## Supplemental Tables

**Table S1** Soil texture and properties

**A. Soil texture**

| | | % Sand | | % Clay | | % Silt | |
|---|---|---|---|---|---|---|---|
| **Site** | **Depth (cm)** | Mean | ±SE | Mean | ±SE | Mean | ±SE |
| Cloquet | 0-5 | 69.5 | 2.5 | 7.2 | 0.4 | 23.2 | 2.4 |
| | 5-10 | 60.9 | 2.0 | 8.9 | 0.4 | 30.2 | 2.0 |
| | 10-20 | 60.5 | 2.3 | 11.1 | 0.7 | 28.4 | 1.8 |
| Ely | 0-5 | 82.1 | 0.6 | 6.1 | 0.0 | 11.8 | 0.6 |
| | 5-10 | 72.9 | 1.2 | 7.5 | 0.0 | 19.6 | 1.3 |
| | 10-20 | 71.6 | 0.1 | 11.6 | 0.0 | 16.8 | 0.1 |

**B. Soil properties**

| | Treatment | | pH | | Net Nitrogen Mineralization | | Net Nitrification | |
|---|---|---|---|---|---|---|---|---|
| **Site** | Warming | Drought | Mean | ±SE | Mean | ±SE | Mean | ±SE |
| Cloquet | +0°C | Ambient | 5.40 | 0.113 | 0.011 | 0.011 | 0.013 | 0.009 |
| | | RR | 5.32 | 0.152 | 0.017 | 0.013 | 0.018 | 0.010 |
| | +3.1°C | Ambient | 5.41 | 0.181 | 0.038 | 0.010 | 0.038 | 0.011 |
| | | RR | 5.47 | 0.111 | 0.040 | 0.011 | 0.043 | 0.009 |
| Ely | +0°C | Ambient | 5.53 | 0.206 | 0.031 | 0.006 | 0.032 | 0.009 |
| | | RR | 5.49 | 0.084 | 0.039 | 0.024 | 0.034 | 0.018 |
| | +3.1°C | Ambient | 5.52 | 0.092 | 0.039 | 0.013 | 0.045 | 0.008 |
| | | RR | 5.23 | 0.136 | 0.013 | 0.008 | 0.019 | 0.007 |

Table S2. Tree host growth by treatment and site expressed by their size (i.e., mean diameter and total height) and mass. Numbers in parentheses denotes ±SE of the mean.

