**Supplementary material**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Explained variation by…(in %)  | All moth species  | Small moth species (<25mm)  | Host-plant specialists  | Moss, lichen, detritus feeders  | Macro-lep | Micro- lep | Incidence based | Random 50 | Random 100 | Random 200 |
| PsV  | Mean basal area  | 3.89  | 3.31  | 3.68  | 4.23  | 3.69 | 3.97 | 3.67 | 3.84 | 3.83 | 3.87 |
|  | Forest density  | 4.23  | 2.99  | 3.54  | 6.05\*\*  | 4.56 | 4.02 | 3.45 | 4.75 | 4.81 | 4.91 |
|  | Mean temperature  | 6.27\*\*  | 5.43\*\*\*  | 5.98\*\* | 7.58\*\* | 6.39\*\* | 5.98\*\* | 6.69\*\*\* | 5.31 | 5.53 | 5.60 |
|  | Mean air humidity  | 6.56\*\*\*  | 5.43\*\*  | 6.09\*\* | 7.19\*\*\* | 5.50\*\* | 7.10\*\* | 5.18\*\* | 5.76 | 6.14 | 6.32 |
|  | Year of sampling | 7.30  | 4.74  | 6.00  | 6.86  | 9.95\*\* | 5.72 | 7.67\* | 7.28 | 7.31 | 7.36 |
|  | PCoA1 plant species | 5.07\*  | 4.31\*  | 5.61\*\*  | 3.89  | 3.72 | 5.94\*\* | 5.42\*\*\* | 4.63 | 4.78 | 4.84 |
|  | PCoA2 plant species | 4.25  | 3.98\*  | 5.49\*\*  | 2.92  | 3.91 | 4.50 | 4.76\* | 4.22 | 4.35 | 4.44 |
|  | **Explained Variation total:** | **37.57(17.44)** | **30.19****(14.59)** | **36.39(18.32)** | **38.72****(17.09)** | **37.72(15.88)** | **37.23****(18.43)** | **36.86 (17.30)** | **38.80 (17.44)** | **36.75 (17.78)** | **37.35 (18.06)** |
| PdC  | Mean basal area  | 5.80\*\*\*  | 6.24\*\*\*  | 4.72\*\* | 4.35 | 5.42\*\* | 5.55\*\* | 4.91\* | 4.48 | 4.64 | 4.86 |
|  | Forest density  | 4.62\*  | 5.18\*\*  | 5.36\*\* | 3.06 | 3.61 | 5.15\*\* | 3.82 | 4.59 | 4.80 | 4.97 |
|  | Mean temperature  | 5.68\*\*  | 4.75\*  | 6.55\*\*\* | 8.30\*\*\* | 6.93\*\*\* | 4.51\* | 4.47\* | 4.65 | 4.98 | 5.09 |
|  | Mean air humidity  | 9.81\*\*\*  | 10.32\*\*\*  | 9.66\*\*\*  | 10.27\*\*\*  | 8.65\*\*\* | 10.88\*\*\* | 8.91\*\*\* | 6.85 | 7.49 | 7.93 |
|  | Year of sampling | 10.06\*\*\*  | 7.60\*  | 5.88\*\*  | 7.24  | 12.53\*\*\* | 7.22 | 7.60\* | 7.66 | 7.58 | 7.55 |
|  | PCoA1 plant species | 5.66\*\*  | 5.88\*\*  | 8.22\*\*\*  | 5.62\*\*  | 3.87 | 6.15\*\* | 5.71\*\* | 4.49 | 4.55 | 4.71 |
|  | PCoA2 plant species | 5.22\*\*  | 7.50\*\*\*  | 8.30\*\*\*  | 4.14  | 5.43\*\* | 6.23\*\*\* | 7.09\*\*\* | 6.11 | 6.56 | 6.91 |
|  | **Explained Variation total:** | **46.85(21.30)** | **52.86****(24.80)** | **48.69(26.60)** | **42.98****(17.17)** | **46.44(18.33)** | **45.69****(23.08)** | **42.52****(21.53)** | **38.84 (19.68)** | **40.61 (20.55)** | **42.03 (21.46)** |

Table A.1: Variation (in %) in moth assemblage composition explained by various predictors, following permutation tests (999 permutations) based on CAP-ordinations. The total explained variation is given for each group in bold. Furthermore, the total variation explained by vegetation characteristics is given within brackets. Statistical significance: \* p<0.05; \*\*: p<0.01; \*\*\*: p<0.001.