the three study sites should be provided.

The species, genera and families of species occurred in each community have been listed in "Supplementary 2" (Please see Appendix 2).

5) The headline of the first part in the discussion should be changed, because the patterns of $g_s$ among the tree transects are similar, but differ in magnitude. In addition, the authors attribute this difference to the temperature-induced changes in photosynthesis, which I don't agree. Indeed, $g_s$ and photosynthesis are closely correlated, for example, to maximize carbon gain and minimize water loss according to the optimal stomatal behaviour. However, in my opinion, the correlation between $g_s$ and photosynthesis is regulated by stomatal behaviour.

Response: Thank you very much for your comment. We respond this comment from two aspects.

(1) The headline has been change as: “4.3 Differences in canopy conductance among transects”.

(2) The effects of VPD, solar radiation and temperature on the differences in canopy conductance among transects have been rephrased as: “

Significant differences in community $1/\Delta^{18}O$ were found among transects, and the order of $G_s$ at a given aridity value was LP > MP > TP (Fig.2a). Among transects, only differences in VPD, solar radiation and temperature were significant (P>0.05) (Fig.1 and Fig.S1). In general, plants decrease their $g_s$ to respond to increasing VPD (Grossiord et al. 2020). While, intercept of linear regression between aridity and community $1/\Delta^{18}O$ decreased with decreasing VPD among transects (P>0.05) (Fig.3a). It indicated that the difference in VPD was not a contributor to the difference in $G_s$ among transects.

We attribute the differences in $G_s$ among transects to the direct effects of solar radiation and temperature on $G_s$ and photosynthesis (Yu et al. 2002). This is inconsistent with the results within transect. High solar radiation exhibited negative effect on intercept of linear regression between aridity and community $1/\Delta^{18}O$ among transects (P<0.05) (Fig.3b).
Excess ultraviolet-B radiation (Duan et al. 2008), insufficient thermal dissipation, and enhanced photorespiration under high solar radiation (Cui et al. 2003) can decrease photosynthesis, ultimately reducing \( g_s \). For example, Yu et al. (2012) observed that photosynthesis of wheat at leaf level on the TP was lower than that on North China Plain due to the high solar radiation.

Transect with low temperature exhibited low intercept of linear regression between aridity and community \( 1/\Delta^{18}O \) (Fig.3c), it indicated that \( G_s \) among transects also inhibited by low temperature. Generally, photosynthesis and \( G_s \) increased with temperature below optimum temperature (Xu et al. 2021). For example, photosynthesis of wheat was lower in a cold than in a warm environment (Yu et al. 2002). 

6) line 25 delete "at leaf level".

Response: Change has been done.

7) line 24 change “in one” and “in the other” into (1) and (2), respectively.

Response: Change has been made.

8) I suggest that “interaction effects” may be changed into “interactive effects”.

Response: Change has been made.
Appendix 1

Figure 1. Comparison of aridity (a), growing season precipitation (b), soil moisture (SM) (c), vapor pressure deficit (VPD) (d), solar radiation (SR) (e), temperature (f), maximum temperature (Temp$_{max}$) (g), and community leaf area (h) and specific leaf area (SLA) (i) among transects. LP: Loess Plateau; MP, Inner Mongolia Plateau; TP, Tibet Plateau. Lowercase letters indicate significant differences among transects (P<0.05). Error bars indicate standard error of the mean.

Figure 2. Patterns of 1/□$^{18}$O (a) along aridity gradient within transects, and among (b) transects. Different letters indicate significant differences (P < 0.001) among transects and grassland types. □$^{18}$O, $^{18}$O enrichment of leaf organic matter above source water; LP, Loess Plateau; MP, Inner Mongolia Plateau; TP, Tibet Plateau.
Figure 3. Patterns of the intercept obtained from standardized major axis analysis (SMA) among transects. VPD, vapor pressure deficit; SR, solar radiation; Temp_{max}, maximum temperature. LP, Loess Plateau; MP, Inner Mongolia Plateau; TP, Tibet Plateau. Shaded area represents the 95% confidence interval of the SMA intercept.

Figure 4. Structural equation models of abiotic factors explaining 1/□^{18}O in Loess Plateau (LP) (a), Inner Mongolia Plateau (MP) (b) and Tibet Plateau (TP) (c). □^{18}O, ^{18}O enrichment of leaf organic matter above source water; Temp_{max}: maximum temperature; SR, solar radiation; SM, soil moisture; VPD, vapor pressure deficit. Solid and dashed arrows represent significant and non-significant relationships in a fitted SEM, respectively. ***, P<0.001; **, P<0.01; *, P<0.05.

Figure 5. Structural equation models of abiotic and biotic factors explaining 1/□^{18}O in Loess Plateau (LP) (a), Inner Mongolia Plateau (MP) (b) and Tibet Plateau (TP) (c). □^{18}O, ^{18}O enrichment of leaf organic matter above source water; Temp_{max}: maximum temperature; SR, solar radiation; SM, soil moisture; VPD, vapor pressure deficit. LA, log-transformed leaf area; SLA, log-transformed specific leaf area. Solid and dashed arrows represent significant and non-significant relationships in a fitted SEM, respectively. ***, P<0.001; **, P<0.01; *, P<0.05.

Table 1 Pearson’s coefficients among community 1/□^{18}O and environmental factors and plant properties.
|                | Loess Plateau | Inner Mongolia Plateau | Tibet Plateau |
|----------------|---------------|------------------------|--------------|
| Aridity        | -0.848**     | -0.843**               | -0.773**     |
| SM             | 0.719*       | 0.707*                 | 0.659*       |
| VPD            | -0.554       | -0.384                 | -0.912**     |
| SR             | -0.639*      | -0.728*                | -0.850**     |
| $\text{Temp}_{\text{mean}}$ | 0.641*     | 0.303                  | -0.670*      |
| $\text{Temp}_{\text{max}}$ | 0.678*     | 0.038                  | -0.852**     |
| LA             | 0.757*       | 0.913**                | 0.610        |
| SLA            | -0.519       | -0.576                 | -0.648*      |

**, P<0.01; *, P<0.05. SM, soil moisture; VPD, vapor pressure deficit; SR, total solar radiation; $\text{Temp}_{\text{mean}}$, mean temperature; $\text{Temp}_{\text{max}}$, maximum temperature; LA, log-transformed leaf area; SLA, log-transformed specific leaf area.
Table S1 Geographic and climatic information, $\delta^{18}$O of precipitation, and community $\Delta^{18}$O for sampling sites in Loess (LP), Inner Mongolia (MP), and Tibetan (TP), Plateau.

| Site  | Longitude (°E) | Latitude (°N) | Elevation (m) | Aridity | Temperature (℃) | Max Temperature (℃) | Precipitation (mm) | Solar Radiation (kJ m$^{-2}$ day$^{-1}$) | VPD (kPa) | SM (m$^3$ m$^{-3}$) | $\delta^{18}$O$_{P}$ (‰) | $\Delta^{18}$O (‰) |
|-------|----------------|---------------|---------------|---------|-----------------|----------------------|-------------------|------------------------------------------|----------|-----------------|-------------------|-----------------|
| LP01  | 113.3          | 36.29         | 804           | 0.57    | 11.85           | 18.19                | 29.6              | 599                                      | 546      | 12.95           | 15.60             | 4.78            |
|       | 6              |               |               |         |                 |                      |                   |                                          |          |                 |                   |                 |
| LP02  | 112.2          | 35.99         | 894           | 0.60    | 9.96            | 17.60                | 29.2              | 549                                      | 501      | 13.31           | 16.04             | 3.57            |
|       | 9              |               |               |         |                 |                      |                   |                                          |          |                 |                   |                 |
| LP03  | 111.6          | 35.99         | 833           | 0.64    | 10.66           | 18.61                | 30                | 520                                      | 475      | 12.69           | 15.65             | 4.04            |
|       | 4              |               |               |         |                 |                      |                   |                                          |          |                 |                   |                 |
| LP04  | 110.1          | 36.07         | 966           | 0.63    | 10.72           | 18.03                | 29.9              | 519                                      | 478      | 14.25           | 17.02             | 4.52            |
|       | 8              |               |               |         |                 |                      |                   |                                          |          |                 |                   |                 |
|   | LP05 | LP06 | LP07 | LP08 | LP09 | LP10 |
|---|------|------|------|------|------|------|
|   | 109.2 | 107.9 | 107.1 | 105.7 | 104.9 | 104.4 |
|   | 36.74 | 36.93 | 37.58 | 37.42 | 37.44 | 37.46 |
|   | 1268  | 1383  | 1535  | 1293  | 1378  | 1714  |
|   | 0.65  | 0.68  | 0.75  | 0.85  | 0.87  | 0.87  |
|   | 9.50  | 7.46  | 5.23  | 5.87  | 7.56  | 7.71  |
|   | 16.99 | 15.71 | 15.61 | 16.94 | 16.50 | 15.31 |
|   | 28.7  | 27.8  | 27.6  | 28.8  | 28.1  | 26.8  |
|   | 492   | 424   | 340   | 222   | 196   | 189   |
|   | 458   | 394   | 311   | 211   | 183   | 179   |
|   | 15.34 | 15.32 | 15.62 | 15.53 | 15.49 | 15.56 |
|   | 18.28 | 18.31 | 18.97 | 18.95 | 18.74 | 18.77 |
|   | 4.13  | 2.53  | 1.88  | 2.01  | 3.99  | 4.75  |

