**Table S1** Data set. GP, final germination percentage; Sdr, severe drought; Mdr, mild drought; Mod, moderate-moisture; 1, seed viability was assessed with the tetrazolium test before the germination experiment; —, no data; 2, seed viability was assessed with the tetrazolium test before for all the seeds we could find in the pot at the end of germination experiment. See germination timing data in Zhang *et al.*, in review.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Family name | Species name | Seed  viability1  (%) | High light | | Low light | | Life-history traits | | Maternal habitats | | |
|  |  | GP  (%) | Seed  viability2  (%) | GP  (%) | Seed  viability2  (%) | Plant  height (m) | Onset of  flowering | Water | Light | Elevation  (m) |
| Amaranthaceae | *Acroglochin persicarioides* | 97.3 | 12.7 | 100.0 | 28.1 | 99.6 | 0.550 | Middle | Mod | Open | 1320 |
| Amaranthaceae | *Axyris amaranthoides* | 100.0 | 8.7 | 100.0 | 12.3 | 99.6 | 0.500 | Late | Mdr | Open | 2244 |
| Amaranthaceae | *Ceratoides arborescens* | 100.0 | 91.7 | 0.0 | 87.7 | 0.0 | 1.500 | Middle | Sdr | Open | 2635 |
| Amaranthaceae | *Ceratoides latens* | 100.0 | 93.3 | 0.0 | 89.3 | 0.0 | 0.550 | Middle | Sdr | Open | 2635 |
| Amaranthaceae | *Chenopodium album* | 99.3 | 6.7 | 100.0 | 5.4 | 100.0 | 0.900 | Early | Mod | Open | 2576 |
| Amaranthaceae | *Chenopodium ambrosioides* | 100.0 | 91.7 | 100.0 | 95.7 | — | 0.650 | Early | Mod | Open | 960 |
| Amaranthaceae | *Chenopodium glaucum* | 100.0 | 88.7 | 100.0 | 11.3 | 100.0 | 0.300 | Early | Mod | Open | 2551 |
| Amaranthaceae | *Salsola collina* | 100.0 | 69.7 | 0.0 | 75.3 | 0.0 | 0.600 | Middle | Mdr | Open | 3052 |
| Apiaceae | *Acronema chinense* | 100.0 | 31.7 | 97.3 | 28.7 | 100.0 | 0.525 | Middle | Wet | Open | 3662 |
| Apiaceae | *Bupleurum chinense* | 100.0 | 75.7 | 56.3 | 44.0 | 83.4 | 0.675 | Late | Mod | Mish | 2180 |
| Apiaceae | *Bupleurum commelynoideum* | 100.0 | 91.7 | 93.3 | 73.0 | 89.4 | 0.430 | Late | Mod | Open | 2624 |
| Apiaceae | *Bupleurum longiradiatum* | 100.0 | 14.3 | 97.1 | 9.7 | 99.6 | 1.150 | Middle | Mod | shade | 2240 |
| Apiaceae | *Bupleurum smithii* | 98.7 | 71.0 | 0.0 | 11.7 | 99.6 | 0.425 | Middle | Mod | Open | 2271 |
| Apiaceae | *Carum buriaticum* | 100.0 | 89.0 | 77.8 | 63.3 | 98.9 | 0.650 | Early | Mod | Open | 2180 |
| Apiaceae | *Chamaesium paradoxum* | 99.3 | 63.4 | 83.7 | 19.5 | 100.0 | 0.215 | Middle | Aquatic | Open | 3525 |
| Apiaceae | *Cnidium monnieri* | 98.7 | 55.4 | 100.0 | 5.7 | 100.0 | 0.350 | Early | Mod | Open | 1777 |
| Apiaceae | *Cnidium salinum* | 98.0 | 73.5 | 100.0 | 83.0 | 50.0 | 0.375 | Middle | Mdr | Open | 2954 |
| Apiaceae | *Daucus carota* | 99.3 | 70.1 | 86.7 | 58.4 | 93.4 | 0.675 | Early | Mdr | Open | 1237 |
| Apiaceae | *Heracleum millefolium* | 99.3 | 67.1 | 100.0 | 71.8 | 65.8 | 0.175 | Middle | Mod | Open | 2965 |
| Apiaceae | *Ligusticum acuminatum* | 100.0 | 83.7 | 68.5 | 86.7 | 97.2 | 1.200 | Middle | Mod | Mish | 2609 |
| Apiaceae | *Ligusticum thomsonii* | 99.3 | 49.7 | 95.7 | 11.4 | 100.0 | 0.550 | Middle | Mod | Mish | 3550 |
| Apiaceae | *Peucedanum praeruptorum* | 98.0 | 69.7 | 83.4 | 25.5 | 97.2 | 0.800 | Late | Mdr | Mish | 2012 |
| Apiaceae | *Pimpinella diversifolia* | 99.3 | 81.9 | 63.3 | 50.3 | 87.0 | 1.150 | Middle | Mod | shade | 2670 |
| Apiaceae | *Pleurospermum hookeri* | 99.3 | 68.5 | 100.0 | 52.0 | 98.6 | 0.300 | Late | Wet | Open | 3286 |
| Apiaceae | *Seseli squarrulosum* | 98.7 | 80.4 | 5.1 | 66.2 | 59.2 | 0.650 | Middle | Mdr | Open | 2970 |
| Apiaceae | *Tongoloa elata* | 100.0 | 34.7 | 95.0 | 17.7 | 99.6 | 0.475 | Middle | Wet | Mish | 3467 |
| Apiaceae | *Tongoloa gracilis* | 100.0 | 78.3 | 75.0 | 36.3 | 100.0 | 0.525 | Late | Wet | Mish | 3552 |
| Apocynaceae | *Cynanchum auriculatum* | 99.3 | 61.1 | 99.5 | 81.5 | 100.0 | 1.000 | Middle | Mod | Mish | 1772 |
| Apocynaceae | *Cynanchum inamoenum* | 92.0 | 57.2 | 97.6 | 70.3 | 92.6 | 0.400 | Middle | Mod | Mish | 2687 |
| Apocynaceae | *Periploca sepium* | 99.3 | 82.9 | 39.4 | 90.9 | 0.0 | 0.676 | Early | Mdr | Open | 1995 |
| Araceae | *Arisaema erubescens* | 99.3 | 20.8 | 99.1 | 96.0 | 100.0 | 0.480 | Middle | Wet | shade | 2500 |
| Asteraceae | *Achillea acuminata* | 100.0 | 83.0 | 100.0 | 5.7 | 100.0 | 0.650 | Middle | Mod | shade | 2674 |
| Asteraceae | *Achillea alpina* | 96.7 | 86.2 | 50.0 | 48.6 | 91.8 | 0.550 | Middle | Mod | shade | 2353 |
| Asteraceae | *Adenocaulon himalaicum* | 98.7 | 79.7 | 16.7 | 39.2 | 93.6 | 0.650 | Early | Wet | shade | 2576 |
| Asteraceae | *Ajania myriantha* | 100.0 | 99.8 | — | 97.9 | — | 0.625 | Middle | Mdr | Open | 2635 |
| Asteraceae | *Ajania przewalskii* | 96.0 | 83.7 | 44.4 | 44.8 | 97.2 | 0.575 | Middle | Mod | Open | 2963 |
| Asteraceae | *Ajania salicifolia* | 100.0 | 96.2 | 25.0 | 99.8 | 100.0 | 0.450 | Middle | Mod | shade | 2678 |
| Asteraceae | *Ajania tenuifolia* | 97.3 | 76.0 | 66.7 | 64.0 | 100.0 | 0.145 | Middle | Mdr | Open | 2930 |
| Asteraceae | *Anaphalis aureo punctata* | 100.0 | 99.8 | — | 93.6 | 100.0 | 0.350 | Middle | Mod | Mish | 3442 |
| Asteraceae | *Anaphalis bicolor* | 100.0 | 95.5 | — | 96.9 | 50.0 | 0.325 | Middle | Mod | Open | 3503 |
| Asteraceae | *Anaphalis flavescens* | 100.0 | 89.0 | 50.0 | 82.0 | 66.7 | 0.160 | Middle | Mod | Open | 3924 |
| Asteraceae | *Anaphalis hancockii* | 95.3 | 73.1 | 16.7 | 86.7 | 60.0 | 0.200 | Middle | Mod | Open | 2963 |
| Asteraceae | *Anaphalis latialata* | 99.3 | 85.2 | — | 84.9 | 0.0 | 0.400 | Middle | Mod | shade | 2930 |
| Asteraceae | *Anaphalis margaritacea* | 100.0 | 96.0 | 100.0 | 91.2 | 100.0 | 0.450 | Middle | Mod | Open | 2931 |
| Asteraceae | *Artemisia anethoides* | 98.0 | 81.6 | 0.0 | 81.0 | 100.0 | 0.600 | Late | Mdr | Open | 2461 |
| Asteraceae | *Artemisia annua* | 90.7 | 78.3 | — | 69.0 | 100.0 | 1.500 | Middle | Mdr | Open | 2240 |
| Asteraceae | *Artemisia argyi* | 97.3 | 79.1 | 0.0 | 75.0 | 91.7 | 1.150 | Late | Mdr | Open | 2609 |
| Asteraceae | *Artemisia dubia* | 100.0 | 99.8 | 0.0 | 99.8 | 25.0 | 1.000 | Middle | Mdr | Open | 2403 |
| Asteraceae | *Artemisia dubia* var. *subdigitata* | 100.0 | 91.0 | 0.0 | 93.0 | — | 1.000 | Middle | Mdr | Open | 2240 |
| Asteraceae | *Artemisia frigida* | 94.0 | 82.3 | 0.0 | 90.1 | 0.0 | 0.500 | Middle | Mdr | Open | 2642 |
| Asteraceae | *Artemisia hedinii* | 93.3 | 70.7 | 92.9 | 25.0 | 97.9 | 0.575 | Late | Mod | Open | 3052 |
| Asteraceae | *Artemisia japonica* | 98.7 | 82.8 | — | 99.8 | 16.7 | 0.900 | Middle | Mdr | Open | 2180 |
| Asteraceae | *Artemisia mongolica* | 98.0 | 84.4 | 16.7 | 75.2 | 95.2 | 0.800 | Late | Mod | Mish | 2948 |
| Asteraceae | *Artemisia roxburghiana* | 100.0 | 99.8 | 0.0 | 99.8 | 66.7 | 0.850 | Late | Mdr | Open | 2402 |