| Species | Site | Treatment | | N | Mean diameter [mm] | Mean Total height [cm] | Mean Stem mass [g] |
|---|---|---|---|---|---|---|---|
| | | Warming | Reduced Rainfall (RR) | | | | |
| *Betula papyrifera* | Cloquet | Ambient | Ambient | 3 | 15.04 (1.95) | 194.17 (22.05) | 79.61 (24.90) |
| | Cloquet | Ambient | RR | 3 | 19.06 (2.58) | 233.50 (18.95) | 137.26 (41.96) |
| | Ely | Ambient | Ambient | 3 | 17.07 (4.23) | 187.33 (36.83) | 111.96 (60.53) |
| | Ely | Ambient | RR | 3 | 16.03 (3.81) | 172.50 (33.39) | 93.55 (45.63) |
| | Cloquet | Warmed | Ambient | 3 | 19.22 (3.51) | 220.00 (15.75) | 138.54 (52.34) |
| | Cloquet | Warmed | RR | 2 | 13.48 (1.59) | 171.50 (28.50) | 58.91 (18.12) |
| | Ely | Warmed | Ambient | 3 | 25.90 (2.34) | 277.67 (26.81) | 264.56 (58.88) |
| | Ely | Warmed | RR | 3 | 11.09 (1.11) | 151.83 (15.66) | 38.47 (8.43) |
| *Pinus banksiana* | Cloquet | Ambient | Ambient | 3 | 11.81 (0.60) | 111.67 (7.36) | 35.16 (4.38) |
| | Cloquet | Ambient | RR | 3 | 20.96 (7.48) | 166.50 (29.34) | 171.20 (119.89) |
| | Ely | Ambient | Ambient | 3 | 18.97 (1.76) | 168.00 (15.37) | 109.48 (23.45) |
| | Ely | Ambient | RR | 3 | 23.53 (4.56) | 186.67 (7.93) | 181.88 (71.31) |
| | Cloquet | Warmed | Ambient | 3 | 14.85 (0.70) | 135.17 (13.22) | 60.09 (8.28) |
| | Cloquet | Warmed | RR | 3 | 9.73 (1.90) | 91.67 (16.17) | 24.51 (10.93) |
| | Ely | Warmed | Ambient | 3 | 19.87 (3.59) | 185.33 (28.62) | 136.03 (51.41) |
| | Ely | Warmed | RR | 3 | 20.88 (3.74) | 135.33 (32.67) | 125.39 (47.27) |
| *Pinus strobus* | Cloquet | Ambient | Ambient | 3 | 9.73 (0.49) | 94.67 (3.18) | 22.32 (2.13) |
| | Cloquet | Ambient | RR | 3 | 15.59 (1.26) | 117.33 (2.67) | 60.11 (8.19) |
| | Ely | Ambient | Ambient | 3 | 16.95 (4.24) | 116.83 (25.92) | 84.34 (47.21) |
| | Ely | Ambient | RR | 3 | 14.17 (1.27) | 108.17 (8.14) | 48.60 (8.39) |
| | Cloquet | Warmed | Ambient | 3 | 13.56 (2.11) | 112.00 (11.55) | 48.49 (16.88) |
| | Cloquet | Warmed | RR | 3 | 14.43 (0.54) | 108.17 (9.88) | 49.41 (4.18) |
| | Ely | Warmed | Ambient | 2 | 13.78 (5.62) | 92.75 (32.75) | 52.65 (40.27) |
| | Ely | Warmed | RR | 3 | 11.02 (3.03) | 84.50 (23.19) | 32.64 (16.13) |
| *Quercus macrocarpa* | Cloquet | Ambient | Ambient | 3 | 11.95 (1.26) | 110.67 (13.92) | 35.97 (7.38) |
| | Cloquet | Ambient | RR | 3 | 17.05 (3.13) | 138.17 (24.85) | 85.00 (32.48) |
| | Ely | Ambient | Ambient | 2 | 13.04 (0.36) | 66.25 (5.75) | 30.65 (0.04) |
| | Ely | Ambient | RR | 3 | 15.04 (2.49) | 102.83 (23.28) | 57.44 (20.17) |
| | Cloquet | Warmed | Ambient | 3 | 14.47 (2.07) | 103.00 (22.90) | 52.51 (18.17) |
| | Cloquet | Warmed | RR | 3 | 11.81 (0.69) | 105.83 (8.48) | 34.25 (4.92) |
| | Ely | Warmed | Ambient | 3 | 13.67 (0.54) | 91.33 (27.23) | 39.62 (6.67) |
| | Ely | Warmed | RR | 3 | 10.79 (1.35) | 75.67 (22.14) | 25.27 (10.15) |