Trend  

|   | Trend | Trend | Trend | Trend | Trend | Trend | Trend | Trend | Trend |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   | 0.009 | 0.035 | 0.024 | <0.00 | <0.00 | 0.012 | 0.005 | 0.445 |
|   | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| Gene  | Length | Width | Height | B   | C   | D   | E   | F   | G   | H   | I   | J   |
|-------|--------|-------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| NM01  | 123.5  | 44.59 | 144    | 0.68| 5.10| 16.60| 29.6 | 425 | 410 | 13.67| 17.28| 1.11|
| NM02  | 121.0  | 44.52 | 269    | 0.73| 5.80| 16.66| 30   | 393 | 378 | 14.73| 18.44| 2.56|
| NM03  | 120.3  | 45.11 | 660    | 0.71| 3.72| 13.60| 27.4 | 387 | 372 | 14.94| 18.81| 2.30|
| NM04  | 118.3  | 44.77 | 1019   | 0.71| 0.56| 12.03| 26.2 | 345 | 320 | 15.09| 19.20| 1.11|
| NM05  | 116.5  | 44.26 | 1129   | 0.77| 1.17| 12.27| 26.2 | 283 | 267 | 15.21| 19.35| 1.53|
| NM06  | 116.6  | 43.55 | 1272   | 0.73| 0.16| 11.74| 25.4 | 321 | 304 | 15.34| 19.31| 1.03|
| NM07  | 117.6  | 44.51 | 1024   | 0.73| 1.96| 12.10| 26.3 | 319 | 298 | 14.88| 18.99| 1.70|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| NM08| 114.8 | 44.01 | 1101 | 0.83 | 0.10 | 12.94 | 27.4 | 228 | 219 | 15.36 | 19.53 | 1.33 |
| NM09| 113.5 | 43.84 | 1022 | 0.86 | 2.47 | 14.20 | 28.3 | 199 | 199 | 15.59 | 19.76 | 2.49 |
| NM10| 112.1 | 43.63 | 955  | 0.88 | 3.69 | 14.87 | 30.1 | 183 | 169 | 15.35 | 19.57 | 2.96 |

Trend

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 0.626 | 0.995 | 0.450 | <0.00 | <0.00 | 0.026 | 0.018 | 0.104 | 1 | 1 |

| TP01| 95.45 | 31.46 | 4104 | 0.40 | 0.41 | 5.70 | 17.2 | 606 | 572 | 17.76 | 19.94 | 1.71 |
| TP02| 93.53 | 31.85 | 4509 | 0.37 | -1.50 | 3.14 | 15.4 | 593 | 560 | 17.57 | 20.02 | 1.72 |
| TP03| 92.01 | 31.64 | 4587 | 0.61 | -4.37 | 4.40 | 17   | 430 | 414 | 18.62 | 20.91 | 1.06 |
|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| TP04 | 90.74 | 31.38 | 4617 | 0.65 | -6.76 | 5.89 | 17.8 | 426 | 414 | 18.99 | 21.41 | 0.34 |
| TP05 | 89.72 | 31.54 | 4588 | 0.67 | -3.06 | 6.93 | 19.2 | 426 | 412 | 18.80 | 21.27 | 1.51 |
| TP06 | 87.82 | 31.87 | 4570 | 0.79 | -2.57 | 6.77 | 19.2 | 286 | 261 | 19.27 | 22.01 | 2.18 |
| TP07 | 85.84 | 31.92 | 4938 | 0.90 | -3.77 | 3.74 | 17.6 | 125 | 95 | 19.28 | 22.22 | 2.49 |
| TP08 | 83.34 | 32.41 | 4578 | 0.94 | -3.90 | 5.71 | 20.1 | 75 | 62 | 18.99 | 22.08 | 2.32 |
| TP09 | 81.23 | 32.30 | 4558 | 0.92 | -3.49 | 5.29 | 19.3 | 102 | 89 | 19.41 | 22.50 | 2.37 |
| TP10 | 80.15 | 32.48 | 4328 | 0.93 | -1.27 | 6.73 | 21.5 | 89 | 78 | 19.86 | 23.12 | 3.10 |
Table S2 Differences in climatic variables among three transects.

| Transect | Period | Mean | Standard deviation | Minimum | Maximum | P value |
|----------|--------|------|--------------------|---------|---------|---------|
| Aridity  | LP     | 0.71 | 0.12               | 0.57    | 0.87    | 0.693   |
|          | MP     | 0.76 | 0.07               | 0.68    | 0.88    |         |
|          | TP     | 0.72 | 0.21               | 0.37    | 0.94    |         |
| Precipitation | LP Year | 405 | 157 | 189 | 599 | 0.329 |
|          | MP     | 308 | 84 | 183 | 425 |         |
|   | TP  | 316 | 208 | 75  | 606 |
|---|-----|-----|-----|-----|-----|
| LP | Growing | 374 | 141 | 179 | 546 | 0.408 |
|   |       |     |     |     |     | season |
| MP | 293 | 82  | 169 | 410 |
| TP | 296 | 204 | 62  | 572 |

| Soil | LP | Growing | 0.12 | 0.03 | 0.07 | 0.17 | 0.148 |
|------|----|---------|------|------|------|------|-------|
|      | MP | 0.11    | 0.04 | 0.06 | 0.17 |
|      | TP | 0.15    | 0.06 | 0.07 | 0.26 |

| Vapor | LP | Year | 3.62a | 1.10 | 1.88 | 4.78 | <0.001 |
|-------|----|------|-------|------|------|------|-------|
|       |    |      |       |      |      |      | Pressure |
|       |    |      |       |      |      |      | deficit |
|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| **MP** | 1.81b | 0.71 | 1.03 | 2.96 |
| **TP** | 1.88b | 0.79 | 0.34 | 3.10 |
| **LP** | Growing 8.11a | 0.91 | 6.44 | 9.44 | <0.001 |
| **Solar** | **LP** | **Year** | 14.61b | 1.19 | 12.69 | 15.62 | <0.001 |
| **MP** | 7.28a | 1.33 | 5.94 | 9.46 |
| **TP** | 4.51b | 1.39 | 2.17 | 6.33 |
| **LP** | Growing 17.63c | 1.41 | 15.60 | 18.97 | <0.001 |

*Note: The table represents various measurements and their corresponding values and p-values.*
|       | MP   | TP     | LP     | Growing | Maximum LP |
|-------|------|--------|--------|---------|------------|
| Mean  | 19.02b | 0.72   | 17.28  | 19.76   | 28.65a     |
| SE    | 1.04  | 1.04   | 0.10   | 5.80    | 1.06       |
| P     | <0.001| 0.41   | <0.001 | <0.001  | <0.001     |

**Temperature**

|       | Temperat | Year | 8.65c | 2.21 | 5.23 | 11.85 | <0.001 |
|-------|----------|------|-------|------|------|-------|--------|
| MP    | 2.47b    | 2.04 | 0.10  | 5.80 |
| TP    | -3.03a   | 1.96 | -6.76 | 0.41 |
| LP    | 16.95c   | 1.16 | 15.31 | 18.61 | <0.001 |
| Growing season |         |      |       |       |       |       |        |
| MP    | 13.70b   | 1.84 | 11.74 | 16.66 |
| TP    | 5.43a    | 1.30 | 3.14  | 6.93  |
### Table S3

Characteristics of leaf $\delta^{18}\text{O}$ and $\Delta^{18}\text{O}$ at species level for sampling sites in Loess (LP), Inner Mongolia (MP), and Tibetan (TP) Plateau.

| Sites      | Number | Leaf $\delta^{18}\text{O}$ | $\Delta^{18}\text{O}$ |
|------------|--------|-----------------------------|------------------------|
| Mean       | Max    | Min | STD |

LP: Loess Plateau; MP, Inner Mongolia Plateau; TP, Tibet Plateau. Lowercase letters indicate significant differences among transects ($P<0.05$).
|   |   |   |   |
|---|---|---|---|
| LP01 | 25 | 19.70 | 26.12 |
| LP02 | 33 | 22.72 | 28.13 |
| LP03 | 25 | 23.43 | 28.31 |
| LP04 | 28 | 22.84 | 31.46 |
| LP05 | 41 | 21.01 | 31.46 |
| LP06 | 33 | 20.90 | 30.01 |
| LP07 | 33 | 24.73 | 31.23 |
|   |   |   |   |
|---|---|---|---|
| LP08 | 19 | 27.43 | 32.96 |
| LP09 | 27 | 26.51 | 35.35 |
| LP10 | 15 | 25.73 | 32.68 |
| LP   | 279 | 22.69 | 35.35 |
| MP01 | 18 | 23.04 | 29.24 |
| MP02 | 37 | 23.48 | 28.73 |
| MP03 | 30 | 23.54 | 30.97 |
| MP04 | 17  | 22.85 | 28.10 |
|------|-----|-------|-------|
| MP05 | 13  | 26.54 | 31.73 |
| MP06 | 22  | 25.85 | 32.65 |
| MP07 | 15  | 24.03 | 27.40 |
| MP08 | 22  | 27.59 | 31.71 |
| MP09 | 17  | 28.23 | 31.56 |
| MP10 | 12  | 29.16 | 32.33 |
|   |   |   |   |
|---|---|---|---|
| MP | 203 | 25.07 | 32.65 |
| TP01 | 59 | 18.45 | 27.91 |
| TP02 | 38 | 18.86 | 27.91 |
| TP03 | 15 | 18.63 | 25.90 |
| TP04 | 19 | 20.28 | 25.90 |
| TP05 | 19 | 19.72 | 25.90 |
| TP06 | 13 | 19.38 | 25.24 |
| Code   | Value | Reactivity | 30.95 |
|--------|-------|------------|-------|
| TP07   | 21    | 20.06      | 30.81 |
| TP08   | 9     | 23.88      | 26.37 |
| TP09   | 9     | 24.62      | 29.61 |
| TP10   | 3     | 29.09      | 30.95 |
| TP     | 205   | 19.72      | 30.95 |
| Three Plateau | 687 | 22.69      | 35.35 |
Table S4 Results of standardized major axis (SMA) line-fitting for the relationship between canopy stomatal conductance (using 1/\(\delta^{18}\)O as proxy) and aridity.

| Region               | Intercept | slope  | \(r^2\) | P     |
|----------------------|-----------|--------|---------|-------|
| Loess Plateau Estimate | 0.047     | -0.196 | 0.68    | 0.003 |
| Lower                | 0.043     | -0.027 |         |       |
| Upper                | 0.052     | -0.014 |         |       |
| Inner Mongolia Estimate | 0.044     | -0.020 | 0.72    | 0.002 |
Plateau

|          | Lower | Upper |
|----------|-------|-------|
|          | 0.040 | -0.027|
|          | 0.049 | -0.014|

Tibet Plateau

| Estim ate | Lower | Upper |
|-----------|-------|-------|
| 0.038     | 0.034 | 0.042 |

Different letters indicate significant differences (P < 0.001) among transects in intercepts and slopes.

