***Appendix S1. Additional information on position of transplant sites***

Table S1-1.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Source of TE data** | **How range limit was determined**\* | **Type of range limit**† | **Discordant TE versus MCP site classification** | | **Median distance (min, max) of over-the-edge sites to MCP (in km)** | **Median distance (min, max) between in-range and over-the-edge sites (in km)** |
| **Number of over-the-edge sites inside the MCP (out of total number)** | **Number of in-range sites outside the MCP (out of total number)** |
| *Abutilon theophrasti* | Andersen et al. 1985 | C | H | 0 (2) | 0 (1) | 1300 (534, 2066) | 3047 (2107, 3986) |
| *Acer*  *saccharum* | Kellman 2004 | P | H | 1 (1) | 0 (1) | -112 | 4.7 |
| *Anelosimus baeza* | Purcell & Aviles 2008 | P | V | 1 (1) | 0 (2) | -238 | 52 (44, 60) |
| *Aphragmus oxycarpus* | Klimeš & Dolezal 2010 | S | V | 3 (3) | 0 (1) | -163 (-163, -163) | 1.5 (1.2, 1.8) |
| *Arnica*  *montana* | Bruelheide & Scheidel 1999 | P | V | 2 (2) | 0 (1) | -734 (-738, -731) | 31 (14, 49) |
| *Atalopedes campestris* | Crozier 2004 | S | H | 1 (1) | 0 (1) | -140 | 125 |
| *Betula*  *papyrifera* | Hobbie & Chapin 1998 | B | H | 1 (1) | 0 (1) | -100 | 426 |
| *Camissoniopsis cheiranthifolia* | Samis & Eckert 2009 | P | H | 0 (1) | 0 (4) | 63 | 129 (60, 192) |
| *Chamaecrista fasciculata* | Stanton-Geddes et al. 2012 | C | H | 0 (2) | 1 (3) | 300 (204, 396) | 587 (106, 846) |
| *Clarkia xantiana ssp. parviflora* | Geber & Eckhart 2005 | P | H | 0 (1) | 0 (2) | 5.7 | 37 (16, 58) |
| *Clarkia xantiana ssp. xantiana* | Geber & Eckhart 2005 | P | H | 1 (1) | 0 (2) | -16 | 50 (42, 58) |
| *Digitalis purpurea* | Bruelheide & Heinemeyer 2002 | P | Both | 2 (2) | 0 (7) | -624 (-644, -603) | 40 (5, 67) |
| H | 1 (1) | 0 (4) | -603 | 32 (22, 60) |
| V | 1 (1) | 0 (3) | -644 | 14 (4.9, 22) |
| *Draba*  *altaica* | Klimeš & Dolezal 2010 | S | V | 2 (2) | 0 (2) | -237 (-237, -236) | 1.1 (0.3, 1.8) |
| *Draba*  *oreades* | Klimeš & Dolezal 2010 | S | V | 2 (2) | 0 (2) | -172 (-172, -172) | 1.1 (0.3, 1.8) |
| *Euphorbia amygdaloides* | Schulz & Bruelheide 1999 | C, P | H | 4 (4) | 0 (4) | -525 (-531, -514) | 25 (4, 50) |
| *Gilia capitata ssp. capitata* | Nagy & Rice 1997 | C, S | H | 1 (1) | 0 (1) | -6.9 | 66 |
| *Hordeum murinum* | Davison 1977 | C, P | V | 2 (2) | 0 (1) | -338 (-340, -336) | 50 (42, 58) |
| *Lactuca*  *serriola* | Prince & Carter 1985 | P, S | H | 3 (3) | 0 (2) | -303 (-357, -217) | 244 (64, 438) |
| *Lipoptena*  *cervi* | Härkönen et al. 2010 | P | H | 1 (3) | 0 (2) | 54 (-0.5, 345) | 438 (161, 798) |
| *Lomatium dissectum var. dissectum* | Marsico & Hellmann 2009 | C, S | H | 0 (1) | 0 (1) | 180 | 233 |
| *Lomatium nudicaule* | Marsico & Hellmann 2009 | C, S | H | 0 (1) | 0 (1) | 93 | 233 |
| *Lomatium utricularium* | Marsico & Hellmann 2009 | C, S | H | 0 (1) | 0 (1) | 140 | 233 |