**Table S3.** Trait assignments for ectomycorrhizal Genera.

| Genus | Exploration range | Hydrophobicity | Reference |
|---|---|---|---|
| *Acephala* | Contact-Short | hi | Agerer 2001 |
| *Amanita* | Contact-Medium | ho | Agerer 2001 |
| *Amphinema* | Medium-Long | ho | Agerer 2001 |
| *Cenococcum* | Contact-Short | hi | Agerer 2001 |
| *Ceratobasidium* | Contact-Short | hi | Tedersoo et al. 2011 |
| *Clavulina* | Contact-Short | hi | Lilleskov et al. 2011 |
| *Clavulinopsis* | unknown | unknown | NA |
| *Cortinarius* | Medium-Long | ho | Agerer 2001 |
| *Elaphomyces* | Contact-Short | hi | Agerer 2001 |
| *Entoloma* | Medium-Long | ho | NA |
| *Genea* | Contact-Short | hi | Agerer 2001 |
| *Gliophorus* | Contact-Short | hi | Lilleskov et al. 2011 |
| *Gyroporus* | Medium-Long | ho | Agerer 2001 |
| *Hebeloma* | Contact-Short | hi | Agerer 2001 |
| *Helvellosebacina* | Contact-Short | hi | |
| *Humaria* | Contact-Short | hi | Agerer 2001 |
| *Hymenogaster* | Contact-Short | hi | Agerer 2001 |
| *Inocybe* | Contact-Short | hi | Agerer 2001 |
| *Laccaria* | Contact-Medium | hi | Agerer 2001 |
| *Lactarius* | Contact-Medium | hi | Lilleskov et al. 2011 |
| *Leccinum* | Medium-Long | ho | Agerer 2001 |
| *Meliniomyces* | Contact-Short | hi | Agerer 2001 |
| *Membranomyces* | Contact-Short | hi | Agerer 2001 |
| *Naucoria* | Contact-Medium | ho | Wallander et al. 2013 |
| *Peziza* | Contact-Short | hi | Agerer 2001 |
| *Piloderma* | Medium-Long | ho | Lilleskov et al. 2011 |
| *Pseudotomentella* | Contact-Medium | hi | Wallander et al. 2013 |
| *Rhizopogon* | Medium-Long | ho | Agerer 2001 |
| *Russula* | Contact-Medium | hi | Agerer 2001; Lilleskov et al. 2011 |
| *Scleroderma* | Medium-Long | ho | Agerer 2001 |
| *Sebacina* | Contact-Short | hi | Wallander et al. 2013 |
| *Serendipita* | Contact-Short | hi | Tedersoo & Smith 2013 |
| *Sistostrema* | Medium-Long | ho | Marino et al. 2009 |
| *Suillus* | Medium-Long | ho | Agerer 2001 |
| *Thelephora* | Contact-Medium | hi | Agerer 2001; Lilleskov et al. 2011 |
| *Tomentella* | Contact-Medium | hi | Agerer 2001; Lilleskov et al. 2011 |
| *Tomentellopsis* | Contact-Medium | hi | Weigt et al. 2011 |
| *Tuber* | Contact-Short | hi | Agerer 2001 |
| *Tylospora* | Contact-Short | hi | Agerer 2001; Lilleskov et al. 2011 |
| *Wilcoxina* | Contact-Short | hi | Agerer 2001 |

**Table S4.** Mixed model effects tests for measured soil temperature, soil moisture, Net nitrogen mineralization, and net nitrification for the warming (W), rainfall reduction (RR) treatments, and their interaction. Asterisks indicate statistical significance at the level of P<0.001 (***), P<0.01(**), P<0.05(*).

| | | | Soil Temperature | | | Soil Moisture | | | Net N mineralization | | | Net Nitrification | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fixed Effects | df num | df den | *F* | *P* | | *F* | *P* | | *F* | *P* | | *F* | *P* | |
| Intercept | 1 | 15 | 7805.61 | <.0001 | *** | 51.23 | <.0001 | *** | 31.34 | 0.0001 | *** | 55.94 | <.0001 | *** |
| W | 1 | 15 | 2518.30 | <.0001 | *** | 90.68 | <.0001 | *** | 0.81 | 0.3821 | | 2.53 | 0.1327 | |
| RR | 1 | 15 | 0.13 | 0.7291 | | 14.91 | 0.0015 | *** | 0.12 | 0.737 | | 0.20 | 0.6617 | |
| W x RR | 1 | 15 | 1.09 | 0.3123 | | 0.78 | 0.3899 | | 1.10 | 0.3101 | | 0.81 | 0.3833 | |

| Random Effects | Variance | SD | Variance | SD | Variance | SD | Variance | SD |
|---|---|---|---|---|---|---|---|---|
| Site | 0.062 | 0.249 | <0.001 | 0.031 | <0.001 | <0.001 | <0.001 | <0.001 |
| Block | 0.024 | 0.154 | <0.001 | 0.002 | <0.001 | 0.031 | 0.021 | 0.0145 |
| Residual | 0.024 | 0.156 | <0.001 | 0.012 | 0.013 | 0.118 | 0.01 | 0.101 |