| Asteraceae | *Artemisia sacrorum* | 100.0 | 85.3 | — | 80.3 | 83.3 | 0.800 | Late | Mdr | Open | 2461 |
| Asteraceae | *Artemisia scoparia* | 99.3 | 86.6 | — | 93.0 | 0.0 | 0.850 | Middle | Mdr | Open | 2931 |
| Asteraceae | *Artemisia sieversiana* | 98.0 | 94.6 | 0.0 | 67.7 | 88.9 | 1.000 | Middle | Mdr | Open | 3052 |
| Asteraceae | *Artemisia vestita* | 98.7 | 97.0 | 0.0 | 99.3 | 51.9 | 0.850 | Late | Mod | Open | 2642 |
| Asteraceae | *Aster ageratoides* | 100.0 | 92.5 | — | 98.3 | 100.0 | 0.700 | Late | Mdr | Open | 2200 |
| Asteraceae | *Aster ageratoides* var. *heterophyllus* | 98.7 | 94.3 | — | 94.3 | 0.0 | 0.700 | Late | Mdr | Open | 2666 |
| Asteraceae | *Aster albescens* var. *levissimus* | 100.0 | 94.5 | 0.0 | 99.3 | — | 1.050 | Middle | Mdr | Open | 1772 |
| Asteraceae | *Aster albescens* var. *limprichtii* | 97.3 | 97.9 | 16.7 | 92.8 | — | 1.050 | Middle | Mod | Mish | 2475 |
| Asteraceae | *Aster diplostephioides* | 98.0 | 76.5 | 100.0 | 78.6 | 0.0 | 0.305 | Late | Mod | Open | 3710 |
| Asteraceae | *Aster flaccidus* | 100.0 | 71.7 | 87.5 | 61.3 | 98.8 | 0.225 | Middle | Mod | Open | 3525 |
| Asteraceae | *Aster poliothamnus* | 97.3 | 97.6 | — | 92.1 | 0.0 | 0.700 | Middle | Sdr | Open | 2250 |
| Asteraceae | *Aster souliei* | 98.0 | 56.5 | 88.8 | 40.8 | 96.4 | 0.250 | Middle | Mod | Open | 3820 |
| Asteraceae | *Aster trinervius* | 100.0 | 99.8 | 38.9 | 91.6 | 93.3 | 1.300 | Middle | Mod | Open | 1820 |
| Asteraceae | *Bidens parviflora* | 99.3 | 23.5 | 91.4 | 92.6 | 100.0 | 0.550 | Late | Mod | Open | 1841 |
| Asteraceae | *Bidens pilosa* | 99.3 | 80.9 | 100.0 | 93.0 | — | 0.650 | Late | Mod | Open | 875 |
| Asteraceae | *Cancrinia maximowiczii* | 92.7 | 86.7 | 0.0 | 91.0 | 0.0 | 0.450 | Middle | Sdr | Open | 2461 |
| Asteraceae | *Carpesium abrotanoides* | 98.0 | 95.6 | 25.0 | 94.2 | 100.0 | 0.800 | Middle | Mod | Mish | 1772 |
| Asteraceae | *Carpesium cernuum* | 95.3 | 86.4 | 60.0 | 81.1 | 66.5 | 0.750 | Middle | Mod | Mish | 2267 |
| Asteraceae | *Carpesium lipskyi* | 100.0 | 79.3 | 2.0 | 77.7 | 80.8 | 0.525 | Middle | Mod | Mish | 2594 |
| Asteraceae | *Carpesium trachelifolium* | 98.0 | 92.9 | — | 74.5 | 100.0 | 0.550 | Late | Mod | Mish | 2180 |
| Asteraceae | *Chaetoseris roborowskii* | 98.7 | 71.6 | 96.3 | 62.5 | 97.5 | 0.550 | Middle | Mod | Open | 3400 |
| Asteraceae | *Cirsium lanatum* | 99.3 | 96.6 | — | 92.3 | 75.0 | 0.600 | Middle | Mod | Open | 2250 |
| Asteraceae | *Cirsium leo* | 100.0 | 7.3 | 98.4 | 6.3 | 99.2 | 0.700 | Middle | Mod | Open | 3442 |
| Asteraceae | *Conyza canadensis* | 98.7 | 85.8 | — | 88.5 | 33.3 | 0.750 | Early | Mdr | Open | 2391 |
| Asteraceae | *Conyza sumatrensis* | 96.0 | 95.1 | — | 90.3 | 0.0 | 1.150 | Early | Mdr | Open | 967 |
| Asteraceae | *Cremanthodium brunneo pilosum* | 93.3 | 30.7 | 96.7 | 48.2 | 96.4 | 1.000 | Middle | Wet | Open | 3525 |
| Asteraceae | *Cremanthodium lineare* | 100.0 | 95.9 | 50.0 | 99.8 | — | 0.270 | Middle | Wet | Open | 2954 |
| Asteraceae | *Crepis flexuosa* | 98.7 | 82.8 | — | 76.0 | 2.2 | 0.165 | Middle | Sdr | Open | 2400 |
| Asteraceae | *Erigeron acer* | 98.0 | 82.3 | 100.0 | 19.4 | 100.0 | 0.325 | Middle | Mod | Open | 2922 |
| Asteraceae | *Gerbera anandria* | 98.7 | 83.8 | 0.0 | 94.6 | 100.0 | 0.150 | Middle | Mod | Open | 3091 |
| Asteraceae | *Heteropappus altaicus* | 98.7 | 91.2 | 66.7 | 89.9 | 0.0 | 0.400 | Middle | Mdr | Open | 2800 |
| Asteraceae | *Heteropappus gouldii* | 97.3 | 91.4 | 0.0 | 86.6 | 25.0 | 0.200 | Middle | Mod | Open | 2963 |
| Asteraceae | *Inula japonica* | 98.0 | 90.5 | — | 16.3 | 100.0 | 0.500 | Late | Wet | Open | 2213 |
| Asteraceae | *Kalimeris indica* | 90.7 | 68.4 | 96.2 | 71.0 | 64.9 | 0.500 | Early | Mdr | Open | 1211 |
| Asteraceae | *Kalimeris mongolica* | 96.7 | 72.9 | 52.8 | 79.7 | 27.8 | 0.800 | Middle | Mdr | Open | 2180 |
| Asteraceae | *Leibnitzia nepalensis* | 98.0 | 81.6 | 5.6 | 81.1 | — | 0.150 | Middle | Mod | Open | 3442 |
| Asteraceae | *Leontopodium dedekensii* | 100.0 | 91.3 | 0.0 | 97.8 | 57.1 | 0.450 | Middle | Mdr | Open | 2724 |
| Asteraceae | *Leontopodium leontopodioides* | 94.7 | 82.4 | 100.0 | 90.8 | 100.0 | 0.250 | Middle | Mdr | Open | 2200 |
| Asteraceae | *Leontopodium ochroleucum* | 100.0 | 81.7 | 14.3 | 90.7 | 100.0 | 0.090 | Middle | Mod | Open | 3925 |
| Asteraceae | *Leontopodium souliei* | 98.0 | 95.9 | 100.0 | 97.6 | 25.0 | 0.155 | Middle | Mod | Open | 2963 |
| Asteraceae | *Ligularia duciformis* | 97.3 | 81.8 | 2.4 | 89.0 | 66.7 | 1.020 | Middle | Wet | Mish | 2413 |
| Asteraceae | *Ligularia przewalskii* | 100.0 | 98.6 | — | 99.8 | 50.0 | 0.800 | Middle | Mod | Mish | 2594 |
| Asteraceae | *Ligularia purdomii* | 78.7 | 51.3 | 99.1 | 13.1 | 100.0 | 0.900 | Middle | Wet | Mish | 3200 |
| Asteraceae | *Ligularia sagitta* | 100.0 | 97.9 | 11.1 | 97.6 | 33.3 | 0.475 | Middle | Mod | Open | 2965 |
| Asteraceae | *Ligularia virgaurea* | 68.7 | 37.4 | 100.0 | 37.4 | 100.0 | 0.475 | Middle | Mod | Open | 3530 |
| Asteraceae | *Neopallasia petinata* | 99.3 | 95.6 | — | 85.2 | 90.6 | 0.260 | Middle | Sdr | Open | 2402 |
| Asteraceae | *Olgaea tangutica* | 98.7 | 97.0 | 0.0 | 95.6 | 50.0 | 0.600 | Middle | Mdr | Mish | 2666 |
| Asteraceae | *Parasenecio roborowskii* | 97.3 | 95.5 | 0.0 | 99.8 | 50.0 | 0.800 | Middle | Mod | Mish | 2594 |
| Asteraceae | *Parasenecio sinicus* | 96.7 | 96.6 | 0.0 | 89.0 | 0.0 | 0.600 | Middle | Mod | Open | 2722 |
| Asteraceae | *Pertya discolor* | 98.0 | 91.5 | 58.6 | 82.3 | 98.5 | 1.400 | Middle | Mdr | Open | 2551 |
| Asteraceae | *Picris hieracioides* | 78.0 | 26.4 | 69.5 | 13.2 | 100.0 | 0.680 | Middle | Mod | Open | 2200 |
| Asteraceae | *Prenanthes macrophylla* | 99.3 | 53.4 | 100.0 | 60.1 | 92.1 | 1.000 | Late | Mod | Mish | 2250 |
| Asteraceae | *Prenanthes tatarinowii* | 99.3 | 36.6 | 100.0 | 35.9 | 99.5 | 1.000 | Middle | Mod | Mish | 2594 |
| Asteraceae | *Pyrethrum tatsienense* | 99.3 | 88.9 | 0.0 | 90.3 | — | 0.160 | Middle | Mod | Open | 3870 |
| Asteraceae | *Saussurea erubescens* | 100.0 | 96.4 | 25.0 | 84.8 | 0.0 | 0.225 | Middle | Mod | Mish | 3509 |
| Asteraceae | *Saussurea globosa* | 98.7 | 86.8 | 66.7 | 88.5 | 55.6 | 0.350 | Middle | Mod | Mish | 3528 |
| Asteraceae | *Saussurea graminea* | 98.0 | 95.9 | 0.0 | 94.2 | 4.8 | 0.140 | Middle | Mod | Open | 3924 |
| Asteraceae | *Saussurea hieracioides* | 95.3 | 81.8 | 3.0 | 87.1 | 0.0 | 0.200 | Middle | Mod | Open | 2963 |
| Asteraceae | *Saussurea iodostegia* | 84.0 | 73.0 | 55.6 | 89.3 | 91.7 | 0.500 | Middle | Wet | Mish | 3407 |
| Asteraceae | *Saussurea macrota* | 100.0 | 88.0 | 93.9 | 96.3 | 83.3 | 0.500 | Middle | Wet | shade | 3385 |
| Asteraceae | *Saussurea nigrescens* | 94.0 | 88.7 | 4.8 | 87.9 | 22.6 | 0.300 | Middle | Mod | Open | 3811 |
