**Supplementary material**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Species | Mean Gibbs p | | | B2geo | B2env | Habitat range | | | Range overlap with current | |
| Near-present | SSP 2-4.5 | SSP 5-8.5 | Current | SSP 2-4.5 | SSP 5-8.5 | SSP 2-4.5 | SSP 5-8.5 |
| *E. albensis* | 0.0050±0.0005 | 0.0075±0.0008 | 0.0087±0.0009 | 0.6640 | 0.8032 | 2385 | 6939 | 10539 | 2379 | 2334 |
| *E. atrorubens* | 0.1711±0.0135 | 0.1515±0.0108 | 0.1333±0.0098 | 0.8482 | 0.6887 | 317184 | 214085 | 143342 | 182088 | 104310 |
| *E. dunensis* | 0.0172±0.0018 | 0.0179±0.0018 | 0.0231±0.0024 | 0.6092 | 0.1631 | 43026 | 45409 | 65680 | 42946 | 42440 |
| *E. fageticola* | 0.0031±0.0004 | 0.0033±0.0004 | 0.0033±0.0004 | 0.3926 | 0.7497 | 2047 | 2498 | 3184 | 2035 | 1570 |
| *E. helleborine* | 0.2880±0.0219 | 0.3525±0.0267 | 0.3671±0.0282 | 0.8524 | 0.7676 | 385645 | 462798 | 439304 | 310072 | 270798 |
| *E. kleinii* | 0.0050±0.0007 | 0.0047±0.0006 | 0.0041±0.0005 | 0.6998 | 0.2792 | 5986 | 5701 | 3833 | 5251 | 3509 |
| *E. leptochila* | 0.0145±0.0021 | 0.0107±0.0016 | 0.0085±0.0013 | 0.5831 | 0.6154 | 47869 | 32277 | 24684 | 29384 | 21445 |
| *E. lusitanica* | 0.0026±0.0006 | 0.0090±0.0019 | 0.0128±0.0024 | 0.7095 | 0.9031 | 7440 | 51423 | 87987 | 7440 | 7440 |
| *E. microphylla* | 0.0441±0.0058 | 0.0465±0.0060 | 0.0448±0.0056 | 0.8050 | 0.5386 | 113254 | 147815 | 142499 | 85288 | 60998 |
| *E. muelleri* | 0.0554±0.0069 | 0.0540±0.0068 | 0.0489±0.0054 | 0.7267 | 0.6163 | 172179 | 164138 | 129545 | 120446 | 85446 |
| *E. palustris* | 0.1978±0.0173 | 0.2171±0.0176 | 0.2114±0.0167 | 0.8535 | 0.6581 | 336987 | 320853 | 274912 | 248167 | 185529 |
| *E. phyllanthes* | 0.0060±0.0009 | 0.0116±0.0016 | 0.0144±0.0020 | 0.8391 | 0.6320 | 9583 | 24185 | 31859 | 9583 | 9583 |
| *E. purpurata* | 0.0319±0.0046 | 0.0206±0.0023 | 0.0138±0.0015 | 0.6662 | 0.5072 | 101232 | 32411 | 11477 | 16632 | 4504 |
| *E. tremolsii* | 0.0113±0.0022 | 0.0158±0.0023 | 0.0178±0.0023 | 0.7190 | 0.3547 | 24465 | 41097 | 49072 | 21886 | 19846 |

**Table S2** Mean Gibbs p with standard error for *Epipactis* species in near-present conditions and two future climate scenarios (SSP 2-4.5 & SSP 5-8.5) in 2061-2080, Levins’ B2 values in geographic and environmental space, area of suitable habitat (in 50km2 units) above the Maximum Test Sensitivity and Specificity threshold, and overlap of current and future habitat areas.

**Fig. S1** Latitudinal shifts in *Epipactis* habitat from current conditions to conditions predicted for 2061-2080 by two climate models, SSP 2-4.5 and SSP 5-8.5.

|  |  |
| --- | --- |
| **SSP 2-4.5** | **SSP 5-8.5** |
| C:\Users\u0129902\Desktop\chapt1 p2\lgend.pngC:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\albOverlap24.png | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\albOverlap58.png |
| *E. albensis* |  |

| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\atrOverlap24.png  *E. atrorubens* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\atrOverlap58.png |
| --- | --- |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\dunOverlap24.png  *E. dunensis* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\dunOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\fagOverlap24.png  *E. fageticola* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\fagOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\helOverlap24.png  *E. helleborine* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\helOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\kleOverlap24.png  *E. kleinii* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\kleOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\lepOverlap24.png  *E. leptochila* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\lepOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\lusOverlap24.png  *E. lusitanica* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\lusOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\micOverlap24.png  *E. microphylla* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\micOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\mueOverlap24.png  *E. muelleri* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\mueOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\palOverlap24.png  *E. palustris* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\palOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\phyOverlap24.png  *E. phyllanthes* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\phyOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\purOverlap24.png  *E. purpurata* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\purOverlap58.png |
| C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\treOverlap24.png  *E. tremolsii* | C:\Users\u0129902\Desktop\chapt1 p2\Maxent11 avg\treOverlap58.png |