**Table S5.** Mixed model effects tests for photosynthetic rate , conductance, plant height, stem diameter, and allometric mass for host species (H), warming (W), rainfall reduction (RR) treatments, and their interactions. Asterisks indicate statistical significance at the level of P<0.001 (***), P<0.01(**), P<0.05(*).

| | | | Photosynthetic rate (Asat) | | | Conductance (gs) | | | Height | | | Stem diameter | | | Mass | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fixed Effects | df num | df den | *F* | *P* | | *F* | *P* | | *F* | *P* | | *F* | *P* | | *F* | *P* | |
| (Intercept) | 1 | 58 | 171.91 | <.0001 | *** | 52.03 | <.0001 | *** | 4060.35 | <.0001 | *** | 4646.23 | <.0001 | *** | 1859.17 | <.0001 | *** |
| Warming (W) | 1 | 15 | 6.65 | 0.0209 | ** | 21.82 | 0.0003 | *** | 1.50 | 0.2397 | | 0.32 | 0.5819 | | 0.47 | 0.504 | |
| Drought (D) | 1 | 15 | 4.79 | 0.0449 | * | 9.38 | 0.0079 | ** | 1.04 | 0.3231 | | 0.43 | 0.5202 | | 0.49 | 0.4929 | |
| Host species (H) | 3 | 58 | 107.75 | <.0001 | *** | 66.24 | <.0001 | *** | 20.19 | <.0001 | *** | 2.40 | 0.077 | . | 5.25 | 0.0028 | ** |
| W X D | 1 | 15 | 1.14 | 0.3017 | | 1.42 | 0.2526 | | 4.79 | 0.0448 | * | 6.60 | 0.0214 | * | 6.21 | 0.0249 | * |
| W X H | 3 | 58 | 6.65 | 0.0006 | *** | 4.01 | 0.0114 | * | 0.68 | 0.5672 | | 0.38 | 0.7695 | | 0.44 | 0.7253 | |
| D X H | 3 | 58 | 1.77 | 0.1622 | | 1.57 | 0.2063 | | 1.23 | 0.3073 | | 1.15 | 0.3368 | | 1.10 | 0.3553 | |
| W X D X H | 3 | 58 | 1.01 | 0.3953 | | 1.34 | 0.2697 | | 0.27 | 0.8443 | | 0.76 | 0.5208 | | 0.63 | 0.5982 | |

| Random Effects | Variance | SD | Variance | SD | Variance | SD | Variance | SD | Variance | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| Site | 0.86 | 0.93 | 0.0007 | 0.027 | <.0001 | 0.013 | <.0001 | <.0001 | <.0001 | <.0001 |
| Block | 0.81 | 0.90 | 0.0004 | 0.019 | 0.005 | 0.068 | <.0001 | <.0001 | <.0001 | <.0001 |
| Plot | 0.56 | 0.75 | 0.0002 | 0.015 | <.0001 | <.0001 | 0.002 | 0.04 | 0.009 | 0.096 |
| Residual | 1.32 | 1.15 | 0.001 | 0.032 | 0.020 | 0.143 | 0.02 | 0.143 | 0.12 | 0.339 |

**Table S6.** Mixed model effects tests for ectomycorrhizal fungal OTU richness for host species (H), warming (W), rainfall reduction (RR) treatments, and their interactions Asterisks indicate statistical significance at the level of P<0.001 (***), P<0.01(**), P<0.05(*), P<0.1(.).