| Asteraceae | *Saussurea parviflora* | 99.3 | 90.9 | 50.0 | 92.3 | 23.8 | 0.650 | Middle | Mod | Mish | 2782 |
| Asteraceae | *Saussurea pinnatidentata* | 97.3 | 93.8 | 11.1 | 81.2 | 100.0 | 0.525 | Late | Mdr | Open | 2250 |
| Asteraceae | *Saussurea populifolia* | 97.3 | 90.8 | 85.7 | 28.4 | 99.5 | 0.600 | Middle | Mod | shade | 3050 |
| Asteraceae | *Saussurea przewalskii* | 98.3 | 37.3 | 96.1 | 50.0 | 95.5 | 0.155 | Middle | Mod | Open | 3924 |
| Asteraceae | *Saussurea stella* | 100.0 | 95.0 | 4.2 | 97.1 | 0.0 | 0.075 | Middle | Mod | Open | 3407 |
| Asteraceae | *Saussurea subulisquama* | 95.3 | 75.2 | 23.3 | 87.8 | 8.2 | 0.055 | Middle | Mod | Open | 3289 |
| Asteraceae | *Saussurea sylvatica* | 98.7 | 56.8 | 94.1 | 46.3 | 93.3 | 0.580 | Middle | Mod | Mish | 3552 |
| Asteraceae | *Saussurea ussuriensis* | 97.3 | 90.1 | 0.0 | 88.4 | 14.4 | 0.650 | Middle | Mdr | Mish | 2666 |
| Asteraceae | *Saussurea variiloba* | 97.3 | 60.6 | 67.5 | 71.2 | 82.9 | 0.800 | Late | Mod | Mish | 2180 |
| Asteraceae | *Scorzonera mongolica* | 99.3 | 95.3 | 8.3 | 94.3 | 45.8 | 0.200 | Middle | Mdr | Open | 2200 |
| Asteraceae | *Senecio argunensis* | 99.3 | 59.4 | 97.8 | 7.7 | 97.5 | 0.550 | Middle | Mod | Open | 3091 |
| Asteraceae | *Senecio densiserratus* | 98.0 | 62.6 | 100.0 | 66.3 | 98.8 | 0.950 | Late | Mod | Mish | 2722 |
| Asteraceae | *Senecio dubitabilis* | 99.3 | 69.8 | 100.0 | 78.2 | 100.0 | 0.175 | Middle | Mod | Open | 2678 |
| Asteraceae | *Senecio scandens* | 100.0 | 99.8 | 0.0 | 99.8 | 0.0 | 0.750 | Late | Mod | Mish | 2085 |
| Asteraceae | *Senecio tianshanicus* | 100.0 | 37.0 | 96.5 | 61.7 | 79.2 | 0.125 | Middle | Mod | Open | 3400 |
| Asteraceae | *Serratula strangulata* | 94.0 | 47.5 | 100.0 | 42.2 | 66.7 | 0.700 | Middle | Mod | Open | 2178 |
| Asteraceae | *Siegesbeckia pubescens* | 100.0 | 78.7 | 94.8 | 12.0 | 99.5 | 0.700 | Middle | Mod | Open | 1772 |
| Asteraceae | *Sonchus oleraceus* | 96.0 | 51.0 | 99.0 | 11.8 | 100.0 | 0.950 | Middle | Mod | Open | 2200 |
| Asteraceae | *Taraxacum maurocarpum* | 99.3 | 90.3 | 0.0 | 94.0 | 0.0 | 0.175 | Early | Mod | Open | 3100 |
| Asteraceae | *Taraxacum mongolicum* | 98.0 | 77.2 | 0.0 | 86.4 | 50.0 | 0.175 | Early | Mod | Open | 3000 |
| Asteraceae | *Xanthopappus subacaulis* | 100.0 | 80.3 | 79.2 | 84.7 | 68.9 | 0.150 | Middle | Mod | Open | 2931 |
| Berberidaceae | *Berberis aggregata* | 96.0 | 71.9 | 14.6 | 76.4 | 4.9 | 2.500 | Early | Mdr | Mish | 2167 |
| Berberidaceae | *Berberis arido calida* | 95.3 | 86.4 | 54.1 | 94.8 | 24.6 | 2.500 | Early | Mdr | Mish | 2283 |
| Berberidaceae | *Berberis circumserrata* | 100.0 | 30.7 | 78.4 | 63.3 | 76.7 | 1.000 | Early | Mod | Mish | 2722 |
| Berberidaceae | *Berberis mitifolia* | 99.3 | 5.0 | 97.1 | 12.4 | 95.4 | 1.500 | Early | Mdr | Mish | 2012 |
| Berberidaceae | *Berberis silva taroucana* | 99.3 | 82.6 | 39.0 | 94.0 | 0.0 | 2.000 | Early | Mdr | Mish | 2510 |
| Berberidaceae | *Berberis vernae* | 98.7 | 65.2 | 21.0 | 64.5 | 24.5 | 1.000 | Early | Mod | Mish | 2195 |
| Bignoniaceae | *Incarvillea sinensis* | 90.0 | 45.6 | 57.1 | 39.3 | 100.0 | 0.480 | Middle | Mdr | Open | 1237 |
| Bignoniaceae | *Incarvillea sinensis* var. *przewalskii* | 99.3 | 81.2 | 100.0 | 86.9 | 66.7 | 0.480 | Middle | Mdr | Open | 1414 |
| Boraginaceae | *Asperugo procumbens* | 100.0 | 75.3 | 100.0 | 52.3 | 100.0 | 2.500 | Middle | Mod | Open | 2681 |
| Boraginaceae | *Cynoglossum amabile* | 99.3 | 71.1 | 98.4 | 88.3 | 100.0 | 0.375 | Early | Mdr | Open | 1954 |
| Boraginaceae | *Cynoglossum lanceolatum* | 97.3 | 83.6 | 100.0 | 85.6 | 93.9 | 0.550 | Middle | Mdr | Open | 1194 |
| Boraginaceae | *Lappula redowskii* | 99.3 | 61.1 | 100.0 | 98.0 | 70.8 | 0.360 | Middle | Mdr | Open | 2450 |
| Boraginaceae | *Microula pseudotrichocarpa* | 100.0 | 41.7 | 100.0 | 61.0 | 98.0 | 0.270 | Middle | Mod | Open | 3400 |
| Boraginaceae | *Microula sikkimensis* | 98.7 | 5.1 | 99.1 | 14.5 | 99.6 | 0.355 | Middle | Mod | Open | 2820 |
| Boraginaceae | *Onosma sinicum* | 95.0 | 81.4 | 96.7 | 74.4 | 79.4 | 0.225 | Early | Sdr | Open | 1345 |
| Boraginaceae | *Trigonotis tibetica* | 99.3 | 35.2 | 100.0 | 24.2 | 100.0 | 0.175 | Middle | Mod | Open | 3286 |
| Brassicaceae | *Cardamine tangutorum* | 100.0 | 11.0 | 77.0 | 8.3 | 88.6 | 0.325 | Early | Wet | Open | 3690 |
| Brassicaceae | *Descurainia sophia* | 99.3 | 40.6 | 100.0 | 61.7 | 100.0 | 0.500 | Early | Mod | Open | 3134 |
| Brassicaceae | *Eruca sativa* | 100.0 | 61.3 | 97.4 | 94.3 | 83.3 | 0.550 | Early | Mod | Open | 2200 |
| Brassicaceae | *Lepidium apetalum* | 100.0 | 88.7 | 100.0 | 24.0 | 100.0 | 0.175 | Early | Mdr | Open | 2710 |
| Brassicaceae | *Torularia humilis* | 99.3 | 53.7 | — | 18.5 | 100.0 | 0.175 | Early | Mdr | Open | 2250 |
| Campanulaceae | *Adenophora potaninii* | 100.0 | 94.3 | 100.0 | 94.7 | 66.7 | 0.650 | Middle | Mdr | Mish | 2954 |
| Campanulaceae | *Campanula aristata* | 100.0 | 6.0 | 100.0 | 8.0 | 100.0 | 0.300 | Middle | Mod | shade | 3286 |
| Campanulaceae | *Codonopsis pilosula* | 99.3 | 43.6 | 97.8 | 79.5 | 97.2 | 0.676 | Middle | Mod | shade | 2178 |
| Campanulaceae | *Cyananthus hookeri* | 99.3 | 60.7 | 98.7 | 57.0 | 94.9 | 0.118 | Late | Mod | Mish | 3467 |
| Cannabaceae | *Humulus lupulus* | 100.0 | 74.0 | 64.8 | 69.3 | 100.0 | 3.000 | Late | Mod | Mish | 2576 |
| Caprifoliaceae | *Abelia dielsii* | 74.7 | 33.8 | 100.0 | 21.6 | 100.0 | 2.500 | Early | Mod | shade | 2670 |
| Caprifoliaceae | *Lonicera acuminata* | 100.0 | 78.3 | 0.0 | 77.5 | 95.2 | 2.500 | Middle | Mod | Open | 1820 |
| Caprifoliaceae | *Lonicera myrtillus* | 98.7 | 26.0 | 99.5 | 49.0 | 100.0 | 0.650 | Early | Mod | Mish | 1820 |
| Caprifoliaceae | *Nardostachys chinensis* | 63.3 | 20.0 | 89.1 | 15.8 | 63.6 | 0.265 | Middle | Wet | Mish | 3525 |
| Caprifoliaceae | *Valeriana officinalis* | 98.7 | 21.6 | 89.9 | 20.9 | 94.2 | 1.250 | Early | Mod | shade | 2724 |
| Caryophyllaceae | *Arenxaria kansuensis* | 98.7 | 69.6 | 0.0 | 82.8 | 0.0 | 0.045 | Middle | Mod | Open | 4030 |
| Caryophyllaceae | *Cerastium pusillum* | 76.0 | 7.7 | 96.9 | 15.4 | 94.0 | 0.100 | Middle | Wet | Open | 3525 |
| Caryophyllaceae | *Dianthus superbus* | 100.0 | 44.7 | 100.0 | 22.3 | 97.8 | 0.550 | Middle | Mod | Open | 3400 |
| Caryophyllaceae | *Gypsophila licentiana* | 100.0 | 92.0 | 91.7 | 79.3 | 100.0 | 0.400 | Middle | Mdr | Open | 2283 |
| Caryophyllaceae | *Silene conoidea* | 100.0 | 40.3 | 100.0 | 47.0 | 100.0 | 0.425 | Early | Mod | Open | 2950 |
| Caryophyllaceae | *Silene fortunei* | 100.0 | 34.0 | 100.0 | 31.0 | 100.0 | 0.750 | Middle | Mod | Open | 2066 |
| Caryophyllaceae | *Silene gonosperma* | 100.0 | 62.7 | 98.5 | 26.3 | 100.0 | 0.130 | Middle | Mod | Open | 3525 |
| Caryophyllaceae | *Silene pterosperma* | 100.0 | 64.7 | 100.0 | 71.7 | 96.7 | 0.325 | Middle | Mdr | Open | 2661 |
