**Supplementary Information for**

**Mowing did not alleviate the negative effect of nitrogen addition on arbuscular mycorrhizal fungal community in a temperate meadow grassland**

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**Figure S1** A priori model of the effects of N enrichment and mowing on AM fungal community: (a) AM fungal community in root, (b) AM fungal community in soil.

**Figure S2** Linear regressions of the α-diversity of plant community versus soil pH (a) and inorganic N (b) in unmown treatments.

**Figure S3** Linear regressions of the α-diversity of plant community versus soil pH (a) and inorganic N (b) in mown treatments.

**Figure S4** Rarefaction curves for observed AM fungal OTUs in soil and roots among the different treatments.

**Table. S1** The proportion of variance of AM fungal communities composition explained by the first and second principal components in principal component analysis (PCA).

|  |  |  |
| --- | --- | --- |
|  | PC1 | PC2 |
| AM fungi in soil | 39.69% | 10.25% |
| AM fungi in root | 37% | 20.32% |

**Table. S2** Results (F values) of two-way ANOVA for the effects of mowing (M), nitrogen addition (N) and their interactions on soil properties. \*P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Soil moisture | pH | Total C | Total N | Total P | Available P | 1/NH+ 4-N | Log10(NO- 3-N) | 1/Inorganic N |
| M | 12.978\*\*\* | 0.198 | 0.006 | 0.247 | 0.014 | 0.140 | 0.311 | 0.140 | 0.058 |
| N | 0.780 | 63.447\*\*\* | 0.579 | 10.196\*\*\* | 1.647 | 1.849 | 15.571\*\*\* | 5.922\*\*\* | 11.530\*\*\* |
| M×N | 0.763 | 2.797\* | 0.395 | 0.774 | 1.300 | 0.842 | 1.004 | 1.181 | 1.391 |

**Table. S3** Results (F values) of two-way ANOVA for the effects of mowing (M), nitrogen addition (N) and their interactions on plant community α diversity. \*P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Richness | Shannon-Wiener index | Simpson index | Pielou index |
| M | 30.534\*\*\* | 35.643\*\*\* | 40.180\*\*\* | 37.421\*\*\* |
| N | 11.152\*\*\* | 13.823\*\*\* | 13.028\*\*\* | 14.077\*\*\* |
| M×N | 1.777 | 0.173 | 0.243 | 0.159 |

**Table. S4** Results (F values) of two-way ANOVA for the effects of mowing (M), nitrogen addition (N) and their interactions on α diversity of AM fungal community in roots and soil. \*P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | OUT richness | | Shannon-Wiener index | | Simpson index | | Pielou index | |
|  | Root | Soil | Root | Soil | Root | Soil | Root | Soil |
| M | 2.308 | 0.085 | 0.030 | 0.206 | 0.327 | 0.941 | 0.493 | 0.106 |
| N | 2.095\* | 1.038 | 3.128\* | 2.465 | 2.215 | 4.722\*\* | 1.990 | 3.720\* |
| M×N | 1.253 | 0.771 | 0.542 | 0.451 | 0.807 | 0.072 | 1.226 | 0.410 |

**Table. S5** Results (F values) of two-way ANOVA for the effects of mowing (M), nitrogen addition (N) and their interactions on NTI and NRI of the arbuscular mycorrhizal fungal community in roots and soil. \*P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Root | | Soil | |
|  | NTI | NRI | NTI | Log10(NRI) |
| M | 0.712 | 1.031 | 1.836 | 0.490 |
| N | 0.628 | 1.193 | 4.807\*\* | 5.744\*\*\* |
| M×N | 0.954 | 1.384 | 0.302 | 0.214 |

S1

**Figure S1** A priori model of the effects of N enrichment and mowing on AM fungal community: (a) AM fungal community in root, (b) AM fungal community in soil.



**Figure S2** Linear regressions of the α-diversity of plant community versus soil pH (a) and inorganic N (b) in unmown treatments.

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**Figure S3** Linear regressions of the α-diversity of plant community versus soil pH (a) and inorganic N (b) in mown treatments.



**Figure S4** Rarefaction curves for observed AM fungal OTUs in soil and roots among the different treatments.