| Fixed Effects | df num | df den | *F* | *P* | |
|---|---|---|---|---|---|
| (Intercept) | 1 | 58 | 356.66 | <.0001 | *** |
| Warming (W) | 1 | 15 | 2.43 | 0.1397 | |
| Reduced Rainfall (RR) | 1 | 15 | 0.11 | 0.7476 | |
| Host species (H) | 3 | 58 | 3.76 | 0.0155 | * |
| W X RR | 1 | 15 | 0.93 | 0.351 | |
| W X H | 3 | 58 | 0.44 | 0.7236 | |
| RR X H | 3 | 58 | 0.54 | 0.6541 | |
| W X RR X H | 3 | 58 | 1.00 | 0.4009 | |

| Random Effects | Variance | SD |
|---|---|---|
| Site | <0.0001 | 0.0004 |
| Block | <0.0001 | <0.0001 |
| Plot | 7.75 | 2.78 |
| Residual | 27.99 | 5.29 |

**Table S7**. PERMANOVA effects tests for ectomycorrhizal community composition for host species (H), warming (W), rainfall reduction (RR) treatments, and their interactions. Asterisks indicate statistical significance at the level of P<0.001 (***), P<0.01(**), P<0.05(*), P<0.1 (.).

| Source | df | SS | *F* | R2 | *P* | |
|---|---|---|---|---|---|---|
| W | 1 | 1.052 | 2.5956 | 0.02584 | 0.001 | *** |
| RR | 1 | 0.537 | 1.3237 | 0.01318 | 0.117 | |
| H | 3 | 3.961 | 3.2564 | 0.09726 | 0.001 | *** |
| W X RR | 1 | 0.627 | 1.5467 | 0.0154 | 0.029 | * |
| W X H | 3 | 1.157 | 0.9514 | 0.02842 | 0.629 | |
| RR X H | 3 | 0.997 | 0.8197 | 0.02448 | 0.892 | |
| W X RR X H | 3 | 0.769 | 0.6325 | 0.01889 | 0.999 | |
| Residuals | 78 | 31.626 | 0.787 | 0.77654 | | |
| Total | 93 | 40.727 | | 1 | | |

**Table S8.** Mixed model effects tests for the relative abundance of functional traits of ectomycorrhizal fungi for host species (H), warming (W), rainfall reduction (RR) treatments, and their interactions. Asterisks indicate statistical significance at the level of P<0.001 (***), P<0.01(**), P<0.05(*), P<0.1 (.).

| | | | Exploration Type | | | | | | | | | Hydrophobicity | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Contact-Short | | | Contact-Medium | | | Medium-Long | | | Hi | | | Ho | | |
| Fixed Effects | df num | df dem | *F* | *P* | | *F* | *P* | | *F* | *P* | | *F* | *P* | | *F* | *P* | |
| Intercept | 1 | 58 | 22.88 | <.0001 | *** | 85.57 | <.0001 | *** | 4.39 | 0.041 | * | 99.36 | <.0001 | *** | 4.40 | 0.0403 | * |
| W | 1 | 15 | 2.88 | 0.111 | *** | 4.49 | 0.051 | . | 0.83 | 0.376 | | 1.53 | 0.235 | | 0.84 | 0.3745 | |
| RR | 1 | 15 | 0.02 | 0.893 | | 0.03 | 0.875 | | 0.01 | 0.926 | | 0.28 | 0.605 | | 0.01 | 0.9234 | |
| H | 3 | 58 | 9.92 | <.0001 | *** | 3.58 | 0.019 | * | 37.83 | <.0001 | *** | 43.38 | <.0001 | *** | 37.78 | <.0001 | *** |
| W X RR | 1 | 15 | 6.39 | 0.023 | ** | 2.66 | 0.124 | | 1.48 | 0.243 | | 0.99 | 0.337 | | 1.47 | 0.2442 | |
| W X H | 3 | 58 | 2.39 | 0.078 | . | 0.68 | 0.565 | | 1.05 | 0.376 | | 1.86 | 0.146 | | 1.05 | 0.3771 | |
| RR X H | 3 | 58 | 0.34 | 0.794 | | 0.62 | 0.602 | | 0.46 | 0.709 | | 0.18 | 0.907 | | 0.47 | 0.7078 | |
| W X RR X H | 3 | 58 | 0.57 | 0.638 | | 1.21 | 0.315 | | 0.40 | 0.753 | | 0.41 | 0.748 | | 0.40 | 0.7525 | |