| Caryophyllaceae | *Silene repens* | 100.0 | 19.3 | 99.5 | 15.0 | 98.5 | 0.325 | Middle | Mdr | Open | 2611 |
| Caryophyllaceae | *Silene yetii* | 100.0 | 91.7 | 100.0 | 95.0 | 50.0 | 0.400 | Middle | Mdr | Open | 3191 |
| Caryophyllaceae | *Stellaria arenaria* | 100.0 | 12.7 | 100.0 | 26.0 | 99.0 | 0.060 | Middle | Mod | Open | 1800 |
| Caryophyllaceae | *Stellaria graminea* | 94.7 | 79.2 | 100.0 | 78.5 | 81.7 | 0.200 | Early | Mod | Open | 2064 |
| Caryophyllaceae | *Stellaria uda* | 100.0 | 47.7 | 97.1 | 59.3 | 100.0 | 0.100 | Early | Mod | Open | 2923 |
| Clusiaceae | *Hypericum patulum* | 100.0 | 80.7 | 50.0 | 91.0 | — | 1.650 | Middle | Mod | Mish | 967 |
| Clusiaceae | *Hypericum perforatum* | 100.0 | 98.9 | — | 84.4 | 100.0 | 0.400 | Middle | Mod | Mish | 2104 |
| Crassulaceae | *Hylotelephium angustum* | 90.7 | 57.4 | 100.0 | 27.2 | 100.0 | 0.750 | Late | Wet | Mish | 2441 |
| Crassulaceae | *Orostachys fimbriatus* | 98.0 | 85.7 | — | 83.3 | — | 0.150 | Middle | Mdr | Open | 2642 |
| Crassulaceae | *Rhodiola algida* | 98.0 | 90.5 | — | 87.8 | 100.0 | 0.135 | Early | Wet | Open | 3690 |
| Crassulaceae | *Rhodiola dumulosa* | 99.3 | 61.4 | 37.5 | 60.1 | 100.0 | 0.165 | Middle | Mod | Open | 4011 |
| Crassulaceae | *Rhodiola kirilowii* | 100.0 | 96.7 | 100.0 | 88.7 | 100.0 | 0.375 | Early | Wet | Open | 2923 |
| Crassulaceae | *Sedum aizoon* | 99.3 | 96.3 | 0.0 | 97.3 | 100.0 | 0.350 | Middle | Mod | Open | 2924 |
| Cyperaceae | *Kobresia kansuensis* | 98.0 | 34.0 | 100.0 | 19.7 | 100.0 | 0.600 | Middle | Wet | Open | 3877 |
| Cyperaceae | *Kobresia royleana* | 96.0 | 28.5 | 100.0 | 14.2 | 89.0 | 0.230 | Early | Mod | Open | 3525 |
| Cyperaceae | *Scirpus setaceus* | 92.0 | 43.5 | 100.0 | 15.9 | 94.6 | 0.075 | Middle | Wet | Open | 3052 |
| Elaeagnaceae | *Elaeagnus angustifolia* | 100.0 | 17.0 | 96.9 | 6.0 | 98.2 | 6.500 | Early | Mdr | Open | 2283 |
| Elaeagnaceae | *Hippophae neurocarpa* | 98.7 | 37.8 | 3.3 | 56.4 | 89.8 | 2.800 | Early | Wet | Open | 3400 |
| Elaeagnaceae | *Hippophae thibetana* | 99.3 | 68.5 | 4.1 | 99.0 | 100.0 | 0.320 | Early | Mod | Mish | 3552 |
| Ericaceae | *Rhododendron anthopogonoides* | 94.7 | 44.7 | — | 35.6 | 100.0 | 1.500 | Middle | Wet | shade | 3427 |
| Ericaceae | *Rhododendron qinghaiense* | 98.0 | 41.5 | 98.2 | 52.4 | 100.0 | 1.750 | Early | Wet | shade | 3427 |
| Ericaceae | *Rhododendron rufum* | 88.7 | 5.3 | 0.0 | 18.0 | 95.7 | 4.750 | Early | Wet | shade | 3427 |
| Ericaceae | *Rhododendron thymifolium* | 97.3 | 78.4 | 100.0 | 62.0 | 100.0 | 0.800 | Middle | Wet | shade | 3427 |
| Fabaceae | *Astragalus adsurgens* | 100.0 | 35.0 | 97.1 | 20.3 | 98.6 | 0.350 | Middle | Mod | shade | 3552 |
| Fabaceae | *Astragalus bhotanensis* | 100.0 | 5.7 | 100.0 | 5.0 | 100.0 | 0.650 | Middle | Mod | Open | 2250 |
| Fabaceae | *Astragalus fenzelianus* | 100.0 | 9.3 | 99.6 | 5.0 | 99.7 | 0.170 | Middle | Mod | Open | 2834 |
| Fabaceae | *Astragalus hendersonii* | 100.0 | 17.0 | 100.0 | 17.7 | 100.0 | 0.040 | Middle | Mod | Open | 3442 |
| Fabaceae | *Astragalus mahoschanicus* | 100.0 | 14.3 | 96.3 | 14.0 | 95.9 | 0.275 | Middle | Mdr | Open | 2812 |
| Fabaceae | *Astragalus melilotoides* | 100.0 | 46.0 | 98.2 | 46.7 | 95.3 | 0.600 | Middle | Mod | Open | 2200 |
| Fabaceae | *Astragalus membranaceus* | 100.0 | 28.0 | 100.0 | 34.7 | 98.2 | 0.750 | Middle | Mdr | Open | 2423 |
| Fabaceae | *Astragalus monadelphus* | 100.0 | 12.7 | 100.0 | 12.7 | 100.0 | 0.500 | Middle | Mod | Open | 3091 |
| Fabaceae | *Astragalus pastorius* | 100.0 | 12.7 | 98.2 | 15.0 | 98.8 | 0.275 | Middle | Mod | Open | 3613 |
| Fabaceae | *Astragalus polycladus* | 100.0 | 19.0 | 99.5 | 16.7 | 91.5 | 0.200 | Middle | Mod | Open | 3613 |
| Fabaceae | *Astragalus tanguticus* | 100.0 | 45.3 | 98.0 | 26.7 | 96.8 | 0.300 | Middle | Mod | Mish | 2963 |
| Fabaceae | *Astragalus tongolensis* | 100.0 | 11.3 | 99.5 | 7.0 | 97.4 | 0.500 | Early | Mdr | Open | 2611 |
| Fabaceae | *Caragana erinacea* | 100.0 | 76.7 | 0.0 | 80.7 | 0.0 | 0.450 | Middle | Mdr | shade | 2552 |
| Fabaceae | *Caragana jubata* | 100.0 | 35.7 | 77.2 | 34.0 | 91.1 | 1.150 | Middle | Mod | Mish | 3427 |
| Fabaceae | *Caragana kansuensis* | 100.0 | 88.7 | 0.0 | 94.0 | 0.0 | 0.500 | Early | Mdr | shade | 2240 |
| Fabaceae | *Caragana tangutica* | 100.0 | 44.7 | 0.0 | 63.3 | 0.0 | 2.500 | Early | Mdr | shade | 2722 |
| Fabaceae | *Hedysarum multijugum* | 100.0 | 95.3 | 0.0 | 91.7 | 0.0 | 0.600 | Middle | Mdr | Open | 2250 |
| Fabaceae | *Hedysarum polybotrys* | 100.0 | 45.3 | 100.0 | 39.0 | 99.5 | 1.100 | Middle | Mod | Mish | 2242 |
| Fabaceae | *Hedysarum tanguticum* | 100.0 | 26.7 | 99.5 | 22.3 | 98.7 | 0.175 | Middle | Mod | Open | 2951 |
| Fabaceae | *Lespedeza cuneata* | 100.0 | 47.3 | 96.0 | 35.3 | 97.0 | 0.600 | Middle | Mod | Mish | 1668 |
| Fabaceae | *Lespedeza daurica* | 100.0 | 11.0 | 98.0 | 8.7 | 98.2 | 0.600 | Middle | Mdr | Open | 2283 |
| Fabaceae | *Lespedeza formosa* | 100.0 | 33.0 | 100.0 | 33.7 | 95.6 | 1.500 | Middle | Mod | Mish | 2085 |
| Fabaceae | *Medicago archiducis nicolai* | 100.0 | 16.7 | 97.8 | 15.3 | 98.0 | 0.140 | Middle | Mod | Mish | 2963 |
| Fabaceae | *Medicago ruthenica* | 100.0 | 23.3 | 99.0 | 26.0 | 97.9 | 0.600 | Middle | Mod | Mish | 2180 |
| Fabaceae | *Medicago sativa* | 100.0 | 41.7 | 99.3 | 22.7 | 100.0 | 0.650 | Early | Mod | Mish | 2145 |
| Fabaceae | *Medicago varia* | 100.0 | 16.0 | 99.5 | 13.0 | 98.8 | 0.650 | Middle | Mod | Mish | 2180 |
| Fabaceae | *Melilotus officinalis* | 100.0 | 7.7 | 100.0 | 5.3 | 99.6 | 1.450 | Middle | Mdr | Open | 1954 |
| Fabaceae | *Oxytropis falcata* | 100.0 | 26.7 | 99.0 | 14.3 | 99.6 | 0.180 | Early | Mdr | Open | 3417 |
| Fabaceae | *Oxytropis imbricata* | 100.0 | 72.3 | 94.4 | 69.7 | 86.8 | 0.125 | Middle | Mdr | Open | 2954 |
| Fabaceae | *Oxytropis kansuensis* | 100.0 | 19.3 | 93.2 | 8.3 | 87.1 | 0.140 | Middle | Mod | Open | 3286 |
| Fabaceae | *Oxytropis latibracteata* | 100.0 | 18.3 | 98.4 | 11.7 | 98.3 | 0.350 | Middle | Mdr | Open | 2611 |
| Fabaceae | *Oxytropis longipedunculata* | 100.0 | 20.0 | 98.5 | 10.7 | 99.0 | 0.360 | Middle | Mod | Open | 2250 |
| Fabaceae | *Oxytropis ochrantha* | 100.0 | 15.7 | 95.7 | 12.0 | 99.2 | 0.225 | Middle | Mdr | Open | 2200 |
| Fabaceae | *Oxytropis ochrocephala* | 100.0 | 21.7 | 96.8 | 8.0 | 98.1 | 0.300 | Middle | Mdr | Open | 2963 |
| Fabaceae | *Oxytropis xinglongshanica* | 100.0 | 6.7 | 99.6 | 5.3 | 98.1 | 0.350 | Middle | Mod | Mish | 2240 |
| Fabaceae | *Thermopsis lanceolata* | 100.0 | 12.7 | 97.5 | 9.7 | 98.1 | 0.210 | Early | Mdr | Open | 2965 |
| Fabaceae | *Tibetia himalaica* | 100.0 | 11.3 | 96.8 | 10.0 | 99.3 | 0.100 | Early | Mod | Open | 2948 |
| Fabaceae | *Vicia sativa* | 100.0 | 30.3 | 74.3 | 34.7 | 81.2 | 0.600 | Middle | Mod | shade | 2948 |