Table S5 Pearson coefficients for correlations among canopy stomatal conductance (Gs) and environmental factors and plant properties.

| Transect | Variables | Gs | Aridity | Precipitation | VPD | SR | MAT | MATMAX | SLA |
|----------|-----------|----|---------|---------------|-----|----|-----|--------|-----|
|          |           |    |         |               |     |    |     |        |     |
|          |           |    |         |               |     |    |     |        |     |
Loess  Gs  1
Plateau

Aridity  1
  0.848**

Precipitation 0.856** -.997** 1

SM  0.719** -.781** .795** 1

VPD  -0.554  0.616  -0.563  -0.251  1

SR  -0.639** 0.810** -.827** -.851** 0.217  1

T mean  0.641* -0.665*.710* .766** 0.074 -.849** 1

T max  0.678* -0.698*.737* .751* -0.026 -.795** .980** 1

LA  .757* -.881** .863** 0.567 -.751* -.637* 0.425  0.481  1

SLA  -.519  0.460  -.454  -.499  0.356  0.422  -.433  -.483  -.533  1
Inner Mongolia Plateau

Aridity -.843** 1

Precipitation.919** -.945** 1

SM .707* -.941** .877** 1

VPD -0.384 .736* -0.490 -.741* 1

SR -.728* .725* -.846** -.751* 0.196 1

T 0.303 -0.002 0.298 -0.009 .647** -0.615 1

T emp mean

T 0.038 0.270 0.018 -0.235 .814** -0.386 .943** 1

emp max

LA .913** -.721* .875** 0.625 -0.218 -.731* 0.434 0.189 1

SLA -0.576 .803** -0.627 -.681* .849** 0.310 0.397 0.628 -0.410 1
| Variable | Value 1 | Value 2 | Value 3 | Value 4 | Value 5 | Value 6 | Value 7 |
|----------|---------|---------|---------|---------|---------|---------|---------|
| Aridity  | -0.773**|         |         |         |         |         |         |
| Precipitation | 0.675* | -0.978***|         |         |         |         |         |
| SM       | 0.659*  | -0.787**| 0.795**|         |         |         |         |
| VPD      | -0.912**| 0.931**| -0.868**| -0.820**|         |         |         |
| SR       | -0.850**| 0.963**| -0.936**| -0.801**| 0.943**|         |         |
| Temp     | -0.670* | 0.325   | -0.189 | -0.454  | 0.622   | 0.393   |         |
| Temp max | -0.852**| 0.795**| -0.740*| -0.795**| 0.935**| 0.832**| 0.760*  |
| LA       | 0.610   | -0.620  | 0.504  | 0.219   | -0.624  | -0.658*| -0.401  | -0.536  |
| SLA      | -0.648* | 0.558   | -0.486 | -0.779**| 0.715**| 0.516  | 0.724**| 0.729**| -0.078  |

**Note:** The table represents correlation coefficients between different variables, with significance levels indicated by asterisks: `*` for 0.05 significance level, `**` for 0.01 significance level. The variables include different measurements and indices, such as Aridity, Precipitation, SM, VPD, SR, Temp, Temp max, LA, and SLA, along with their respective correlation coefficients and significance levels.
***, P<0.01; *, P<0.05. gs, stomatal conductance; SM, soil moisture; VPD, vapor pressure deficit; SR, total solar radiation; Temp_{mean}, mean temperature; Temp_{max}, maximum temperature; LA, log-transformed leaf area; SLA, log-transformed specific leaf area.

Figure S1. Comparison of annual mean precipitation (mm) (a), vapor pressure deficit (VPD) (b), total solar radiation (TSR) (c), and air temperature (℃) (d) among three transects. LP: Loess Plateau; MP, Inner Mongolia Plateau; TP, Tibet Plateau. Lowercase letters indicate significant differences among transects (P<0.05). Error bars indicate standard error of the mean.

Figure S2. Patterns of leaf δ^{18}O and △^{18}O at species level along aridity gradient in Loess (LP), Inner Mongolia (MP), and Tibetan (TP), Plateau. m, slope of the linear regression; b, intercept of the linear regression.

Figure S3. Hypothetical structural equation models of abiotic factors explaining 1/△^{18}O in Loess Plateau (LP) (a), Inner Mongolia Plateau (MP) (b) and Tibet Plateau (TP) (c). △^{18}O, △^{18}O enrichment of leaf organic matter above source water; Temp_{max}, maximum temperature; SR, solar radiation; SM, soil moisture; VPD, vapor pressure deficit.

Figure S4. Hypothetical structural equation models of abiotic and biotic factors explaining 1/△^{18}O in Loess Plateau (LP) (a), Inner Mongolia Plateau (MP) (b) and Tibet Plateau (TP) (c). △^{18}O, △^{18}O enrichment of leaf organic matter above source water; Temp_{max}, maximum temperature; SR, solar radiation; SM, soil moisture; VPD, vapor pressure deficit. LA, log-transformed leaf area; SLA, log-transformed specific leaf area.

Figure S5. Relationship between community 1/△^{18}O and log-transformed leaf area (LA) (a) and specific leaf area (SLA) (b).

Appendix 2 Information of coexisting species in each community in Loess Plateau (LP), Inner Mongolia Plateau (MP), and Tibet Plateau (TP).