| Random Effects | Variance | SD | Variance | SD | Variance | SD | Variance | SD | Variance | SD |
|---|---|---|---|---|---|---|---|---|---|---|
| Site | 0.010 | 0.098 | <0.0001 | <0.0001 | 0.013 | 0.115 | 0.011 | 0.104 | 0.013 | 0.115 |
| Block | <0.0001 | <0.0001 | 0.007 | 0.082 | 0.005 | 0.071 | 0.004 | 0.065 | 0.005 | 0.071 |
| Plot | 0.006 | 0.077 | 0.009 | 0.093 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Residual | 0.056 | 0.236 | 0.073 | 0.270 | 0.037 | 0.192 | 0.035 | 0.187 | 0.037 | 0.192 |

**Table S9.** Observed network index estimates and randomization tests based on null models generated with 'r2dtable' (Model 1) and 'vaznull' (Model 2) algorithms. *P*-values <0.05 indicate a significant deviation of the observed index estimate from the values of the randomized null network models.

| **Site** | **Treatment** | | H2' | | | Weighted NODF | | |
|---|---|---|---|---|---|---|---|---|
| | Warming | Reduced Rainfall | Estimate | Model 1 | Model 2 | Estimate | Model 1 | Model 2 |
| Cloquet | +0°C | Ambient | 0.591 | <0.0001 | <0.0001 | 18.00 | <0.0001 | <0.0001 |
| | | RR | 0.534 | <0.0001 | <0.0001 | 20.68 | <0.0001 | <0.0001 |
| | +3.1°C | Ambient | 0.541 | <0.0001 | <0.0001 | 21.46 | <0.0001 | <0.0001 |
| | | RR | 0.621 | <0.0001 | <0.0001 | 17.70 | <0.0001 | <0.0001 |
| Ely | +0°C | Ambient | 0.660 | <0.0001 | <0.0001 | 13.61 | <0.0001 | 0.001 |
| | | RR | 0.658 | <0.0001 | <0.0001 | 12.06 | <0.0001 | <0.0001 |
| | +3.1°C | Ambient | 0.878 | <0.0001 | <0.0001 | 7.85 | <0.0001 | <0.0001 |
| | | RR | 0.853 | <0.0001 | <0.0001 | 10.73 | <0.0001 | <0.0001 |

## Supplemental Figures

**Figure S1.** Average daily soil temperature (A) and moisture (B) during the growing season (June-October) from 2011-2016 associated with warming and reduced rainfall treatments. Boxplots represent the median (line in box), 25 percentile (lower hinge) and 75 percentile (upper hinge) ranges, and whiskers represent the range**.** Points represent means for each plot and shapes is coded by each of the sites (Cloquet= circle; Ely=triangle).