| Gentianaceae | *Gentiana abaensis* | 99.3 | 80.2 | 100.0 | 44.3 | 100.0 | 0.100 | Early | Mod | Mish | 2963 |
| Gentianaceae | *Gentiana dahurica* | 100.0 | 60.0 | 95.2 | 49.3 | 100.0 | 0.175 | Middle | Mod | Open | 2635 |
| Gentianaceae | *Gentiana farreri* | 100.0 | 87.7 | 100.0 | 83.0 | 95.8 | 0.075 | Late | Mod | Open | 3291 |
| Gentianaceae | *Gentiana nubigena* | 100.0 | 68.7 | 100.0 | 33.7 | 100.0 | 0.125 | Late | Mod | Open | 3407 |
| Gentianaceae | *Gentiana officinalis* | 100.0 | 28.7 | 100.0 | 7.0 | 100.0 | 0.250 | Late | Mod | Open | 2986 |
| Gentianaceae | *Gentiana squarrosa* | 94.0 | 90.8 | 100.0 | 92.2 | — | 0.050 | Early | Mod | Open | 2980 |
| Gentianaceae | *Gentiana straminea* | 100.0 | 48.7 | 100.0 | 33.3 | 100.0 | 0.225 | Middle | Mod | Open | 3052 |
| Gentianaceae | *Lomatogonium carinthiacum* | 100.0 | 55.3 | 95.7 | 69.7 | 93.4 | 0.165 | Late | Mod | Open | 3091 |
| Gentianaceae | *Lomatogonium macranthum* | 100.0 | 13.0 | 98.9 | 16.3 | 96.0 | 0.210 | Late | Mod | Open | 3091 |
| Geraniaceae | *Geranium sibiricum* | 100.0 | 32.0 | 100.0 | 5.3 | 99.3 | 0.500 | Middle | Mod | Open | 2800 |
| Grossulariaceae | *Ribes longiracemosum* | 93.3 | 5.0 | 100.0 | 65.0 | 93.9 | 2.500 | Early | Mod | shade | 2254 |
| Juncaceae | *Juncus allioides* | 99.3 | 83.6 | — | 58.7 | 100.0 | 0.325 | Middle | Wet | Open | 3286 |
| Juncaceae | *Juncus amplifolius* | 100.0 | 69.0 | 100.0 | 29.3 | 100.0 | 0.345 | Middle | Wet | Open | 3877 |
| Juncaceae | *Juncus potaninii* | 99.3 | 16.4 | 100.0 | 36.2 | 100.0 | 0.105 | Middle | Wet | shade | 3200 |
| Juncaceae | *Juncus thomsonii* | 100.0 | 97.0 | — | 83.0 | 97.2 | 0.175 | Middle | Wet | Open | 3800 |
| Juncaginaceae | *Triglochin maritimum* | 100.0 | 90.7 | — | 30.7 | 94.4 | 0.250 | Middle | Aquatic | Open | 2697 |
| Juncaginaceae | *Triglochin palustre* | 99.3 | 63.1 | — | 64.1 | — | 0.250 | Middle | Aquatic | Open | 3467 |
| Lamiaceae | *Clinopodium urticifolium* | 99.3 | 15.1 | 100.0 | 19.1 | 100.0 | 0.525 | Middle | Mod | shade | 2240 |
| Lamiaceae | *Dracocephalum heterophyllum* | 100.0 | 89.7 | 65.0 | 92.3 | 75.0 | 0.175 | Middle | Sdr | Open | 2880 |
| Lamiaceae | *Dracocephalum purdomii* | 93.3 | 16.0 | 97.8 | 5.3 | 95.8 | 0.110 | Middle | Mod | Open | 3286 |
| Lamiaceae | *Dracocephalum tanguticum* | 99.3 | 83.6 | 73.8 | 85.6 | 44.4 | 0.450 | Middle | Sdr | Open | 2611 |
| Lamiaceae | *Elsholtzia ciliata* | 100.0 | 9.3 | 96.9 | 30.7 | 100.0 | 0.400 | Middle | Mod | Open | 2609 |
| Lamiaceae | *Elsholtzia fruticosa* | 100.0 | 85.0 | — | 86.0 | 50.0 | 1.400 | Middle | Mod | Open | 2085 |
| Lamiaceae | *Lagopsis supina* | 98.7 | 31.1 | 95.5 | 52.7 | 100.0 | 0.250 | Early | Mod | Open | 2880 |
| Lamiaceae | *Leonurus artemisia* | 100.0 | 28.7 | 100.0 | 5.0 | 99.6 | 0.750 | Middle | Mod | Open | 2180 |
| Lamiaceae | *Origanum vulgare* | 98.0 | 75.5 | 100.0 | 91.5 | — | 0.425 | Middle | Mdr | Open | 1237 |
| Lamiaceae | *Prunella vulgaris* | 100.0 | 71.3 | 98.6 | 22.0 | 99.5 | 0.250 | Early | Mod | Open | 2400 |
| Lamiaceae | *Rabdosia japonica* | 99.3 | 68.5 | 83.3 | 79.9 | 100.0 | 0.950 | Middle | Mod | shade | 1772 |
| Lamiaceae | *Rabdosia parvifolia* | 100.0 | 69.3 | 50.0 | 73.3 | 98.7 | 2.750 | Middle | Sdr | Open | 1841 |
| Lamiaceae | *Rabdosia weisiensis* | 95.3 | 33.6 | 96.2 | 44.1 | 99.4 | 0.350 | Late | Mod | shade | 2549 |
| Lamiaceae | *Salvia przewalskii* | 98.7 | 13.2 | 66.7 | 25.0 | 0.0 | 0.360 | Middle | Mod | Open | 3050 |
| Lamiaceae | *Schizonepeta multifida* | 100.0 | 90.7 | 44.4 | 82.7 | 43.3 | 0.400 | Middle | Mdr | Open | 2400 |
| Lamiaceae | *Scutellaria baicalensis* | 98.0 | 23.5 | 25.9 | 32.0 | 8.3 | 0.675 | Middle | Mod | Open | 3503 |
| Lamiaceae | *Thymus mongolicus* | 100.0 | 35.0 | 88.8 | 60.3 | 85.7 | 0.058 | Middle | Mdr | Open | 2283 |
| Liliaceae | *Aletris glabra* | 94.0 | 84.8 | — | 87.9 | 100.0 | 0.450 | Early | Mod | shade | 2310 |
| Liliaceae | *Aletris spicata* | 90.7 | 62.1 | 72.2 | 53.7 | — | 0.550 | Early | Mod | shade | 2096 |
| Liliaceae | *Allium chrysocephalum* | 97.3 | 31.2 | 100.0 | 52.1 | 100.0 | 0.160 | Middle | Mod | Open | 3607 |
| Liliaceae | *Allium cyaneum* | 98.7 | 76.7 | 100.0 | 89.2 | 71.7 | 0.275 | Middle | Mod | Open | 2666 |
| Liliaceae | *Allium mongolicum* | 100.0 | 33.3 | 95.3 | 65.3 | 90.0 | 0.200 | Middle | Sdr | Open | 2250 |
| Liliaceae | *Allium przewalskianum* | 100.0 | 23.7 | 100.0 | 55.0 | 100.0 | 0.250 | Middle | Mdr | Open | 2283 |
| Liliaceae | *Allium sikkimense* | 98.7 | 56.1 | 100.0 | 51.4 | 99.3 | 0.275 | Middle | Mod | Open | 3811 |
| Liliaceae | *Lilium pumilum* | 99.3 | 87.9 | 97.6 | 91.6 | 100.0 | 0.188 | Middle | Mdr | Open | 2666 |
| Liliaceae | *Ophiopogon bodinieri* | 98.7 | 80.4 | 93.3 | 86.1 | 88.9 | 0.300 | Middle | Sdr | Open | 1800 |
| Linaceae | *Linum nutans* | 100.0 | 58.0 | 96.6 | 82.0 | 100.0 | 0.300 | Middle | Mdr | Open | 2500 |
| Linaceae | *Linum perenne* | 100.0 | 84.0 | 91.7 | 92.3 | 100.0 | 0.500 | Middle | Mdr | Open | 2450 |
| Lythraceae | *Lythrum salicaria* | 100.0 | 72.3 | — | 10.7 | 100.0 | 0.650 | Middle | Aquatic | Open | 2670 |
| Malvaceae | *Grewia biloba* | 100.0 | 8.3 | 100.0 | 41.7 | 96.3 | 2.500 | Middle | Mod | Open | 1320 |
| Malvaceae | *Malva rotundifolia* | 100.0 | 34.7 | 98.3 | 37.7 | 97.9 | 0.375 | Middle | Mod | Open | 2681 |
| Malvaceae | *Malva verticillata* | 100.0 | 53.7 | 97.5 | 34.0 | 99.5 | 0.750 | Early | Mod | Open | 2609 |
| Nitrariaceae | *Nitraria sibirica* | 98.0 | 71.1 | — | 25.2 | 100.0 | 1.000 | Early | Sdr | Open | 1803 |
| Nyctaginaceae | *Oxybaphus himalaicus* | 100.0 | 10.0 | 100.0 | 40.7 | 100.0 | 0.700 | Middle | Mdr | Open | 1508 |
| Onagracea | *Epilobium angustifolium* | 99.3 | 48.7 | 57.5 | 32.6 | 26.8 | 0.750 | Middle | Mod | Open | 2931 |
| Onagraceae | *Epilobium amurense* | 100.0 | 81.0 | — | 28.0 | 100.0 | 0.450 | Middle | Wet | Open | 2549 |
| Onagraceae | *Epilobium hirsutum* | 99.3 | 85.6 | — | 94.3 | 0.0 | 1.375 | Middle | Wet | Open | 1290 |
| Onagraceae | *Epilobium royleanum* | 100.0 | 92.3 | — | 46.7 | 98.2 | 0.400 | Middle | Wet | Open | 3738 |
| Papaveraceae | *Meconopsis racemosa* | 100.0 | 10.3 | 99.2 | 41.0 | 98.0 | 0.350 | Middle | Mod | Open | 3990 |
| Plantaginaceae | *Plantago depressa* | 100.0 | 70.7 | 86.5 | 73.3 | 85.8 | 0.115 | Middle | Mod | Open | 3052 |
| Plantaginaceae | *Plantago major* | 98.7 | 64.2 | 100.0 | 7.1 | 100.0 | 0.235 | Middle | Mod | Open | 2549 |
| Poaceae | *Achnatherum extremiorientale* | 99.3 | 85.9 | 91.7 | 84.9 | 91.7 | 0.900 | Middle | Sdr | Open | 2180 |
| Poaceae | *Achnatherum inebrians* | 100.0 | 88.3 | 52.5 | 80.3 | 95.2 | 0.800 | Middle | Sdr | Open | 2880 |
| Poaceae | *Achnatherum sibiricum* | 99.3 | 86.2 | 45.0 | 94.0 | 55.6 | 1.000 | Middle | Sdr | Open | 2180 |