| Transect | Site       | Species | Genus | Family |
|----------|------------|---------|-------|--------|
|          |            |         |       |        |
|   |   | Scientific Name       | Genus  | Family       |
|---|---|-----------------------|--------|-------------|
| LP | 1 | Allium tenuissimum    | Allium | Amaryllidaceae |
| LP | 1 | Artemisia annua       | Artemisia | Compositae |
| LP | 1 | Artemisia scoparia    | Artemisia | Compositae |
| LP | 1 | Bothriochloa ischaemum| Bothriochloa | Poaceae |
| LP | 1 | Carex korshinskyi     | Carex  | Cyperaceae |
| LP | 1 | Cirsium arvense       | Cirsium | Compositae |
| LP | 1 | Cleistogenes hackelli | Cleistogenes | Poaceae |
| LP | 1 | Cynanchum thesioides  | Cynanchum | Apocynaceae |
| LP | 1 | Erigeron canadensis   | Erigeron | Compositae |
| LP | 1 | Heteropappus altaicus | Heteropappus | Compositae |
| LP | 1 | Lespedeza bicolor | Lespedeza | Fabaceae |
| LP | 1 | Leymus chinensis | Leymus | Poaceae |
| LP | 1 | Medicago ruthenica | Medicago | Fabaceae |
| LP | 1 | Polygala tenuifolia | Polygala | Polygalaceae |
| LP | 1 | Rubia cordifolia | Rubia | Rubiaceae |
| LP | 1 | Salix gordejevii | Salix | Salicaceae |
| LP | 1 | Ulmus pumila | Ulmus | Ulmaceae |
| LP | 1 | Vicia amoena | Vicia | Fabaceae |
| LP | 1 | Viola philippica | Viola | Violaceae |
| LP | 1 | Youngia japonica | Youngia | Compositae |
| LP | 1 | Ziziphus jujuba | Ziziphus | Rhamnaceae |
| LP | 1 | Scrophulariaceae |
| LP | 2 | Heteropappus altaicus | Heteropappus | Compositae |
| LP | 2 | Agropyron cristatum | Agropyron | Poaceae |
| LP | 2 | Anemone chinensis | Anemone | Ranunculaceae |
| LP | 2 | Artemisia lavandulifolia | Artemisia | Asteraceae |
| LP | 2 | Astragalus scaberrimus | Astragalus | Fabaceae |
| LP | 2 | Bothriochloa ischaemum | Bothriochloa | Poaceae |
| LP | 2 | Caragana sinica | Caragana | Fabaceae |
| LP | 2 | Carex korshinskyi | Carex | Cyperaceae |
| LP | 2 | Cleistogenes hackelii | Cleistogenes | Poaceae |
| LP | 2 | Cleistogenes songorica | Cleistogenes | Poaceae |
| LP | 2 | Dianthus chinensis | Dianthus | Caryophyllaceae |
| LP | 2 | Echinops sphaerocephalus | Echinops | Compositae |
| LP | 2 | Gueldenstaedtia verna | Gueldenstaedtia | Fabaceae |
| LP | 2 | Incarvillea sinensis | Incarvillea | Bignoniaceae |
| LP | 2 | Lespedeza davurica | Lespedeza | Fabaceae |
| LP | 2 | Lespedeza juncea | Lespedeza | Fabaceae |
| LP | 2 | Patrinia scabiosifolia | Patrinia | Caprifoliaceae |
| LP | 2 | Periploca sepium | Periploca | Apocynaceae |
| LP | 2 | Plantago depressa | Plantago | Plantaginaceae |
|   |   | Scientific Name | Common Name | Family |
|---|---|----------------|-------------|--------|
| LP | 2 | Poa annua | Poa | Poaceae |
| LP | 2 | Polygala tenuifolia | Polygala | Polygalaceae |
| LP | 2 | Potentilla supina | Potentilla | Rosaceae |
| LP | 2 | Rosa xanthina | Rosa | Rosaceae |
| LP | 2 | Rubia cordifolia | Rubia | Rubiaceae |
| LP | 2 | Saussurea japonica | Saussurea | Compositae |
| LP | 2 | Scorzonera sinensis | Scorzonera | Compositae |
| LP | 2 | Setaria viridis | Setaria | Poaceae |
| LP | 2 | Themeda triandra | Themeda | Poaceae |
| LP | 2 | Thymus mongolicus | Thymus | Lamiaceae |
| LP | 2 | Tripolium | Tripolium | Compositae |
| Code | Number | Scientific Name                  | Common Name | Scientific Family |
|------|--------|----------------------------------|-------------|-------------------|
| LP   | 2      | *Viola philippica*              | Viola       | Violaceae         |
| LP   | 2      | *Ziziphus jujuba*               | Ziziphus    | Rhamnaceae        |
| LP   | 3      | *Agropyron cristatum*           | Agropyron   | Poaceae           |
| LP   | 3      | *Artemisia leucophylla*         | Artemisia   | Compositae        |
| LP   | 3      | *Astragalus scaberrimus*        | Astragalus  | Fabaceae          |
| LP   | 3      | *Bothriochloa ischaemum*        | Bothriochloa| Poaceae           |
| LP   | 3      | *Bupleurum chinense*            | Bupleurum   | Apiaceae          |
| LP   | 3      | *Carex korshinskyi*             | Carex       | Cyperaceae        |
| LP   | 3      | *Cleistogenes hackelii*         | Cleistogenes| Poaceae           |
| LP  |   | Common Name | Scientific Name | Family       |
|-----|---|-------------|-----------------|-------------|
| LP  | 3 | Cleistogenes songorica | Cleistogenes songorica | Poaceae     |
| LP  | 3 | Echinops sphaerocephalus | Echinops sphaerocephalus | Compositae |
| LP  | 3 | Heteropappus altaicus | Heteropappus altaicus | Compositae |
| LP  | 3 | Lespedeza davurica | Lespedeza davurica | Fabaceae    |
| LP  | 3 | Poa annua | Poa annua | Poaceae    |
| LP  | 3 | Poa sphondylodes | Poa sphondylodes | Poaceae    |
| LP  | 3 | Polygala tenuifolia | Polygala tenuifolia | Polygalaceae |
| LP  | 3 | Potentilla discolor | Potentilla discolor | Rosaceae    |
| LP  | 3 | Potentilla tanacetifolia | Potentilla tanacetifolia | Rosaceae |
| LP  | 3 | Selaginella tamariscina | Selaginella tamariscina | Selaginellaceae |
| LP | 3 | Serratula centauroides | Serratula | Compositae |
| LP | 3 | Stipa sibirica | Stipa | Poaceae |
| LP | 3 | Themeda triandra | Themeda | Poaceae |
| LP | 3 | Tripolium pannonicum | Tripolium | Compositae |
| LP | 3 | Viola philippica | Viola | Violaceae |
| LP | 3 | Vitex negundo | Vitex | Lamiaceae |
| LP | 3 | Wikstroemia chamaedaphne | Wikstroemia | Thymelaeaceae |
| LP | 3 | Ziziphus jujuba | Ziziphus | Rhamnaceae |
| LP | 4 | Agropyron cristatum | Agropyron | Poaceae |
| LP | 4 | Agropyron desertorum | Agropyron | Poaceae |
| LP | 4 | Artemisia annua | Artemisia | Compositae |
| LP | 4 | Artemisia argyi  | Artemisia  | Compositae |
| LP | 4 | Artemisia argyi  | Artemisia  | Compositae |
| LP | 4 | Artemisia  
dalailamae | Artemisia  | Compositae |
| LP | 4 | Astragalus  
melilotoides | Astragalus  | Fabaceae |
| LP | 4 | Astragalus  
scaberrimus | Astragalus  | Fabaceae |
| LP | 4 | Bothriochloa  
ischaemum | Bothriochloa  | Poaceae |
| LP | 4 | Carex korshinskyi  | Carex  | Cyperaceae |
| LP | 4 | Cleistogenes  
hackelii | Cleistogenes  | Poaceae |
| LP | 4 | Gueldenstaedtia  
verna | Gueldenstaedtia  | Fabaceae |
| LP | 4 | Heteropappus  
altaicus | Heteropappus  | Compositae |
|   |   | Scientific Name | Genus | Family     |
|---|---|-----------------|-------|-----------|
| LP | 4 | Ixeris polycephala | Ixeris | Compositae |
| LP | 4 | Lespedeza bicolor | Lespedeza | Fabaceae |
| LP | 4 | Poa annua | Poa | Poaceae |
| LP | 4 | Polygala sibirica | Polygala | Polygalaceae |
| LP | 4 | Polygala tenuifolia | Polygala | Polygalaceae |
| LP | 4 | Potentilla discolor | Potentilla | Rosaceae |
| LP | 4 | Potentilla tanacetifolia | Potentilla | Rosaceae |
| LP | 4 | Rosa xanthina | Rosa | Rosaceae |
| LP | 4 | Scorzonera sinensis | Scorzonera | Compositae |
| LP | 4 | Vicia amoena | Vicia | Fabaceae |
| LP | 4 | Viola philippica | Viola | Violaceae |
| Page | Line | Species Name | Genus   | Family   |
|------|------|--------------|---------|----------|
| 4    |      | Wikstroemia  | Wikstroemia | Thymelaeaceae |
|      |      | chamaedaphne |         |          |
| 4    |      | Yulania      | Yulania | Magnoliaceae |
|      |      | denudata     |         |          |
| 4    |      | Ziziphus     | Ziziphus | Rhamnaceae |
|      |      | jujuba       |         |          |
| 5    |      | Artemisia    | Artemisia | Compositae |
|      |      | annua        |         |          |
| 5    |      | Artemisia    | Artemisia | Compositae |
|      |      | argyi        |         |          |
| 5    |      | Artemisia    | Artemisia | Compositae |
|      |      | frigida      |         |          |
| 5    |      | Artemisia    | Artemisia | Compositae |
|      |      | japonica     |         |          |
| 5    |      | Artemisia    | Artemisia | Compositae |
|      |      | scoparia     |         |          |
| 5    |      | Astragalus    | Astragalus | Fabaceae  |
|      |      | scaberrimus  |         |          |
| 5    |      | Bothriochloa | Bothriochloa | Poaceae  |
|      |      | ischaemum    |         |          |
|   |   | Scientific Name | Genus   | Family   |
|---|---|----------------|---------|----------|
| LP | 5 | Caragana microphylla | Caragana | Fabaceae |
| LP | 5 | Carduus nutans | Carduus | Compositae |
| LP | 5 | Cirsium arvense | Cirsium | Compositae |
| LP | 5 | Cleistogenes hackelii | Cleistogenes | Poaceae |
| LP | 5 | Cleistogenes serotina | Cleistogenes | Poaceae |