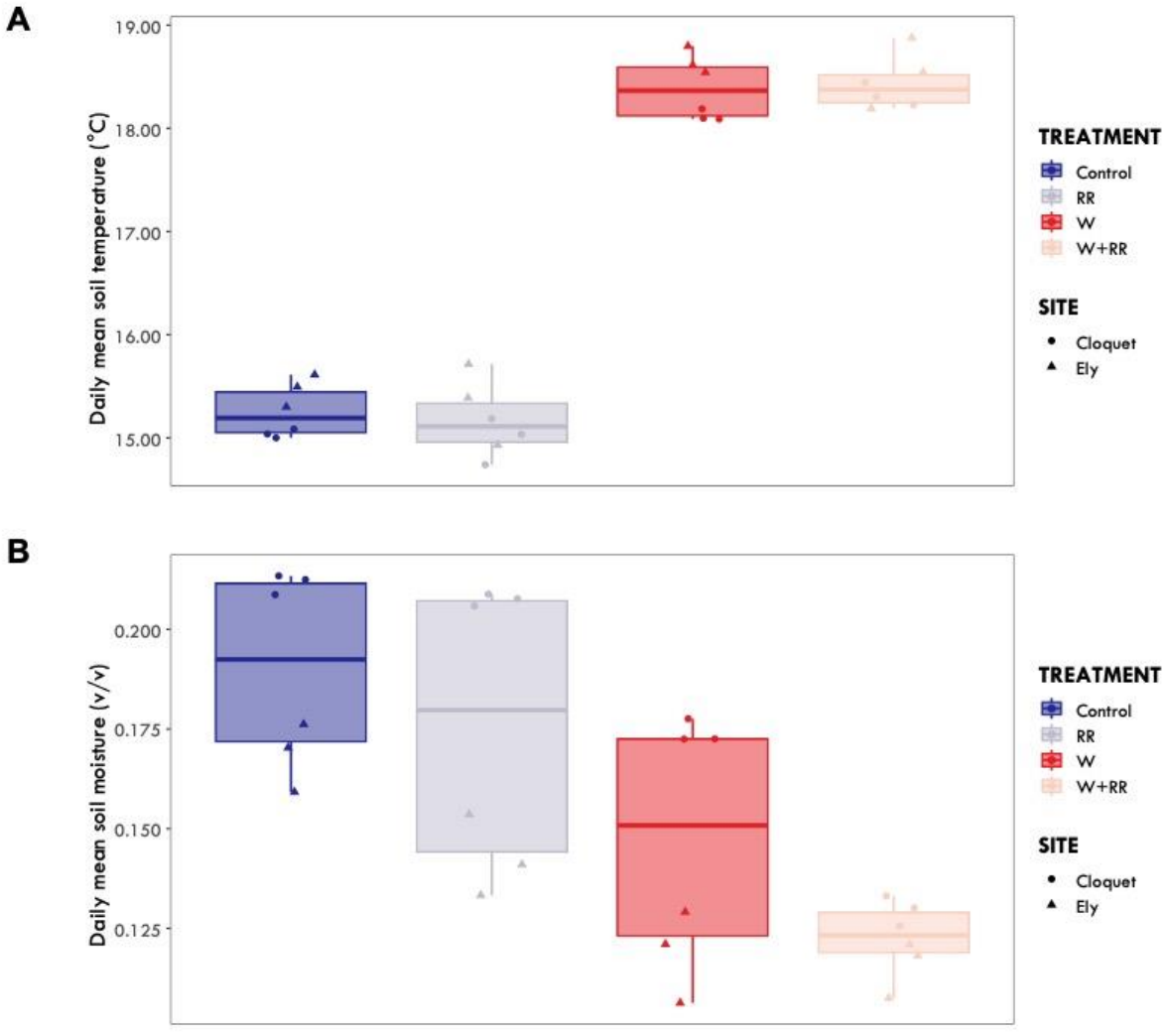

**Figure S2**. Photosynthetic rates ($A_{net}$) and stomatal conductance (gs) of hosts under warming and drought treatments. Points represent the mean for each species in a plot measured over 2011-2016 during June-September and are color coded by treatment and shape is coded to site. Boxplots represent the median (line in box), 25 percentile (lower hinge) and 75 percentile (upper hinge) ranges, and whiskers represent the range.