| *Mimulus cardinalis* | Angert & Schemske 2005 | S | V | 2 (2) | 0 (2) | -256 (-272, -240) | 60 (18, 100) |
| *Mimulus*  *lewisii* | Angert & Schemske 2005 | S | V | 0 (1) | 0(3) | 18 | 68 (50, 100) |
| *Mnium arizonicum* | Cleavitt 2004 | P | V | 0 (4)§ | 5 (5) | 100 (100, 100) | 51 (47, 61) |
| *Mnium spinulosum* | Cleavitt 2004 | P | V | 5 (5) | 0 (4)§ | -898 (-912, -897) | 51 (47, 61) |
| *Pegaeophyton scapiflorum* | Klimeš & Dolezal 2010 | S | V | 3 (3) | 0 (1) | -114 (-114, -114) | 1.5 (1.2, 1.8) |
| *Phlox drummondii* | Levin & Clay 1984 | S | H | 4 (4)§ | 0 (5)§ | -56 (-54, -57) | 4.2 (1.4, 12) |
| *Picea*  *glauca* | Hobbie & Chapin 1998 | B | H | 1 (1) | 0 (1) | -181 | 426 |
| *Pinus*  *albicaulis* | McLane & Aitken 2012 | P | H | 0 (6)§ | 2 (4) | 534 (321, 1027) | 664 (62, 1363) |
| *Poa*  *attenuata* | Klimeš & Dolezal 2010 | S | V | 3 (3) | 0 (1) | -215 (-215, -215) | 1.5 (1.2, 1.8) |
| *Populus tremuloides* | Hobbie & Chapin 1998 | B | H | 1 (1) | 0 (1) | -6 | 426 |
| *Protea*  *aurea* | Latimer et al. 2009 | C | Both | 1 (4) | 1 (1) | 2.7 (-98, 6.1) | 125 (2.1, 372) |
| H | 1 (2) | 1 (1) | -49 (-98, 0.4) | 263 (151, 375) |
| V | 0 (2) | 1 (1) | 5.6 (5.0, 6.1) | 3.1 (2.1, 4.1) |
| *Protea*  *mundii* | Latimer et al. 2009 | C | H | 4 (4) | 0 (1) | -56 (-114, -52) | 373 (151, 375) |
| *Protea*  *punctata* | Latimer et al. 2009 | C | Both | 2 (3) | 0 (2) | -23 (-23, 1.1) | 198 (4.1, 375) |
| H | 0 (1) | 0 (2) | 1.1 | 263 (151, 375) |
| V | 2 (2) | 0 (1) | -23 (-23, -23) | 4.7 (4.1, 5.2) |
| *Saxifraga*  *nanella* | Klimeš & Dolezal 2010 | S | V | 2 (2) | 0 (2) | -28 (-29, -28) | 1.1 (0.3, 1.8) |
| *Stellaria depressa* | Klimeš & Dolezal 2010 | S | V | 3 (3) | 0 (1) | -77 (-77, -77) | 1.5 (1.2, 1.8) |
| *Thaumetopoea pityocampa* | Battisti et al. 2005 | P, S | Both | 1 (3)§ | 4 (6)§ | 336 (-27, 360) | 108 (1.3, 696) |
| H | 0 (2) | 4 (4) | 348 (336, 360) | 58 (21, 108) |
| V | 1 (1)§ | 0 (2)§ | -27 | 2.5 (1.3, 3.8) |
| *Vulpia fasciculata* | Norton et al. 2005 | P | H | 4 (6) | 0 (9) | -29 (-196, 30) | 420 (21, 735) |
| *Waldheimia tridactylites* | Klimeš & Dolezal 2010 | S | V | 1 (1) | 0 (3) | -145 | 0.6 (0.4, 1.8) |

\* Determined from C = collection records and/or flora ; S = author surveys and/or observations; P = published studies; B = biome shift/major change in plant community

† V= elevational; H = horizontal; for species transplanted over both types of limits, spatial characterizations of transplant sites are given for combined analyses (Both), as well as elevational and horizontal limits separately

‡ Negative values represent distances to MCP of over-the-edge sites that fall inside MCP.

§ Sites of the same type (in or out) occurring in the same grid cell in the climate layers were randomly thinned to one site per cell before analyses. Sites of different types occurring in the same grid cell were both excluded from analyses. Data in this table reflects transplant site information generated after removing these cell duplicate.