| Poaceae | *Achnatherum splendens* | 99.3 | 90.3 | 16.7 | 66.4 | 93.2 | 1.500 | Middle | Sdr | Open | 2611 |
| Poaceae | *Agrostis gigantea* | 100.0 | 72.0 | 77.8 | 5.3 | 100.0 | 0.800 | Middle | Mod | Open | 2681 |
| Poaceae | *Agrostis hugoniana* | 98.7 | 73.3 | 100.0 | 5.4 | 99.3 | 0.240 | Late | Mod | Open | 3060 |
| Poaceae | *Agrostis perlaxa* | 100.0 | 37.3 | 1.8 | 31.0 | 91.7 | 0.500 | Middle | Mod | Open | 3134 |
| Poaceae | *Aristida triseta* | 99.3 | 81.5 | 0.0 | 85.2 | 41.7 | 0.250 | Middle | Mdr | Open | 2970 |
| Poaceae | *Bromus japonicus* | 100.0 | 82.7 | 7.1 | 84.0 | 100.0 | 0.650 | Middle | Mdr | Mish | 2200 |
| Poaceae | *Bromus magnus* | 98.7 | 42.6 | 69.2 | 60.1 | 48.3 | 1.100 | Late | Mod | Mish | 3435 |
| Poaceae | *Bromus sinensis* | 99.3 | 89.9 | 0.0 | 93.3 | 0.0 | 0.600 | Middle | Mod | Mish | 3626 |
| Poaceae | *Bromus tectorum* | 100.0 | 66.3 | 0.0 | 83.7 | 0.0 | 0.400 | Middle | Mdr | Open | 2910 |
| Poaceae | *Calamagrostis pseudophragmites* | 98.0 | 17.7 | 0.0 | 7.1 | 58.6 | 0.700 | Middle | Mod | Open | 2804 |
| Poaceae | *Capillipedium parviflorum* | 99.3 | 71.5 | 30.6 | 86.6 | 66.3 | 0.750 | Middle | Mdr | Open | 1800 |
| Poaceae | *Chloris virgata* | 99.3 | 83.9 | 5.6 | 90.6 | 13.9 | 0.435 | Late | Mdr | Open | 1874 |
| Poaceae | *Cymbopogon distans* | 99.3 | 73.8 | 79.0 | 77.9 | 95.5 | 1.000 | Middle | Sdr | Open | 1738 |
| Poaceae | *Deschampsia caespitosa* | 100.0 | 82.3 | 66.7 | 74.3 | 100.0 | 0.900 | Middle | Wet | Open | 2910 |
| Poaceae | *Deschampsia littoralis* | 100.0 | 50.0 | 36.7 | 56.0 | 77.8 | 0.600 | Middle | Wet | Open | 3052 |
| Poaceae | *Deyeuxia flavens* | 97.3 | 34.2 | 0.0 | 53.4 | 7.3 | 0.500 | Late | Mod | Open | 2274 |
| Poaceae | *Deyeuxia scabrescens* | 99.3 | 27.5 | 0.0 | 37.6 | 0.0 | 0.800 | Middle | Mod | Open | 3690 |
| Poaceae | *Digitaria chrysoblephara* | 92.7 | 57.2 | 20.9 | 46.4 | 98.7 | 0.650 | Early | Mdr | Open | 1841 |
| Poaceae | *Digitaria ciliaris* | 96.0 | 70.5 | 93.3 | 5.2 | 100.0 | 0.600 | Early | Mdr | Open | 1848 |
| Poaceae | *Digitaria sanguinalis* | 100.0 | 89.7 | 0.0 | 8.3 | 100.0 | 0.450 | Early | Mdr | Open | 1290 |
| Poaceae | *Duthiea brachypodia* | 96.7 | 75.9 | 91.4 | 84.8 | 46.0 | 0.625 | Middle | Mod | Mish | 3442 |
| Poaceae | *Echinochloa crusgali* | 99.3 | 97.3 | — | 91.6 | 88.9 | 0.850 | Middle | Mod | Open | 1841 |
| Poaceae | *Elymus cylindricus* | 97.3 | 74.3 | 100.0 | 68.8 | 100.0 | 0.600 | Middle | Mod | Open | 2963 |
| Poaceae | *Elymus dahuricus* | 98.7 | 93.2 | 25.0 | 93.6 | 82.8 | 1.050 | Middle | Mdr | Open | 2145 |
| Poaceae | *Elymus excelsus* | 98.7 | 95.3 | 100.0 | 96.3 | 75.0 | 0.840 | Middle | Mod | Open | 3690 |
| Poaceae | *Elymus nutans* | 96.0 | 91.7 | 94.6 | 72.2 | 96.4 | 0.600 | Middle | Mod | Open | 2963 |
| Poaceae | *Elymus tangutorum* | 99.3 | 52.0 | 88.9 | 62.1 | 83.7 | 1.100 | Middle | Mdr | Open | 2804 |
| Poaceae | *Eragrostis nigra* | 100.0 | 82.0 | 0.0 | 80.3 | 85.9 | 0.450 | Middle | Sdr | Open | 2145 |
| Poaceae | *Festuca extremiorientalis* | 100.0 | 72.3 | 94.2 | 21.3 | 100.0 | 0.750 | Middle | Mdr | Open | 2515 |
| Poaceae | *Festuca kirilowii* | 99.3 | 62.4 | 39.6 | 39.9 | 100.0 | 0.450 | Middle | Mod | Open | 3400 |
| Poaceae | *Festuca ovina* | 96.7 | 87.2 | 0.0 | 85.9 | 100.0 | 0.175 | Middle | Mod | Open | 2948 |
| Poaceae | *Festuca rubra* | 99.3 | 71.1 | 84.4 | 46.0 | 100.0 | 0.500 | Middle | Mod | Open | 3060 |
| Poaceae | *Festuca sinensis* | 99.3 | 85.9 | 53.6 | 91.3 | 100.0 | 0.650 | Middle | Mod | Mish | 2965 |
| Poaceae | *Festuca undata* | 100.0 | 78.0 | 100.0 | 91.7 | 91.7 | 0.425 | Middle | Mod | Open | 3662 |
| Poaceae | *Festuca yunnanensis* | 100.0 | 88.3 | 58.3 | 68.3 | 90.0 | 0.775 | Middle | Mod | Open | 3380 |
| Poaceae | *Helictotrichon tibeticum* | 96.7 | 21.0 | 100.0 | 24.1 | 100.0 | 0.425 | Middle | Wet | Mish | 3800 |
| Poaceae | *Kengyilia mutica* | 100.0 | 91.3 | 38.4 | 91.3 | 100.0 | 0.475 | Middle | Mdr | Open | 3429 |
| Poaceae | *Koeleria cristata* | 99.3 | 94.3 | 50.0 | 76.8 | 100.0 | 0.350 | Middle | Mod | Open | 2965 |
| Poaceae | *Lolium persicum* | 96.0 | 84.0 | 47.9 | 72.6 | 92.6 | 0.450 | Middle | Mod | Open | 2670 |
| Poaceae | *Melica onoei* | 100.0 | 83.3 | 74.4 | 82.3 | 65.7 | 1.125 | Early | Mod | Mish | 2267 |
| Poaceae | *Melica przewalskyi* | 100.0 | 80.3 | 16.7 | 86.3 | — | 0.700 | Middle | Mod | Mish | 2180 |
| Poaceae | *Miscanthus sinensis* | 92.0 | 20.3 | 100.0 | 21.4 | 100.0 | 1.500 | Middle | Mdr | Open | 1905 |
| Poaceae | *Oplismenus undulatifolius* | 99.3 | 90.3 | 83.8 | 92.6 | 100.0 | 0.350 | Middle | Mod | Mish | 1072 |
| Poaceae | *Oryzopsis chinensis* | 86.7 | 12.3 | 100.0 | 18.5 | 100.0 | 0.550 | Early | Mod | Open | 2096 |
| Poaceae | *Oryzopsis munroi* | 94.0 | 25.5 | 90.2 | 40.1 | 92.9 | 0.550 | Middle | Mdr | Open | 2954 |
| Poaceae | *Oryzopsis tibetica* | 98.7 | 50.7 | 97.1 | 85.5 | 63.0 | 0.650 | Middle | Mdr | Open | 2180 |
| Poaceae | *Panicum miliaceum* | 98.7 | 9.5 | 100.0 | 5.4 | 100.0 | 0.800 | Middle | Mdr | Open | 1874 |
| Poaceae | *Pennisetum longissimum* | 95.3 | 84.3 | 72.8 | 82.2 | 14.5 | 1.500 | Middle | Mdr | Open | 967 |
| Poaceae | *Phragmites australis* | 96.7 | 46.9 | 5.3 | 21.4 | 81.4 | 2.000 | Middle | Mod | Open | 2402 |
| Poaceae | *Poa angustifolia* | 100.0 | 83.3 | 33.3 | 87.7 | 100.0 | 0.450 | Middle | Mod | Open | 3004 |
| Poaceae | *Poa annua* | 99.3 | 62.4 | 100.0 | 69.1 | 100.0 | 0.180 | Middle | Mod | Open | 2948 |
| Poaceae | *Poa attenuata* | 96.7 | 71.4 | 0.0 | 82.4 | 88.9 | 0.200 | Middle | Mod | Open | 3858 |
| Poaceae | *Poa crymophila* | 99.3 | 70.5 | 74.7 | 74.8 | 100.0 | 0.375 | Middle | Mod | Open | 3134 |
| Poaceae | *Poa declinata* | 100.0 | 51.0 | 98.1 | 52.0 | 100.0 | 0.550 | Middle | Mod | Open | 3040 |
| Poaceae | *Poa pratensis* | 100.0 | 73.3 | 62.5 | 60.0 | 100.0 | 0.700 | Middle | Mod | Open | 3000 |
| Poaceae | *Poa sinoglauca* | 98.7 | 75.3 | 56.2 | 83.1 | 100.0 | 0.250 | Middle | Mod | Open | 2678 |
| Poaceae | *Poa tunicata* | 100.0 | 50.3 | 100.0 | 62.7 | 100.0 | 0.375 | Middle | Mod | Open | 3280 |
| Poaceae | *Polypogon fugax* | 99.3 | 69.8 | — | 88.6 | — | 0.425 | Early | Aquatic | Open | 2283 |
| Poaceae | *Ptilagrostis concinna* | 100.0 | 89.7 | 0.0 | 97.9 | 50.0 | 0.200 | Middle | Mod | Open | 3503 |
| Poaceae | *Ptilagrostis dichotoma* | 100.0 | 88.7 | 16.7 | 93.3 | 66.7 | 0.450 | Middle | Mod | Open | 3920 |
| Poaceae | *Ptilagrostis dichotoma* var. *roshevitsiana* | 98.7 | 83.4 | — | 86.1 | 100.0 | 0.100 | Middle | Mod | Open | 3503 |
| Poaceae | *Puccinellia micrandra* | 100.0 | 76.0 | 40.0 | 9.3 | 99.4 | 0.150 | Early | Mdr | Open | 2515 |
| Poaceae | *Roegneria breviglumis* | 99.3 | 96.6 | 0.0 | 94.6 | 91.7 | 0.425 | Middle | Mod | Open | 3613 |