| LP | 5 | Cynanchum thesioides | Cynanchum | Apocynaceae |
| LP | 5 | Dracocephalum moldavica | Dracocephalum | Lamiaceae |
| LP | 5 | Eragrostis pilosa | Eragrostis | Poaceae |
| LP | 5 | Erigeron annuus | Erigeron | Compositae |
| LP | 5 | Glycyrrhiza uralensis | Glycyrrhiza | Fabaceae |
| LP   | 5                  | Gueldenstaedtia verna | Gueldenstaedtia Fabaceae |
|------|--------------------|-----------------------|-------------------------|
| LP   | 5                  | Incarvillea sinensis  | Incarvillea Bignoniaceae|
| LP   | 5                  | Ixeris polycephala    | Ixeris Compositae       |
| LP   | 5                  | Kalimeris hispida     | Kalimeris Compositae    |
| LP   | 5                  | Koeleria pyramidata   | Koeleria Poaceae        |
| LP   | 5                  | Lespedeza davurica    | Lespedeza Fabaceae      |
| LP   | 5                  | Lespedeza juncea      | Lespedeza Fabaceae      |
| LP   | 5                  | Leymus chinensis      | Leymus Poaceae          |
| LP   | 5                  | Oxytropis myriophylla | Oxytropis Fabaceae      |
| LP   | 5                  | Poa annua             | Poa Poaceae             |
| LP | 5 | Poa sphyndyloides | Poa | Poaceae |
| LP | 5 | Polygala sibirica | Polygala | Polygalaceae |
| LP | 5 | Potentilla supina | Potentilla | Rosaceae |
| LP | 5 | Potentilla tanacetifolia | Potentilla | Rosaceae |
| LP | 5 | Rubia cordifolia | Rubia | Rubiaceae |
| LP | 5 | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| LP | 5 | Sonchus arvensis | Sonchus | Compositae |
| LP | 5 | Taraxacum mongolicum | Taraxacum | Compositae |
| LP | 5 | Tripolium pannonicum | Tripolium | Compositae |
| LP | 5 | Viola philippica | Viola | Violaceae |
| LP | 5 | Ziziphus jujuba | Ziziphus | Rhamnaceae |
| LP | 6 | Plant Name       | Genus   | Family       |
|----|----|------------------|---------|--------------|
|    |    | Allium senescens | Allium  | Liliaceae    |
|    |    | Anemone chinensis| Anemone | Ranunculaceae|
|    |    | Artemisia argyi  | Artemisia| Compositae   |
|    |    | Artemisia japonica| Artemisia| Compositae   |
|    |    | Astragalus scaberrimus| Astragalus| Fabaceae    |
|    |    | Carduus nutans   | Carduus | Compositae   |
|    |    | Cleistogenes hackelii| Cleistogenes| Poaceae   |
|    |    | Cleistogenes serotina| Cleistogenes| Poaceae   |
|    |    | Echinops sphaerocephalus| Echinops| Compositae |
|    |    | Elymus dahuricus  | Elymus  | Poaceae      |
| LP | 6 | Imperata cylindrica | Imperata | Poaceae |
| LP | 6 | Kalimeris hispida  | Kalimeris | Compositae |
| LP | 6 | Lappula myosotis | Lappula | Boraginaceae |
| LP | 6 | Leontopodium leontopodinum | Leontopodium | Compositae |
| LP | 6 | Lespedeza bicolor | Lespedeza | Fabaceae |
| LP | 6 | Linum usitatissimum | Linum | Linaceae |
| LP | 6 | Medicago ruthenica | Medicago | Fabaceae |
| LP | 6 | Patrinia heterophylla | Patrinia | Caprifoliaceae |
| LP | 6 | Phlomoides umbrosa | Phlomoides | Lamiaceae |
| LP | 6 | Phragmites australis | Phragmites | Poaceae |
| LP | 6 | Poa sphondylodes Poa | Poaceae |
| LP | 6 | Polygala tenuifolia Polygala | Polygalaceae |
| LP | 6 | Potentilla chinensis Potentilla | Rosaceae |
| LP | 6 | Potentilla sericea Potentilla | Rosaceae |
| LP | 6 | Ranunculus japonicus Ranunculus | Ranunculaceae |
| LP | 6 | Rubia cordifolia Rubia | Rubiaceae |
| LP | 6 | Setaria viridis Setaria | Poaceae |
| LP | 6 | Sibbaldianthe bifurca Sibbaldianthe | Rosaceae |
| LP | 6 | Sonchus arvensis Sonchus | Compositae |
| LP | 6 | Stipa bungeana Stipa | Poaceae |
| LP | 6 | Stipa capillata Stipa | Poaceae |
| LP | 6 | Taraxacum mongolicum | Taraxacum | Compositae |
| LP | 6 | Tripolium pannonicum | Tripolium | Compositae |
| LP | 7 | Agropyron cristatum | Agropyron | Poaceae |
| LP | 7 | Artemisia argyi | Artemisia | Compositae |
| LP | 7 | Artemisia scoparia | Artemisia | Compositae |
| LP | 7 | Astragalus adsurgens | Astragalus | Fabaceae |
| LP | 7 | Astragalus galactites | Astragalus | Fabaceae |
| LP | 7 | Astragalus melilotoides | Astragalus | Fabaceae |
| LP | 7 | Astragalus propinquus | Astragalus | Fabaceae |
|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| **LP** |    | **Bassia scoparia** | **Bassia** | **Amaranthaceae** |
| **LP** | 7   | **Carex korshinskyi** | **Carex** | **Cyperaceae** |
| **LP** | 7   | **Cleistogenes hackelii** | **Cleistogenes** | **Poaceae** |
| **LP** | 7   | **Cleistogenes songorica** | **Cleistogenes** | **Poaceae** |
| **LP** | 7   | **Convolvulus arvensis** | **Convolvulus** | **Convolvulaceae** |
| **LP** | 7   | **Gueldenstaedtia verna** | **Gueldenstaedtia** | **Fabaceae** |
| **LP** | 7   | **Haplophyllum dauricum** | **Haplophyllum** | **Rutaceae** |
| **LP** | 7   | **Heteropappus altaicus** | **Heteropappus** | **Compositae** |
| **LP** | 7   | **Ixeris polycephalaIkeris** | **Ikeris** | **Compositae** |
| **LP** | 7   | **Koeleria pyramidata** | **Koeleria** | **Poaceae** |
|   |   | Scientific Name | Genus | Family   |
|---|---|----------------|-------|---------|
| LP| 7 | Lespedeza bicolor | Lespedeza | Fabaceae |
| LP| 7 | Leymus chinensis | Leymus | Poaceae |
| LP| 7 | Medicago ruthenica | Medicago | Fabaceae |
| LP| 7 | Medicago sativa | Medicago | Fabaceae |
| LP| 7 | Melilotus albus | Melilotus | Leguminosae |
| LP| 7 | Polygonum sibiricum | Polygonum | Polygonaceae |
| LP| 7 | Scorzonera sinensis | Scorzonera | Compositae |
| LP| 7 | Setaria viridis | Setaria | Poaceae |
| LP| 7 | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| LP| 7 | Sonchus arvensis | Sonchus | Compositae |
| LP| 7 | Stipa capillata | Stipa | Poaceae |
| Page | No | Common Name | Genus     | Family          |
|------|----|-------------|-----------|-----------------|
| 7    |    | Stipa splendens | Stipa     | Poaceae         |
| 7    |    | Suaeda glauca   | Suaeda    | Amaranthaceae   |
| 7    |    | Taraxacum mongolicum | Taraxacum | Compositae     |
| 7    |    | Thermopsis lanceolata | Thermopsis | Fabaceae        |
| 8    |    | Allium tenuissimum | Allium     | Amaryllidaceae  |
| 8    |    | Alopecurus aequalis | Alopecurus | Poaceae         |
| 8    |    | Artemisia scoparia | Artemisia | Compositae     |
| 8    |    | Astragalus galactites | Astragalus | Fabaceae       |
| 8    |    | Astragalus propinquis | Astragalus | Fabaceae       |
| 8    |    | Bassia dasyphylla | Bassia    | Amaranthaceae   |
| Species Name               | Genus       | Family          |
|---------------------------|-------------|-----------------|
| Carex korshinskyi         | Carex       | Cyperaceae      |
| Cleistogenes hackelii     | Cleistogenes| Poaceae         |
| Convolvulus ammannii      | Convolvulus | Convolvulaceae  |
| Echinochloa crus-galli    | Echinochloa | Poaceae         |
| Eragrostis pilosa         | Eragrostis  | Poaceae         |
| Peganum harmala           | Peganum     | Nitrariaceae    |
| Reaumuria soongarica      | Reaumuria   | Tamaricaceae    |
| Stipa capillata           | Stipa       | Poaceae         |
| Tragus racemosus          | Tragus      | Poaceae         |
| Tribulus terrestris       | Tribulus    | Zygophyllaceae  |
| LP | 8 | Zygophyllum mucronatum | Zygophyllum | Zygophyllaceae |
| LP | 9 | Allium mongolicum | Allium | Amaryllidaceae |
| LP | 9 | Allium polyrhizum | Allium | Amaryllidaceae |
| LP | 9 | Artemisia annua | Artemisia | Compositae |
| LP | 9 | Artemisia argyi | Artemisia | Compositae |
| LP | 9 | Artemisia capillaris | Artemisia | Compositae |
| LP | 9 | Artemisia scoparia | Artemisia | Compositae |
| LP | 9 | Asparagus cochinchinensis | Asparagus | Asparagaceae |
| LP | 9 | Astragalus galactites | Astragalus | Fabaceae |
| LP | 9 | Caragana stenophylla | Caragana | Fabaceae |
| LP | 9  | Chloris virgata | Chloris | Poaceae |
|----|-----|-----------------|---------|---------|
| LP | 9  | Cleistogenes hackelii | Cleistogenes | Poaceae |
| LP | 9  | Convolvulus ammannii | Convolvulus | Convolvulaceae |
| LP | 9  | Convolvulus arvensis | Convolvulus | Convolvulaceae |
| LP | 9  | Convolvulus tragacanthoides | Convolvulus | Convolvulaceae |
| LP | 9  | Echinochloa crus-galli | Echinochloa | Poaceae |
| LP | 9  | Euphorbia humifusa | Euphorbia | Euphorbiaceae |
| LP | 9  | Heteropappus altaicus | Heteropappus | Compositae |
| LP | 9  | Reaumuria soongarica | Reaumuria | Tamaricaceae |
| LP | 9  | Salsola collina | Salsola | Amaranthaceae |
| LP | 9   | Salsola passerina | Salsola | Amaranthaceae |
