**Table S1.** Characteristics of the study species (Klinka et al., 2000). Subscripts ‘c’ and ‘i’ indicate respectively coastal and interior ranges

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Tolerance** |  |  |  |  |  |  |  |
|  | **Shade** | **Fire** | **Frost** | **Heat** | **Drought** | **Water surplus** | **Snow** | **Range (Western North America)** |
| Alaska-cedar | High | Low | Low | Low | Medium | High | Medium | Coastal |
| Amabilis fir | High | Low | Medium | Low | Low | High | High | Coastal |
| Black cottonwood | Low | Low | Medium | Medium | Low | High | Medium | Coastal to interior |
| Douglas-firc | Low | Medium | Low | Medium | Medium | Low | Low | Coastal |
| Douglas-firi | High | High | Medium | High | Medium | Low | Medium | Interior |
| Engelmann spruce | Medium | Low | High | Medium | Medium | High | High | Interior |
| Grand firc | Low | Low | Low | Medium | Medium | High | Medium | Coastal |
| Grand firi | Medium | Low | Medium | Medium | Medium | High | Medium | Interior |
| Lodgepole pine | Low | High | Medium | Medium | High | High | Low | Coastal and interior |
| Mountain hemlockc,i | High | Low | Medium | Low | Low | Medium | Medium | Coastal and interior |
| Ponderosa pine | Low | High | Medium | High | High | High | Medium | Coastal to interior |
| Red alder | Low | Low | Low | Low | Low | High | Low | Coastal |
| Sitka spruce | Medium | Low | Low | Low | Low | High | Low | Coastal |
| Subalpine fir | High | Low | High | Medium | Medium | High | High | Interior |
| Western hemlockc | High | Low | Low | Low | Low | Medium | Low | Coastal |
| Western hemlocki | High | Low | Low | Low | Low | Medium | Medium | Interior |
| Western larch | Low | High | Medium | Medium | Medium | Low | High | Interior |
| Western redcedarc | High | Low | Low | Medium | Medium | High | Low | Coastal |
| Western redcedari | High | Medium | Medium | Medium | Medium | High | Medium | Interior |
| Western white pinec | Medium | Medium | Medium | Medium | Low | High | High | Coastal |
| Western white pinei | Medium | High | High | Medium | Low | High | High | Interior |

**Table S2.** Correlation coefficient between the continuous explanatory variables. AN\_T = mean annual temperature, JJA\_T = mean summer temperature between June to August, annual (PDSI\_AN) and June-August PDSI (Palmer Drought Severity Index; PDSI\_JJA). ED = establishment date.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | AN\_T (°C) | JJA\_T (°C) | PDSI\_AN | PDSI\_JJA | ED | Latitude (°N) | Longitude (°W) | Elevation |
| AN\_T (°C) |  |  |  |  |  |  |  |  |
| JJA\_T (°C) | 0.848 |  |  |  |  |  |  |  |
| PDSI\_AN | 0.065 | 0.017 |  |  |  |  |  |  |
| PDSI\_JJA | 0.108 | 0.077 | 0.947 |  |  |  |  |  |
| ED | 0.157 | 0.278 | -0.026 | 0.084 |  |  |  |  |
| Latitude (°N) | -0.327 | -0.432 | 0.029 | -0.023 | -0.306 |  |  |  |
| Longitude (°W) | 0.156 | -0.171 | 0.048 | 0.028 | -0.329 | 0.721 |  |  |
| Elevation (m) | -0.460 | -0.244 | -0.079 | -0.054 | 0.174 | -0.661 | -0.786 |  |

**Table S3.** Average of the whole plots SI with standard deviation for each species.

|  |  |
| --- | --- |
| **Species** | **SI ± SD** |
| Alaska-cedar | 8.48 ± 3.02 |
| Amabilis fir | 16.84 ± 7.39 |
| Black cottonwood | 21.66 ± 7.02 |
| Douglas-firc | 27.66 ± 7.92 |
| Douglas-firi | 17.21 ± 7.25 |
| Engelmann spruce | 12.51 ± 4.54 |
| Grand firc | 29.13 ± 7.65 |
| Grand firi | 21.26 ± 9.44 |
| Lodgepole pine | 14.98 ± 4.96 |
| Mountain hemlockc | 5.97 ± 2.93 |
| Mountain hemlocki | 10.69 ± 3.24 |
| Ponderosa pine | 16.98 ± 8.42 |
| Red alder | 27.18 ± 4.99 |
| Sitka spruce | 24.28 ± 8.63 |
| Subalpine fir | 12.15 ± 4.90 |
| Western hemlockc | 21.74 ± 7.58 |
| Western hemlocki | 16.05 ± 4.57 |
| Western larch | 19.27 ± 4.00 |
| Western redcedarc | 17.95 ± 5.90 |
| Western redcedari | 14.71 ± 5.17 |
| Western white pinec | 19.27 ± 6.01 |
| Western white pinei | 20.71 ± 6.26 |