| Poaceae | *Roegneria dura* | 100.0 | 94.4 | 0.0 | 99.8 | — | 0.675 | Middle | Mod | Open | 2965 |
| Poaceae | *Roegneria parvigluma* | 98.7 | 92.2 | — | 95.9 | 55.6 | 0.420 | Middle | Mod | Open | 3160 |
| Poaceae | *Roegneria stricta* | 99.3 | 89.9 | 57.8 | 90.9 | 95.2 | 0.550 | Middle | Mod | Open | 2965 |
| Poaceae | *Roegneria varia* | 100.0 | 94.3 | 25.0 | 88.3 | 86.5 | 0.385 | Middle | Mod | Open | 2283 |
| Poaceae | *Sinochasea trigyna* | 98.0 | 89.1 | 25.9 | 95.2 | 0.0 | 0.260 | Late | Mod | Open | 4048 |
| Poaceae | *Sporobolus fertilis* | 100.0 | 89.3 | 68.3 | 78.7 | 100.0 | 0.725 | Early | Mdr | Open | 1194 |
| Poaceae | *Stephanachne nigrescens* | 98.7 | 95.3 | 0.0 | 89.5 | 16.7 | 0.540 | Middle | Mod | Mish | 3695 |
| Poaceae | *Stipa aliena* | 100.0 | 79.0 | 100.0 | 93.7 | 83.3 | 0.300 | Middle | Mod | Open | 2965 |
| Poaceae | *Stipa bungeana* | 99.3 | 93.0 | 0.0 | 87.9 | 100.0 | 0.400 | Middle | Mdr | Open | 2145 |
| Poaceae | *Stipa capillacea* | 98.7 | 93.2 | 87.5 | 95.3 | 100.0 | 0.350 | Middle | Mod | Open | 3442 |
| Poaceae | *Stipa grandis* | 99.3 | 58.4 | 91.2 | 36.6 | 96.9 | 0.750 | Middle | Sdr | Open | 2642 |
| Poaceae | *Stipa przewalskyi* | 97.3 | 71.2 | 94.4 | 51.4 | 91.0 | 0.550 | Middle | Mdr | Open | 2954 |
| Poaceae | *Stipa regeliana* | 98.0 | 76.2 | 26.7 | 77.6 | 11.5 | 0.350 | Middle | Mod | Open | 3968 |
| Poaceae | *Tragus bertesonianus* | 100.0 | 34.3 | 29.7 | 28.3 | 76.2 | 0.150 | Early | Mdr | Open | 1874 |
| Poaceae | *Trisetum sibiricum* | 100.0 | 85.3 | 19.6 | 86.0 | 74.2 | 0.850 | Middle | Mod | Open | 3442 |
| Polygonaceae | *Polygonum aviculare* | 99.3 | 35.6 | 97.3 | 35.2 | 99.5 | 0.250 | Middle | Mod | Open | 2180 |
| Polygonaceae | *Polygonum fertile* | 92.0 | 21.7 | 66.8 | 39.1 | 100.0 | 0.065 | Middle | Wet | Open | 3626 |
| Polygonaceae | *Polygonum glaciale* | 100.0 | 42.7 | 99.2 | 65.7 | 100.0 | 0.125 | Middle | Wet | Open | 3400 |
| Polygonaceae | *Rumex patientia* | 89.3 | 22.0 | 100.0 | 9.3 | 100.0 | 1.150 | Middle | Mod | Open | 2283 |
| Portulacaceae | *Portulaca oleracea* | 100.0 | 25.0 | 100.0 | 3.3 | 100.0 | 0.125 | Early | Mod | Open | 1290 |
| Primulaceae | *Androsace erecta* | 100.0 | 62.7 | 100.0 | 81.0 | 100.0 | 0.185 | Middle | Mdr | Open | 2283 |
| Primulaceae | *Androsace integra* | 100.0 | 43.3 | 100.0 | 45.3 | 100.0 | 0.090 | Early | Mdr | Open | 3160 |
| Primulaceae | *Androsace mariae* | 100.0 | 13.7 | 100.0 | 9.7 | 100.0 | 0.050 | Middle | Mdr | Open | 2271 |
| Primulaceae | *Primula gemmifera* | 99.3 | 43.3 | 100.0 | 59.7 | 100.0 | 0.190 | Early | Aquatic | Open | 3286 |
| Primulaceae | *Primula involucrata* | 100.0 | 64.7 | — | 97.3 | 100.0 | 0.175 | Middle | Wet | Open | 3200 |
| Primulaceae | *Primula orbicularis* | 100.0 | 46.3 | 91.3 | 22.0 | 100.0 | 0.175 | Middle | Wet | Open | 3442 |
| Ranunculaceae | *Aconitum barbatum* | 98.7 | 44.9 | 93.1 | 14.9 | 97.0 | 0.725 | Late | Mod | Mish | 2178 |
| Ranunculaceae | *Batrachium bungei* | 88.7 | 42.1 | 96.1 | 29.3 | 100.0 | 0.650 | Late | Aquatic | Open | 2737 |
| Ranunculaceae | *Clematis nannophylla* | 94.7 | 26.1 | 96.6 | 21.1 | 78.1 | 0.650 | Middle | Mdr | Open | 2450 |
| Ranunculaceae | *Clematis potaninii* | 93.3 | 59.6 | 100.0 | 42.9 | 99.4 | 0.676 | Middle | Mod | Open | 2609 |
| Ranunculaceae | *Clematis tangutica* | 99.3 | 63.1 | 88.9 | 53.4 | 100.0 | 0.676 | Middle | Mod | Open | 2931 |
| Ranunculaceae | *Delphinium densiflorum* | 98.0 | 36.4 | 79.9 | 39.5 | 98.5 | 0.380 | Middle | Mod | Open | 3960 |
| Ranunculaceae | *Delphinium kamaonense* | 100.0 | 75.3 | 84.8 | 82.3 | 37.1 | 0.350 | Middle | Mod | Open | 3052 |
| Ranunculaceae | *Delphinium pachycentrum* | 99.3 | 76.2 | 79.7 | 90.6 | 71.4 | 0.350 | Middle | Mod | Open | 2986 |
| Ranunculaceae | *Delphinium siwanense* | 99.3 | 22.8 | 98.2 | 34.9 | 99.4 | 0.600 | Late | Mod | Mish | 2609 |
| Ranunculaceae | *Ranunculus brotherusii* | 86.7 | 24.2 | 98.8 | 20.4 | 94.7 | 0.065 | Early | Wet | Open | 3525 |
| Ranunculaceae | *Ranunculus tanguticus* | 96.0 | 47.9 | 100.0 | 34.7 | 99.4 | 0.200 | Middle | Mod | Open | 3000 |
| Ranunculaceae | *Thalictrum minus* | 96.7 | 81.0 | 100.0 | 41.7 | 100.0 | 0.900 | Middle | Mod | Mish | 2180 |
| Ranunculaceae | *Thalictrum petaloideum* | 98.7 | 52.0 | 100.0 | 27.7 | 95.1 | 0.350 | Middle | Mdr | Open | 3160 |
| Ranunculaceae | *Thalictrum przewalskii* | 94.0 | 52.7 | 90.4 | 18.7 | 99.2 | 0.850 | Middle | Mod | Mish | 2910 |
| Ranunculaceae | *Thalictrum rutifolium* | 97.3 | 59.9 | 82.2 | 19.2 | 100.0 | 0.305 | Middle | Mod | Open | 3738 |
| Ranunculaceae | *Trollius chinensis* | 98.0 | 46.9 | 60.8 | 18.4 | 100.0 | 0.500 | Middle | Wet | Mish | 2960 |
| Ranunculaceae | *Trollius farreri* | 100.0 | 16.7 | 100.0 | 5.3 | 100.0 | 0.110 | Early | Wet | Open | 3990 |
| Rhamnaceae | *Rhamnus maximovicziana* | 93.3 | 35.7 | 92.2 | 25.7 | 100.0 | 2.500 | Early | Mdr | Open | 2254 |
| Rhamnaceae | *Rhamnus tangutica* | 93.3 | 40.5 | 38.6 | 52.4 | 97.0 | 4.000 | Early | Mod | Mish | 2515 |
| Rosaceae | *Agrimonia eupatoria* | 92.7 | 46.4 | 11.4 | 35.3 | 98.7 | 0.540 | Early | Mod | Mish | 2178 |
| Rosaceae | *Geum aleppicum* | 100.0 | 81.0 | 100.0 | 9.7 | 100.0 | 0.650 | Late | Mod | Open | 2594 |
| Rosaceae | *Osteomeles schwerinae* | 98.7 | 79.1 | 99.0 | 73.0 | 100.0 | 2.500 | Early | Mdr | Open | 1786 |
| Rosaceae | *Potentilla bifurca* | 99.3 | 47.0 | 100.0 | 31.2 | 100.0 | 0.125 | Early | Mod | Open | 2950 |
| Rosaceae | *Potentilla chinensis* | 99.3 | 48.0 | 100.0 | 30.5 | 81.0 | 0.450 | Early | Mod | Open | 2180 |
| Rosaceae | *Potentilla conferta* | 98.7 | 60.5 | 53.6 | 38.9 | 100.0 | 0.325 | Middle | Mdr | Open | 2584 |
| Rosaceae | *Potentilla fulgens* | 95.3 | 66.8 | 88.9 | 74.5 | 100.0 | 0.350 | Middle | Mod | Open | 2400 |
| Rosaceae | *Potentilla multicaulis* | 97.3 | 50.7 | 100.0 | 26.0 | 100.0 | 0.210 | Early | Mod | Open | 2958 |
| Rosaceae | *Potentilla potaninii* | 95.3 | 51.0 | 43.5 | 47.6 | 100.0 | 0.200 | Middle | Mod | Open | 3700 |
| Rosaceae | *Potentilla reptans* | 97.3 | 39.7 | 100.0 | 13.4 | 100.0 | 0.060 | Early | Mod | Open | 2085 |
| Rosaceae | *Potentilla tanacetifolia* | 98.0 | 86.7 | 11.1 | 59.9 | 63.8 | 0.400 | Early | Mdr | Open | 2661 |
| Rosaceae | *Pyracantha crenulata* | 96.0 | 77.2 | 100.0 | 78.1 | 100.0 | 2.000 | Early | Mdr | Open | 1237 |
| Rosaceae | *Sanguisorba officinalis* | 100.0 | 29.0 | 95.8 | 6.7 | 99.3 | 0.750 | Late | Mod | Open | 2624 |
| Rosaceae | *Sibbaldia procumbens* | 100.0 | 15.0 | 100.0 | 3.3 | 94.8 | 0.180 | Middle | Mod | Open | 3809 |
| Rosaceae | *Sibiraea angustata* | 100.0 | 69.7 | 0.0 | 85.0 | 50.0 | 2.250 | Middle | Mod | shade | 3286 |
| Rosaceae | *Sibiraea laevigata* | 100.0 | 73.3 | 0.0 | 85.7 | 68.1 | 1.500 | Middle | Mod | shade | 3040 |