| LP | 9   | Stipa capillata  | Stipa   | Poaceae       |
| LP | 9   | Suaeda glauca    | Suaeda   | Amaranthaceae |
| LP | 9   | Tribulus terrestris | Tribulus | Zygophyllaceae |
| LP | 9   | Zygophyllum mucronatum | Zygophyllum | Zygophyllaceae |
| LP | 10  | Heteropappus altaicus | Heteropappus | Compositae    |
| LP | 10  | Lepidium apetalum | Lepidium | Brassicaceae |
| LP | 10  | Saussurea japonica | Saussurea | Compositae    |
| LP | 10  | Alopecurus aequalis | Alopecurus | Poaceae       |
| LP | 10  | Artemisia ordosica | Artemisia | Compositae    |
|   |   | Species                      | Genus     | Family          |
|---|---|------------------------------|-----------|-----------------|
| LP| 10| Reaumuria soongarica        | Reaumuria | Tamaricaceae     |
| LP| 10| Eragrostis pilosa           | Eragrostis| Poaceae         |
| LP| 10| Allium polyrhizum           | Allium    | Amaryllidaceae  |
| LP| 10| Suaeda glauca               | Suaeda    | Amaranthaceae   |
| LP| 10| Alopecurus aequalis         | Alopecurus| Poaceae         |
| LP| 10| Chenopodium album           | Chenopodium| Amaranthaceae    |
| LP| 10| Carex korshinskyi          | Carex     | Cyperaceae      |
| LP| 10| Artemisia capillaris       | Artemisia | Compositae      |
| LP| 10| Salsola passerina          | Salsola   | Amaranthaceae   |
| LP| 10| Cleistogenes hackelii      | Cleistogenes| Poaceae       |
| MP | 1 | Heteropappus altaicus | Heteropappus | Compositae |
|----|----|-----------------------|--------------|------------|
| MP | 1 | Echinochloa crus-galli | Echinochloa | Poaceae    |
| MP | 1 | Setaria viridis | Setaria | Poaceae    |
| MP | 1 | Incarvillea sinensis | Incarvillea | Bignoniaceae |
| MP | 1 | Artemisia ordosica | Artemisia | Compositae |
| MP | 1 | Chloris virgata | Chloris | Poaceae    |
| MP | 1 | Chenopodium glaucum | Chenopodium | Amaranthaceae |
| MP | 1 | Bassia scoparia | Bassia | Amaranthaceae |
| MP | 1 | Lactuca sativa | Lactuca | Compositae |
| MP | 1 | Phragmites australis | Phragmites | Poaceae    |
| MP | 1 | Medicago sativa | Medicago | Fabaceae |
|----|----|-----------------|----------|----------|
| MP | 1 | Carex korshinskyi | Carex | Cyperaceae |
| MP | 1 | Calystegia pellita | Calystegia | Convolvulaceae |
| MP | 1 | Polygonum sibiricum | Polygonum | Polygonaceae |
| MP | 1 | Leymus chinensis | Leymus | Poaceae |
| MP | 1 | Artemisia sphaerocephala | Artemisia | Compositae |
| MP | 1 | Aeluropus littoralis | Aeluropus | Poaceae |
| MP | 1 | Medicago sativa | Medicago | Fabaceae |
| MP | 2 | Adenophora stricta | Adenophora | Campanulaceae |
| MP | 2 | Agropyron cristatum | Agropyron | Poaceae |
| MP | 2 | Allium | Allium | Amaryllidaceae |
| MP | 2  | Allium ramosum | Allium          | Amaryllidaceae       |
|----|-----|----------------|-----------------|----------------------|
| MP | 2  | Amethystea caerulea | Amethystea | Lamiaceae            |
| MP | 2  | Anemarrhena asphodeloides | Anemarrhena | Asparagaceae        |
| MP | 2  | Artemisia desertorum | Artemisia     | Compositae           |
| MP | 2  | Artemisia lavandulifolia | Artemisia    | Asteraceae           |
| MP | 2  | Artemisia sieversiana | Artemisia    | Compositae           |
| MP | 2  | Artemisia sphaerocephala | Artemisia    | Compositae           |
| MP | 2  | Atraphaxis manshurica | Atraphaxis   | Polygonaceae         |
| MP | 2  | Carex pediformis | Carex        | Cyperaceae           |
| MP | 2  | Chenopodium acuminatum | Chenopodium | Amaranthaceae |
| MP | 2  | Chloris virgata        | Chloris     | Poaceae       |
| MP | 2  | Cleistogenes hackelii  | Cleistogenes| Poaceae       |
| MP | 2  | Clematis hexapetala    | Clematis    | Ranunculaceae |
| MP | 2  | Corispermum mongolicum | Corispermum | Amaranthaceae |
| MP | 2  | Cynanchum thesioides   | Cynanchum   | Apocynaceae   |
| MP | 2  | Dysphania aristata     | Dysphania   | Amaranthaceae |
| MP | 2  | Enneapogon desvauxii   | Enneapogon  | Poaceae       |
| MP | 2  | Ephedra sinica         | Ephedra     | Ephedraceae   |
| MP | 2  | Erichloa villosa       | Erichloa    | Poaceae       |
| MP | 2  | Erodium stephanianum | Erodium | Geraniaceae |
| MP | 2  | Euphorbia humifusa    | Euphorbia | Euphorbiaceae |
| MP | 2  | Glycyrrhiza uralensis | Glycyrrhiza | Fabaceae |
| MP | 2  | Iris tenuifolia       | Iris      | Iridaceae |
| MP | 2  | Lespedeza davurica    | Lespedeza | Fabaceae |
| MP | 2  | Medicago ruthenica    | Medicago  | Fabaceae |
| MP | 2  | Phragmites australis  | Phragmites | Poaceae |
| MP | 2  | Salsola collina      | Salsola   | Amaranthaceae |
| MP | 2  | Serratula centauroides | Serratula | Compositae |
| MP | 2  | Setaria viridis       | Setaria   | Poaceae |
| MP | 2   | Stipa capillata  | Stipa | Poaceae |
| MP | 2   | Stipa sibirica   | Stipa | Poaceae |
| MP | 2   | Thalictrum squarrosum | Thalictrum | Ranunculaceae |
| MP | 2   | Tribulus terrestris  | Tribulus | Zygophyllaceae |
| MP | 3   | Allium tenuissimum  | Allium | Amaryllidaceae |
| MP | 3   | Anemarrhena asphodeloides | Anemarrhena | Asparagaceae |
| MP | 3   | Artemisia annua  | Artemisia | Compositae |
| MP | 3   | Artemisia lavandulifolia | Artemisia | Asteraceae |
| MP | 3   | Astragalus adsurgens  | Astragalus | Fabaceae |
| MP | 3   | Astragalus propinquus  | Astragalus | Fabaceae |
| MP | 3 | Carex korshinskyi | Carex | Cyperaceae |
| MP | 3 | Cleistogenes hackelii | Cleistogenes | Poaceae |
| MP | 3 | Convolvulus arvensis | Convolvulus | Convolvulaceae |
| MP | 3 | Eriochloa villosa | Eriochloa | Poaceae |
| MP | 3 | Erodium stephanianum | Erodium | Geraniaceae |
| MP | 3 | Euphorbia humifusa | Euphorbia | Euphorbiaceae |
| MP | 3 | Gerbera anandria | Gerbera | Compositae |
| MP | 3 | Heteropappus altaicus | Heteropappus | Compositae |
| MP | 3 | Leontopodium leontopodinum | Leontopodium | Compositae |
| MP | 3 | Lespedeza davurica | Lespedeza | Fabaceae |
| Code | Value | Common Name | Scientific Name | Family   |
|------|-------|-------------|----------------|----------|
| MP3  | 3     | Lespedeza juncea | Lespedeza       | Fabaceae |
| MP3  | 3     | Leymus chinensis | Leymus         | Poaceae  |
| MP3  | 3     | Linum stelleroides | Linum         | Linaceae |
| MP3  | 3     | Miscanthus sacchariflorus | Miscanthus | Poaceae  |
| MP3  | 3     | Polygala tenuifolia | Polygala       | Polygalaceae |
| MP3  | 3     | Polygonum divaricatum | Polygonum   | Polygonaceae |
| MP3  | 3     | Potentilla betonicifolia | Potentilla  | Rosaceae |
| MP3  | 3     | Potentilla verticillaris | Potentilla  | Rosaceae |
| MP3  | 3     | Salsola collina | Salsola       | Amaranthaceae |
| MP3  | 3     | Sanguisorba officinalis | Sanguisorba | Rosaceae |
| MP3  | 3     | Serratula | Serratula      | Compositae |
| MP | 3 | Stipa sibirica | Stipa | Poaceae |
|----|----|----------------|-------|---------|
| MP | 3 | Thalictrum petaloideum | Thalictrum | Ranunculaceae |
| MP | 4 | Agropyron cristatum | Agropyron | Poaceae |
| MP | 4 | Allium bidentatum | Allium | Amaryllidaceae |
| MP | 4 | Anemarrhena asphodeloides | Anemarrhena | Asparagaceae |
| MP | 4 | Bassia prostrata | Bassia | Amaranthaceae |
| MP | 4 | Carex korshinskyi | Carex | Cyperaceae |
| MP | 4 | Cleistogenes hackelii | Cleistogenes | Poaceae |
| MP | 4 | Dysphania aristata | Dysphania | Amaranthaceae |
| MP | 4 | Iris tenuifolia | Iris | Iridaceae |
| MP | 4 | Koeleria pyramidata | Koeleria | Poaceae |
| MP | 4 | Lappula myosotis | Lappula | Boraginaceae |
| MP | 4 | Leymus chinensis | Leymus | Poaceae |
| MP | 4 | Medicago ruthenica | Medicago | Fabaceae |
| MP | 4 | Potentilla acaulis | Potentilla | Rosaceae |
| MP | 4 | Salsola collina | Salsola | Amaranthaceae |
| MP | 4 | Scorzonera sinensis | Scorzonera | Compositae |
| MP | 4 | Stipa capillata | Stipa | Poaceae |
| MP | 4 | Veratrum nigrum | Veratrum | Melanthiaceae |
| MP | 5 | Allium anisopodium | Allium | Amaryllidaceae |
|   |   | Scientific Name | Genus      | Family    |
|---|---|----------------|------------|----------|
| MP | 5 | Agropyron cristatum | Agropyron | Poaceae |
| MP | 5 | Cymbaria daurica | Cymbaria | Orobanchaceae |
| MP | 5 | Chenopodium glaucum | Chenopodium | Amaranthaceae |
| MP | 5 | Chenopodium acuminatum | Chenopodium | Amaranthaceae |
| MP | 5 | Artemisia frigida | Artemisia | Compositae |
| MP | 5 | Bassia prostrata | Bassia | Amaranthaceae |
| MP | 5 | Carex korshinskyi | Carex | Cyperaceae |
| MP | 5 | Cleistogenes hackelii | Cleistogenes | Poaceae |
| MP | 5 | Allium tenuissimum | Allium | Amaryllidaceae |
