**Supplementary file S1A: Regression models on tree level**

Epiphytic lichen species richness was tested against tree species and stand age in a generalized mixed model with stand as a random variable. The test was performed in R package glmmTMB (Magnusson *et al.* 2017), using Generalized Poisson distribution (log link).

**Test 1: Full model, including the interaction of tree species and stand age:**tree level species richness ~ tree species \* age + (| stand)

Table 1. Species richness at tree level was tested against the interaction of tree species and stand age in GLMM with stand set as random variable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Standard error | z-value | Pr(>|z|) |
| Intercept | 2.38 | 0.06 | 39.62 | < 0.0001 |
| Norway spruce | -0.36 | 0.09 | -4.02 | < 0.0001 |
| Age 55 | -0.10 | 0.08 | -1.22 | 0.22 |
| Age 80 | -0.03 | 0.08 | -0.33 | 0.74 |
| Norway spruce × age 55 | 0.01 | 0.12 | 0.11 | 0.91 |
| Norway spruce × age 80 | -0.06 | 0.12 | -0.50 | 0.62 |

Table 2. The interaction between tree species and stand was not significant. Tested in Type II Wald chi-square test.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | DF | Pr(>Chi-square) |
| Tree species | 52.59 | 1 | < 0.0001 |
| Age | 2.59 | 2 | 0.27 |
| Tree species × age | 0.42 | 2 | 0.81 |

**Test 2: Reduced model (final model), including tree species and stand age:**tree level species richness ~ tree species + age + (| stand)

Table 3. Species richness at tree level was tested against stand age in GLMM with stand set as random variable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Standard error | z-value | Pr(>|z|) |
| Intercept | 2.39 | 0.05 | 48.18 | < 0.0001 |
| Norway spruce | -0.36 | 0.05 | -7.22 | < 0.0001 |
| Age 55 | -0.10 | 0.06 | -1.59 | 0.11 |
| Age 80 | -0.06 | 0.06 | -0.95 | 0.34 |

Table 4. The model variables were tested in Type II Wald chi-square test.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | DF | Pr(>Chi-square) |
| Tree species | 52.20 | 1 | < 0.0001 |
| Age | 2.57 | 2 | 0.28 |

**Test 3: Reduced model, including stand age:**tree level species richness ~ age + (| stand)

Table 5. Species richness at tree level was tested against stand age in GLMM with stand set as random variable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Standard error | z-value | Pr(>|z|) |
| Intercept | 2.25 | 0.05 | 41.04 | < 0.0001 |
| Age 55 | 2.59 | 0.08 | -1.70 | 0.27 |
| Age 80 | 0.42 | 0.08 | -0.90 | 0.81 |

Table 6. Stand age as the only variable in the model was not significant. Tested in Type II Wald chi-square test.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | DF | Pr(>Chi-square) |
| Age | 2.90 | 2 | 0.23 |

**Supplementary file S1B: Regression models on stand level**

Epiphytic lichen species richness aggregated at stand level was tested against tree species and stand age Generalized linear model with Poisson distribution (log link).

**Test 1: Full model, including the interaction of tree species and stand age:**stand level species richness ~ tree species \* age

Table 1. Species richness at stand level was tested against the interaction of tree species and stand age in GLM.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Standard error | z-value | Pr(>|z|) |
| Intercept | 3.10 | 0.07 | 46.36 | < 0.0001 |
| Norway spruce | -0.57 | 0.11 | -5.12 | < 0.0001 |
| Age 55 | -0.17 | 0.10 | -1.72 | 0.08 |
| Age 80 | -0.09 | 0.10 | -0.91 | 0.36 |
| Norway spruce × age 55 | 0.22 | 0.16 | 1.41 | 0.16 |
| Norway spruce × age 80 | 0.35 | 0.15 | 2.26 | 0.02 |

Table 2. The interaction of tree species and stand age was not significant. Tested in Analysis of Deviance Table (Type II tests).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | DF | Pr(>Chi-square) |
| Tree species | 36.13 | 1 | < 0.0001 |
| Age | 3.13 | 2 | 0.21 |
| Tree species × age | 5.25 | 2 | 0.07 |

**Test 2: Reduced model (final model), including the tree species and stand age:**stand level species richness ~ tree species + age

Table 3. Species richness at stand level was tested against tree species and stand age in GLM.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Standard error | z-value | Pr(>|z|) |
| Intercept | 3.03 | 0.05 | 51.02 | < 0.0001 |
| Norway spruce | -0.38 | 0.06 | -6.00 | < 0.0001 |
| Age 55 | -0.08 | 0.08 | -1.08 | 0.28 |
| Age 80 | 0.05 | 0.07 | 0.67 | 0.50 |

Table 4. The model variables were tested in Analysis of Deviance Table (Type II tests).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | DF | Pr(>Chi-square) |
| Tree species | 36.13 | 1 | < 0.0001 |
| Age | 3.13 | 2 | 0.21 |

**Test 3: Reduced model, including stand age:**stand level species richness ~ age

Table 3. Species richness at stand level was tested against tree species and stand age in GLM.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Standard error | z-value | Pr(>|z|) |
| Intercept | 2.86 | 0.05 | 53.41 | < 0.0001 |
| Age 55 | -0.08 | 0.08 | -1.08 | 0.28 |
| Age 80 | 0.05 | 0.07 | 0.67 | 0.50 |

Table 4. Stand age was tested in Analysis of Deviance Table (Type II tests).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | DF | Pr(>Chi-square) |
| Age | 3.13 | 2 | 0.21 |

**References**

Magnusson, A., Skaug, H., Nielsen, A., Berg, C.W., Kristensen, K., Mächler, M., van Benthem, K., Bolker, B. & Brooks, M. (2017). *glmmTMB: Generalized linear mixed models using Template Model Builder*.