| Rosaceae | *Sorbaria sorbifolia* | 100.0 | 81.0 | — | 65.7 | 100.0 | 2.000 | Middle | Mod | Mish | 2242 |
| Rosaceae | *Spiraea alpina* | 100.0 | 43.7 | 91.2 | 73.7 | 100.0 | 0.850 | Middle | Mod | shade | 3040 |
| Rosaceae | *Spiraea japonica* | 98.7 | 90.2 | 16.7 | 92.9 | 100.0 | 2.000 | Middle | Mod | shade | 2104 |
| Rosaceae | *Spiraea mollifolia* | 99.3 | 75.8 | 20.0 | 52.0 | 57.4 | 2.000 | Middle | Mod | shade | 2267 |
| Rosaceae | *Spiraea mongolica* | 99.3 | 38.9 | 91.9 | 53.7 | 95.2 | 3.000 | Middle | Mod | Mish | 2930 |
| Rosaceae | *Spiraea rosthornii* | 100.0 | 93.3 | — | 90.0 | 100.0 | 2.000 | Middle | Mod | shade | 2930 |
| Rubiaceae | *Galium varum* | 100.0 | 50.3 | 93.8 | 54.0 | 100.0 | 0.350 | Middle | Mod | Open | 2180 |
| Rubiaceae | *Leptodermis purdomii* | 100.0 | 74.7 | 0.0 | 72.7 | 4.8 | 1.500 | Middle | Sdr | Open | 1738 |
| Rubiaceae | *Rubia membranacea* | 100.0 | 33.0 | 74.7 | 60.7 | 94.6 | 0.676 | Middle | Mod | Open | 2475 |
| Salicaceae | *Salix paraplesia* | 96.0 | 73.6 | 0.0 | 70.5 | 66.7 | 6.500 | Early | Wet | Mish | 2613 |
| Saxifragaceae | *Astilbe chinensis* | 99.3 | 76.5 | 100.0 | 67.4 | 100.0 | 0.750 | Middle | Mod | Mish | 2441 |
| Saxifragaceae | *Hydrangea bretschneideri* | 99.3 | 60.7 | — | 84.9 | 100.0 | 6.500 | Middle | Mod | shade | 2271 |
| Saxifragaceae | *Parnassia brevistyla* | 97.3 | 5.5 | 22.8 | 5.5 | 100.0 | 0.170 | Middle | Wet | Mish | 2834 |
| Saxifragaceae | *Parnassia trinervis* | 100.0 | 17.7 | 100.0 | 10.0 | 100.0 | 0.185 | Middle | Mod | Mish | 2965 |
| Saxifragaceae | *Philadelphus incanus* | 99.3 | 76.8 | 0.0 | 89.6 | 4.8 | 2.500 | Middle | Mod | shade | 3990 |
| Saxifragaceae | *Rodgersia aesculifolia* | 100.0 | 82.7 | 75.0 | 75.3 | 100.0 | 1.000 | Middle | Wet | shade | 2267 |
| Saxifragaceae | *Saxifraga montana* | 99.3 | 58.7 | 100.0 | 38.6 | 100.0 | 0.198 | Early | Mod | Mish | 4011 |
| Scrophulariaceae | *Buddleja albiflora* | 89.3 | 53.7 | — | 86.9 | 100.0 | 3.000 | Middle | Mod | Mish | 2085 |
| Scrophulariaceae | *Buddleja alternifolia* | 96.0 | 56.3 | — | 81.0 | — | 2.000 | Middle | Mod | Mish | 2085 |
| Scrophulariaceae | *Buddleja davidii* | 97.3 | 77.1 | — | 78.1 | 100.0 | 2.500 | Early | Mdr | Mish | 1414 |
| Scrophulariaceae | *Buddleja purdomii* | 100.0 | 67.7 | 0.0 | 73.0 | 100.0 | 0.500 | Early | Mdr | Open | 2104 |
| Scrophulariaceae | *Euphrasia regelii* | 98.7 | 49.7 | 94.8 | 24.0 | 98.8 | 0.190 | Middle | Mod | Open | 2965 |
| Scrophulariaceae | *Lagotis brachystachya* | 94.7 | 39.4 | 63.8 | 26.8 | 89.4 | 0.060 | Early | Mdr | Open | 3417 |
| Scrophulariaceae | *Lancea tibetica* | 100.0 | 48.7 | 63.6 | 59.7 | 99.3 | 0.090 | Middle | Mdr | Open | 2240 |
| Scrophulariaceae | *Pedicularis anas* | 100.0 | 17.0 | 98.7 | 16.0 | 99.6 | 0.173 | Middle | Mod | Open | 3990 |
| Scrophulariaceae | *Pedicularis cheilanthifolia* | 99.3 | 7.0 | 99.3 | 8.7 | 96.2 | 0.175 | Middle | Mod | Open | 3820 |
| Scrophulariaceae | *Pedicularis cristatella* | 100.0 | 13.0 | 98.7 | 13.0 | 98.8 | 0.300 | Middle | Mdr | Open | 2923 |
| Scrophulariaceae | *Pedicularis ingens* | 99.3 | 84.6 | 7.4 | 90.3 | 58.0 | 0.800 | Middle | Mod | Mish | 3442 |
| Scrophulariaceae | *Pedicularis kansuensis* | 100.0 | 21.0 | 96.0 | 10.3 | 95.6 | 0.450 | Early | Mod | Open | 3000 |
| Scrophulariaceae | *Pedicularis lachnoglossa* | 98.7 | 93.6 | 3.0 | 94.9 | 55.0 | 0.350 | Middle | Mod | Open | 3870 |
| Scrophulariaceae | *Pedicularis lasiophrys* var. *sinica* | 99.3 | 22.8 | 95.7 | 14.1 | 89.5 | 0.200 | Middle | Mod | Open | 3443 |
| Scrophulariaceae | *Pedicularis longiflora* | 99.3 | 10.1 | 90.6 | 26.8 | 83.1 | 0.090 | Middle | Aquatic | Open | 3000 |
| Scrophulariaceae | *Pedicularis polyodonta* | 99.3 | 66.4 | 99.0 | 56.0 | 99.3 | 0.150 | Middle | Mod | Open | 3004 |
| Scrophulariaceae | *Pedicularis rhinanthoides* | 98.7 | 26.4 | 84.1 | 42.6 | 84.3 | 0.170 | Middle | Wet | Open | 2800 |
| Scrophulariaceae | *Pedicularis rudis* | 99.3 | 81.9 | 100.0 | 43.6 | 100.0 | 0.900 | Middle | Mod | shade | 2681 |
| Scrophulariaceae | *Pedicularis semitorta* | 98.7 | 11.5 | 95.2 | 17.6 | 95.1 | 0.360 | Middle | Mod | Open | 3004 |
| Scrophulariaceae | *Pedicularis striata* | 100.0 | 94.3 | 25.0 | 97.7 | 0.0 | 0.600 | Middle | Mdr | Open | 2200 |
| Scrophulariaceae | *Phtheirospermum japonicum* | 100.0 | 97.0 | — | 62.3 | 100.0 | 0.600 | Late | Mod | Mish | 2085 |
| Scrophulariaceae | *Scrofella chinensis* | 96.0 | 35.8 | 100.0 | 11.8 | 98.6 | 0.350 | Middle | Wet | Mish | 3552 |
| Scrophulariaceae | *Veronica anagallisaquatica* | 95.3 | 90.2 | — | 72.9 | 97.3 | 0.550 | Middle | Aquatic | Open | 2283 |
| Scrophulariaceae | *Veronica rockii* | 89.3 | 31.3 | 98.5 | 78.0 | 100.0 | 0.285 | Middle | Mod | Open | 2613 |
| Solanaceae | *Lycium chinense* | 99.3 | 69.5 | 86.6 | 92.3 | 85.2 | 0.750 | Late | Mdr | Open | 1414 |
| Solanaceae | *Solanum alatum* | 97.3 | 41.4 | 100.0 | 23.3 | 100.0 | 0.400 | Middle | Mod | Open | 940 |
| Solanaceae | *Solanum septemlobum* | 97.3 | 54.1 | 88.7 | 55.8 | 100.0 | 0.360 | Middle | Mod | Open | 2283 |
| Solanaceae | *Solanum septemlobum* var. *indutum* | 96.7 | 5.9 | 100.0 | 8.3 | 98.4 | 0.360 | Middle | Mod | Open | 2096 |
| Thymelaeaceae | *Wikstroemia chamaedaphne* | 98.7 | 26.4 | 100.0 | 7.1 | 96.6 | 1.000 | Middle | Mdr | Open | 1841 |
| Urticaceae | *Laportea bulbifera* | 98.0 | 28.6 | 100.0 | 61.6 | 95.1 | 1.000 | Middle | Wet | shade | 2274 |
| Urticaceae | *Pilea pauciflora* | 99.3 | 85.9 | 100.0 | 98.0 | 100.0 | 0.125 | Middle | Wet | shade | 2400 |
| Urticaceae | *Urtica cannabina* | 100.0 | 69.3 | 100.0 | 88.0 | 100.0 | 1.000 | Middle | Mod | Mish | 2710 |
| Urticaceae | *Urtica fissa* | 98.7 | 46.3 | — | 98.0 | 100.0 | 0.700 | Late | Mod | Mish | 1772 |
| Verbenaceae | *Caryopteris divaricata* | 100.0 | 17.7 | 96.2 | 17.3 | 96.4 | 0.480 | Late | Mod | Open | 2085 |
| Verbenaceae | *Caryopteris tangutica* | 100.0 | 79.7 | 46.3 | 82.0 | 96.7 | 1.250 | Late | Mdr | Open | 2282 |
| Verbenaceae | *Verbena officinalis* | 99.3 | 73.2 | 88.4 | 5.4 | 100.0 | 0.750 | Late | Mod | Open | 1290 |
| Verbenaceae | *Vitex negundo* | 98.3 | 80.0 | 100.0 | 47.1 | 100.0 | 1.500 | Early | Sdr | Open | 1414 |
| Zygophyllaceae | *Tribulus terrester* | 100.0 | 6.3 | 100.0 | 17.7 | 98.3 | 0.400 | Early | Sdr | Open | 1874 |

**Table S2.** Soil properties of the soil used in this study (mean ± standard errors).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PH | ammonium nitrogen  (mg/kg) | nitrate nitrogen (mg/kg) | total nitrogen (g/kg) | rapidly available potassium (mg/kg) | total potassium (g/kg) | soil organic carbon (g\kg) |
| 7.22±0.068 | 23.79±1.332 | 14.05±1.784 | 2.12±0.046 | 9.5±0.866 | 0.83±0.015 | 60.65±0.652 |