| MP | 5 | Leymus chinensis | Leymus | Poaceae |
|     |  | Scientific Name       | Common Name | Family     |
|-----|---|-----------------------|-------------|------------|
| MP  | 5 | Stipa capillata       | Stipa       | Poaceae    |
| MP  | 5 | Salsola collina       | Salsola     | Amaranthaceae |
| MP  | 6 | Agropyron cristatum   | Agropyron   | Poaceae    |
| MP  | 6 | Cleistogenes squarrosa| Cleistogenes| Poaceae    |
| MP  | 6 | Ephedra sinica        | Ephedra     | Ephedraceae|
| MP  | 6 | Sibbaldianthe bifurca | Sibbaldianthe| Rosaceae |
| MP  | 6 | Allium condensatum    | Allium      | Amaryllidaceae |
| MP  | 6 | Artemisia annua       | Artemisia   | Compositae |
| MP  | 6 | Chenopodium glaucum   | Chenopodium | Amaranthaceae |
| MP  | 6 | Artemisia frigida     | Artemisia   | Compositae |
| MP  | 6 | Bassia prostrata      | Bassia      | Amaranthaceae |
| MP  | 6   | Thermopsis lanceolata | Thermopsis | Fabaceae |
|-----|-----|-----------------------|------------|----------|
| MP  | 6   | Koeleria pyramidata   | Koeleria   | Poaceae  |
| MP  | 6   | Gueldenstaedtia verna | Gueldenstaedtia | Fabaceae |
| MP  | 6   | Carex korshinskyi     | Carex      | Cyperaceae |
| MP  | 6   | Allium tenuissimum    | Allium     | Amaryllidaceae |
| MP  | 6   | Iris tenuifolia       | Iris       | Iridaceae |
| MP  | 6   | Leymus chinensis      | Leymus     | Poaceae  |
| MP  | 6   | Allium ramosum        | Allium     | Amaryllidaceae |
| MP  | 6   | Stipa sibirica        | Stipa      | Poaceae  |
| MP  | 6   | Poa annua             | Poa        | Poaceae  |
| MP | 6 | Stipa capillata | Stipa | Poaceae |
| MP | 6 | Axyris amaranthoides | Axyris | Amaranthaceae |
| MP | 6 | Salsola collina | Salsola | Amaranthaceae |
| MP | 7 | Agropyron cristatum | Agropyron | Poaceae |
| MP | 7 | Scutellaria scordiifolia | Scutellaria | Lamiaceae |
| MP | 7 | Astragalus melilotoides | Astragalus | Fabaceae |
| MP | 7 | Cymbaria daurica Cymbaria | | Oroboraceae |
| MP | 7 | Euphorbia fischeriana | Euphorbia | Euphorbiaceae |
| MP | 7 | Koeleria pyramidata | Koeleria | Poaceae |
| MP | 7 | Astragalus galactites | Astragalus | Fabaceae |
| MP | 7 | Allium bidentatum | Allium | Amaryllidaceae |
| MP | 7 | Carex korshinskyi | Carex | Cyperaceae |
| MP | 7 | Cleistogenes hackellii | Cleistogenes | Poaceae |
| MP | 7 | Allium tenuissimum | Allium | Amaryllidaceae |
| MP | 7 | Iris tenuifolia | Iris | Iridaceae |
| MP | 7 | Leymus chinensis | Leymus | Poaceae |
| MP | 7 | Stipa capillata | Stipa | Poaceae |
| MP | 7 | Anemarrhena asphodeloides | Anemarrhena | Asparagaceae |
| MP | 8 | Heteropappus altaicus | Heteropappus | Compositae |
| MP | 8 | Agropyron cristatum | Agropyron | Poaceae |
|     |     | Common Name | Scientific Name | Family       |
|-----|-----|-------------|-----------------|--------------|
| MP  | 8   | Cymbaria daurica | Cymbaria         | Orobancheae  |
| MP  | 8   | Artemisia annua | Artemisia       | Compositae   |
| MP  | 8   | Chenopodium acuminatum | Chenopodium | Amarantheae  |
| MP  | 8   | Allium polyrhizum | Allium          | Amaryllideae |
| MP  | 8   | Artemisia frigida | Artemisia       | Compositae   |
| MP  | 8   | Asparagus schoberioides | Asparagus      | Asparagaceae |
| MP  | 8   | Bassia prostrata | Bassia          | Amarantheae  |
| MP  | 8   | Astragalus galactites | Astragalus     | Fabaceae     |
| MP  | 8   | Allium bidentatum | Allium         | Amaryllideae |
| MP  | 8   | Carex korshinskyi | Carex           | Cyperaceae   |
| MP  | 8   | Cleistogenes hackelii | Cleistogenes  | Poaceae      |
| MP | Page | Common Name | Latin Name | Family       |
|----|------|-------------|------------|--------------|
| MP | 8    | Allium tenuissimum | Allium     | Amaryllidaceae |
| MP | 8    | Iris tenuifolia     | Iris       | Iridaceae    |
| MP | 8    | Leymus chinensis     | Leymus     | Poaceae      |
| MP | 8    | Allium ramosum       | Allium     | Amaryllidaceae |
| MP | 8    | Convolvulus ammannii | Convolvulus | Convolvulaceae |
| MP | 8    | Stipa capillata      | Stipa      | Poaceae      |
| MP | 8    | Neopallasia pectinata | Neopallasia | Compositae   |
| MP | 8    | Salsola collina      | Salsola    | Amaranthaceae |
| MP | 9    | Artemisia argyi       | Artemisia  | Compositae   |
| MP | 9    | Scorzonera sinensis   | Scorzonera | Compositae   |
| MP | 9 | Eragrostis pilosa | Eragrostis | Poaceae |
| MP | 9 | Tribulus terrestris | Tribulus | Zygophyllaceae |
| MP | 9 | Allium polyrhizum | Allium | Amaryllidaceae |
| MP | 9 | Asparagus schoberioides | Asparagus | Asparagaceae |
| MP | 9 | Peganum harmala | Peganum | Nitrariaceae |
| MP | 9 | Iris lactea | Iris | Iridaceae |
| MP | 9 | Corispermum mongolicum | Corispermum | Amaranthaceae |
| MP | 9 | Allium bidentatum | Allium | Amaryllidaceae |
| MP | 9 | Carex korshinskyi | Carex | Cyperaceae |
| MP | 9 | Cleistogenes songorica | Cleistogenes | Poaceae |
| MP | 9 | Caragana stenophylla | Caragana | Fabaceae |
|   |   | Scientific Name | Genus | Family       |
|---|---|----------------|--------|-------------|
| MP | 9 | Convolvulus ammannii | Convolvulus | Convolvulaceae |
| MP | 9 | Stipa capillata | Stipa | Poaceae |
| MP | 9 | Salsola collina | Salsola | Amaranthaceae |
| MP | 10 | Setaria viridis | Setaria | Poaceae |
| MP | 10 | Tribulus terrestris Tribulus | Tribulus | Zygophyllaceae |
| MP | 10 | Asparagus schoberioides | Asparagus | Asparagaceae |
| MP | 10 | Corispermum mongolicum | Corispermum | Amaranthaceae |
| MP | 10 | Allium bidentatum | Allium | Amaryllidaceae |
| MP | 10 | Carex korshinskyi Carex | Carex | Cyperaceae |
| MP | 10 | Cleistogenes songorica | Cleistogenes | Poaceae |
| Code | MP | 10 | Iris tenuifolia | Iris | Iridaceae |
|------|----|----|----------------|------|-----------|
|      | MP | 10 | Caragana stenophylla | Caragana | Fabaceae |
|      | MP | 10 | Stipa capillata | Stipa | Poaceae |
|      | MP | 10 | Salsola collina | Salsola | Amaranthaceae |
|      | TP | 1  | Allium przewalskianum | Allium | Amaryllidaceae |
|      | TP | 1  | Allium ramosum | Allium | Amaryllidaceae |
|      | TP | 1  | Anaphalis xylorhiza | Anaphalis | Compositae |
|      | TP | 1  | Androsace tapete | Androsace | Primulaceae |
|      | TP | 1  | Androsace umbellata | Androsace | Primulaceae |
|      | TP | 1  | Arenaria brevipetala | Arenaria | Caryophyllaceae |
| TP | 1 | Artemisia argyi | Artemisia | Compositae |
| TP | 1 | Aster tataricus | Aster | Compositae |
| TP | 1 | Astragalus propinquus | Astragalus | Fabaceae |
| TP | 1 | Calamagrostis lahulensis | Calamagrostis | Poaceae |
| TP | 1 | Caragana sinica | Caragana | Fabaceae |
| TP | 1 | Carex korshinskyi | Carex | Cyperaceae |
| TP | 1 | Chenopodium glaucum | Chenopodium | Amaranthaceae |
| TP | 1 | Elymus dahuricus | Elymus | Poaceae |
| TP | 1 | Eragrostis pilosa | Eragrostis | Poaceae |
| TP | 1 | Euphorbia stracheyi | Euphorbia | Euphorbiaceae |
| TP | 1 | Gentiana scabra | Gentiana | Gentianaceae |
| TP | 1 | Gentiana straminea | Gentiana | Gentianaceae |
| TP | 1 | Gentiana szechenyii | Gentiana | Gentianaceae |
| TP | 1 | Gentianopsis paludosa | Gentianopsis | Gentianaceae |
| TP | 1 | Geranium wilfordii | Geranium | Geraniaceae |
| TP | 1 | Gueldenstaedtia verna | Gueldenstaedtia | Fabaceae |
| TP | 1 | Gueldenstaedtia verna | Gueldenstaedtia | Fabaceae |
| TP | 1 | Heracleum hemsleyanum | Heracleum | Apiaceae |
| TP | 1 | Heteropappus altaicus | Heteropappus | Compositae |
| TP | 1 | Incarvillea sinensis | Incarvillea | Bignoniaceae |
| TP | 1 | Iris tectorum | Iris | Iridaceae |
| TP | 1 | Kobresia littledalei | Kobresia | Cyperaceae |
| TP | 1 | Leontopodium leontopodinum | Leontopodium | Compositae |
| TP | 1 | Phlomis younghusbandii | Phlomis | Lamiaceae |
| TP | 1 | Plantago depressa | Plantago | Plantaginaceae |
| TP | 1 | Poa annua | Poa | Poaceae |
| TP | 1 | Polygonum divaricatum | Polygonum | Polygonaceae |
| TP | 1 | Potentilla chinensis | Potentilla | Rosaceae |
| TP | 1 | Potentilla multifida | Potentilla | Rosaceae |
| TP | 1 | Potentilla saundersiana | Potentilla | Rosaceae |
| TP  | 1  | Przewalskia tangutica | Przewalskia | Solanaceae |
|-----|----|----------------------|-------------|------------|
| TP  | 1  | Scorzonera sinensis  | Scorzonera  | Compositae |
| TP  | 1  | Scrophularia ningpoensis | Scrophularia | Scrophulariaceae |
| TP  | 1  | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| TP  | 1  | Silene gallica       | Silene      | Caryophyllaceae |
| TP  | 1  | Stipa capillata    | Stipa       | Poaceae    |
| TP  | 1  | Stipa purpurea     | Stipa       | Poaceae    |
| TP  | 1  | Taraxacum mongolicum | Taraxacum | Compositae |
| TP  | 1  | Vicia amoena        | Vicia       | Fabaceae   |
| TP  | 2  | Anaphalis xylorhiza | Anaphalis   | Compositae |
| TP | 2 | Artemisia argyi | Artemisia | Compositae |
| TP | 2 | Aster souliei | Aster | Compositae |
| TP | 2 | Aster tataricus | Aster | Compositae |
| TP | 2 | Astragalus strictus | Astragalus | Fabaceae |
| TP | 2 | Carex korshinskyi | Carex | Cyperaceae |
| TP | 2 | Elsholtzia densa | Elsholtzia | Lamiaceae |
| TP | 2 | Eragrostis alta | Eragrostis | Poaceae |
| TP | 2 | Euphorbia fischeriana | Euphorbia | Euphorbiaceae |
| TP | 2 | Geranium wilfordii | Geranium | Geraniaceae |
| TP | 2 | Gueldenstaedtia verna | Gueldenstaedtia | Fabaceae |
| TP | 2 | Heracleum hemsleyanum | Heracleum | Apiaceae |
|----|----|------------------------|-----------|----------|
| TP | 2 | Kobresia pygmaea       | Kobresia  | Cyperaceae|
| TP | 2 | Lancea tibetica        | Lancea    | Phrymaceae|
| TP | 2 | Lasiocaryum densiflorum| Lasiocaryum| Boraginaceae|
| TP | 2 | Persicaria vivipara    | Persicaria| Polygonaceae|
| TP | 2 | Phlomoides rotata      | Phlomoides| Lamiaceae |
| TP | 2 | Poa annua              | Poa       | Poaceae  |
| TP | 2 | Polygonum sibiricum    | Polygonum | Polygonaceae|
| TP | 2 | Potentilla anserina     | Potentilla| Rosaceae |
| TP | 2 | Potentilla parvifolia   | Potentilla| Rosaceae |
| TP | 2 | Potentilla saundersiana | Potentilla | Rosaceae |
| TP | 2 | Przewalskia tangutica | Przewalskia | Solanaceae |
| TP | 2 | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| TP | 2 | Stipa capillata | Stipa | Poaceae |
| TP | 2 | Taraxacum mongolicum | Taraxacum | Compositae |
| TP | 2 | Urtica hyperborea | Urtica | Urticaceae |
| TP | 3 | Astragalus propinquus | Astragalus | Fabaceae |
| TP | 3 | Carex korshinskyi | Carex | Cyperaceae |
| TP | 3 | Eragrostis alta | Eragrostis | Poaceae |
| TP | 3 | Kobresia pygmaea | Kobresia | Cyperaceae |
| TP | 3 | Lancea tibetica | Lancea | Phrymaceae |
|----|----|----------------|--------|------------|
| TP | 3 | Leontopodium leontopodinum | Leontopodium | Compositae |
| TP | 3 | Poa annua | Poa | Poaceae |
| TP | 3 | Potentilla anserina | Potentilla | Rosaceae |
| TP | 3 | Potentilla saundersiana | Potentilla | Rosaceae |
| TP | 3 | Saussurea japonica | Saussurea | Compositae |
| TP | 3 | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| TP | 3 | Taraxacum mongolicum | Taraxacum | Compositae |
| TP | 4 | Astragalus arnoldii | Astragalus | Fabaceae |
| TP | 4 | Callianthemum pimpinelloides | Callianthemum | Ranunculaceae |
| TP | 4   | Scientific Name                  | Genus    | Family      |
|----|-----|----------------------------------|----------|------------|
| 1  |     | *Carex korshinskyi*              | Carex    | Cyperaceae |
| 2  |     | *Eragrostis alta*                | Eragrostis | Poaceae    |
| 3  |     | *Euphorbia fischeriana*          | Euphorbia | Euphorbiaceae |
| 4  |     | *Heteropappus boweri*            | Heteropappus | Compositae |
| 5  |     | *Kobresia pygmaea*               | Kobresia | Cyperaceae |
| 6  |     | *Leontopodium leontopodinum*     | Leontopodium | Compositae |
| 7  |     | *Oxytropis stracheyana*          | Oxytropis | Fabaceae   |
| 8  |     | **Pedicularis alaschanica**      | Pedicularis | Scrophulariaceae |
| 9  |     | *Poa setulosa*                   | Poa      | Poaceae    |
| 10 |     | *Przewalskia tangutica*          | Przewalskia | Solanaceae |
| TP | 4 | Rhodiola smithii | Rhodiola | Crassulaceae |
| TP | 4 | Saussurea japonica | Saussurea | Compositae |
| TP | 4 | Stipa capillata | Stipa | Poaceae |
| TP | 4 | Taraxacum mongolicum | Taraxacum | Compositae |
| TP | 5 | Arenaria edgeworthiana | Arenaria | Caryophyllaceae |
| TP | 5 | Astragalus adsurgens | Astragalus | Fabaceae |
| TP | 5 | Astragalus tribulifolius | Astragalus | Fabaceae |
| TP | 5 | Carex korshinskyi | Carex | Cyperaceae |
| TP | 5 | Carex littledalei | Carex | Cyperaceae |
| TP | 5 | Dolomiaea souliei | Dolomiaea | Compositae |
| TP | 5 | Dracocephalum heterophyllum | Dracocephalum | Lamiaceae |
| TP | 5 | Eragrostis pilosa | Eragrostis | Poaceae |
| TP | 5 | Heteropappus boweri | Heteropappus | Compositae |
| TP | 5 | Kobresia pygmaea | Kobresia | Cyperaceae |
| TP | 5 | Leontopodium leontopodinum | Leontopodium | Compositae |
| TP | 5 | Poa annua | Poa | Poaceae |
| TP | 5 | Potentilla chinensis | Potentilla | Rosaceae |
| TP | 5 | Potentilla supina | Potentilla | Rosaceae |
| TP | 5 | Rhodiola smithii | Rhodiola | Crassulaceae |
| TP | 5 | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| TP | 5 | Stipa capillata | Stipa | Poaceae |
|----|----|----------------|-------|---------|
| TP | 5 | Stipa purpurea | Stipa | Poaceae |
| TP | 5 | Youngia japonica | Youngia | Compositae |
| TP | 6 | Astragalus adsurgens | Astragalus | Fabaceae |
| TP | 6 | Carex korshinskyi | Carex | Cyperaceae |
| TP | 6 | Dracocephalum heterophyllum | Dracocephalum | Lamiaceae |
| TP | 6 | Heteropappus boweri | Heteropappus | Compositae |
| TP | 6 | Incarvillea lutea | Incarvillea | Bignoniaceae |
| TP | 6 | Lagotis brachystachya | Lagotis | Plantaginaceae |
| TP | 6 | Oxytropis microphylla | Oxytropis | Fabaceae |
| TP | 6 | Przewalskia | Przewalskia | Solanaceae |
| TP | 6 | Rhodiola smithii | Rhodiola | Crassulaceae |
| TP | 6 | Sibbaldia parviflora | Sibbaldia | Rosaceae |
| TP | 6 | Sibbaldianthe bifurca | Sibbaldianthe | Rosaceae |
| TP | 6 | Stipa capillata | Stipa | Poaceae |
| TP | 6 | Stipa purpurea | Stipa | Poaceae |
| TP | 7 | Androsace tapete | Androsace | Primulaceae |
| TP | 7 | Arenaria brevipetala | Arenaria | Caryophyllaceae |
| TP | 7 | Astragalus propinquus | Astragalus | Fabaceae |
| TP | 7 | Carex korshinskyi | Carex | Cyperaceae |
| TP | 7 | Eragrostis pilosa | Eragrostis | Poaceae |
| TP  | 7  | Kalimeris hispida | Kalimeris | Compositae |
| TP  | 7  | Kobresia pygmaea  | Kobresia  | Cyperaceae |
| TP  | 7  | Lagotis brachystachya | Lagotis  | Plantaginaceae |
| TP  | 7  | Lasiocaryum densiflorum | Lasiocaryum  | Boraginaceae |
| TP  | 7  | Leontopodium leontopodinum | Leontopodium  | Compositae |
| TP  | 7  | Lepidium capitatum | Lepidium  | Brassicaceae |
| TP  | 7  | Poa annua  | Poa  | Poaceae |
| TP  | 7  | Polygonum sibiricum | Polygonum  | Polygonaceae |
| TP  | 7  | Potentilla parvifolia | Potentilla  | Rosaceae |
| TP  | 7  | Potentilla plumosa | Potentilla  | Rosaceae |
| TP | 7   | Pycnoplinthus uniflora | Pycnoplinthus | Brassicaceae |
| TP | 7   | Sibbaldia parviflora   | Sibbaldia     | Rosaceae     |
| TP | 7   | Sibbaldianthe bifurca  | Sibbaldianthe | Rosaceae     |
| TP | 7   | Stipa purpurea         | Stipa         | Poaceae      |
| TP | 7   | Taraxacum mongolicum   | Taraxacum     | Compositae   |
| TP | 8   | Artemisia desertorum   | Artemisia     | Compositae   |
| TP | 8   | Astragalus propinquis   | Astragalus    | Fabaceae     |
| TP | 8   | Astragalus tribulifolius| Astragalus    | Fabaceae     |
| TP | 8   | Carex korshinskyi      | Carex         | Cyperaceae   |
| TP | 8   | Heteropappus           | Heteropappus  | Compositae   |
| TP | 8 | Oxytropis microphylla | Oxytropis | Fabaceae |
| TP | 8 | Poa annua               | Poa       | Poaceae  |
| TP | 8 | Ptilotrichum canescens | Ptilotrichum | Brassicaceae |
| TP | 8 | Stipa capillata        | Stipa     | Poaceae  |
| TP | 9 | Artemisia desertorum   | Artemisia | Compositae |
| TP | 9 | Astragalus hendersonii  | Astragalus | Fabaceae |
| TP | 9 | Carex korshinskyi      | Carex     | Cyperaceae |
| TP | 9 | Oxytropis glacialis     | Oxytropis | Fabaceae |
| TP | 9 | Oxytropis microphylla   | Oxytropis | Fabaceae |
| TP | 9 | Ptilotrichum            | Ptilotrichum | Brassicaceae |
| TP  |  | Species                  | Genus     | Family   |
|-----|----|--------------------------|-----------|----------|
| 9   |    | Sibbaldianthe bifurca    | Sibbaldianthe | Rosaceae |
| 9   |    | Stipa tianschanica       | Stipa     | Poaceae  |
| 10  |    | Stipa tianschanica       | Stipa     | Poaceae  |
| 10  |    | Ajania fruticulosa       | Ajania    | Compositae |
| 10  |    | Oxytropis microphylla    | Oxytropis | Fabaceae |

Please also note the supplement to this comment:
https://bg.copernicus.org/preprints/bg-2022-50/bg-2022-50-AC3-supplement.pdf