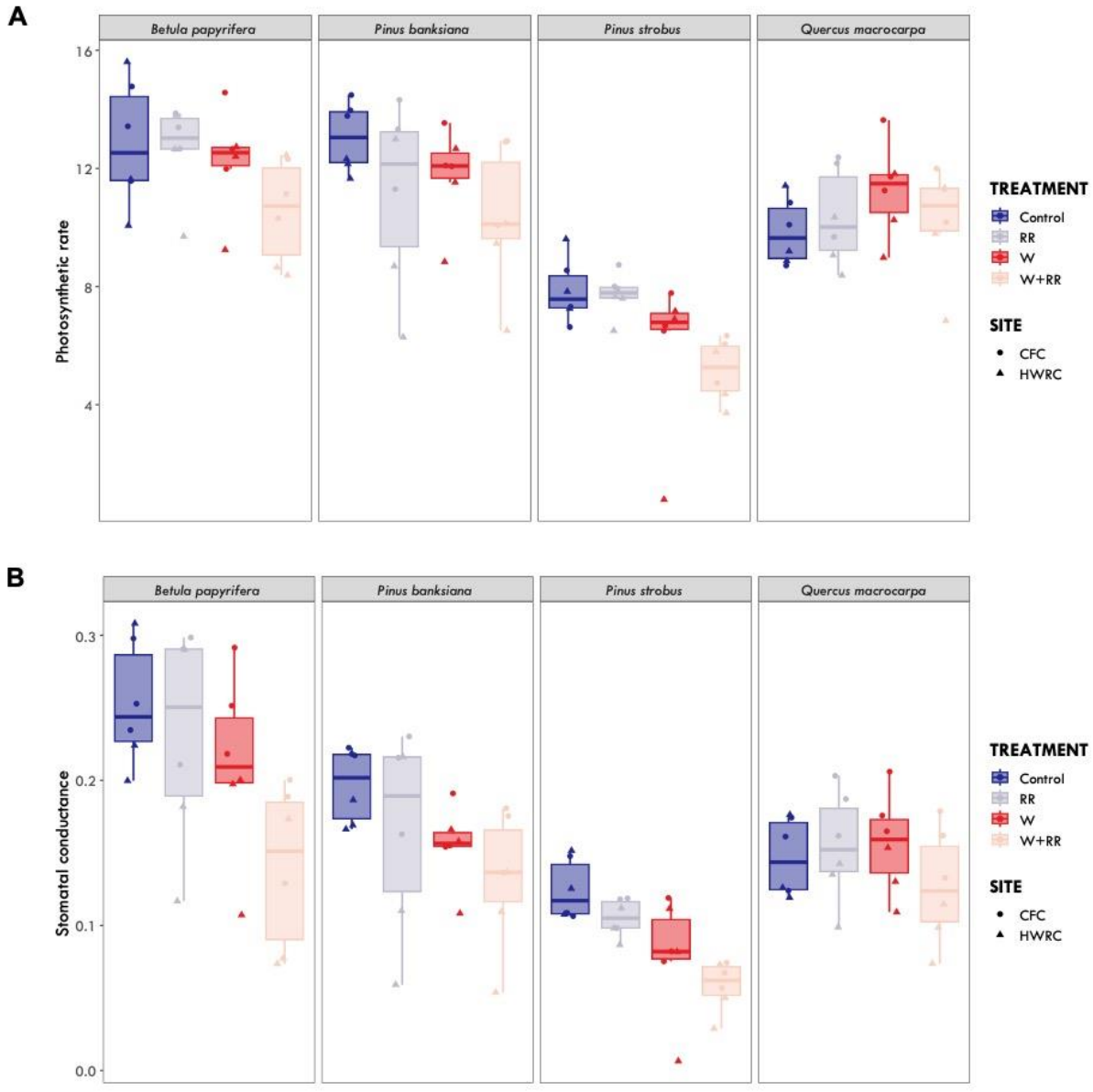

**Figure S3.** Total height, average stem diameter, and stem mass of hosts under warming and drought treatments. Points represent the log transformed value for each individual sampled from the 2016 census (final year of this study) and are color coded by treatment and shape is coded to site. Boxplots represent the median (line in box), 25 percentile (lower hinge) and 75 percentile (upper hinge) ranges, and whiskers represent the range.

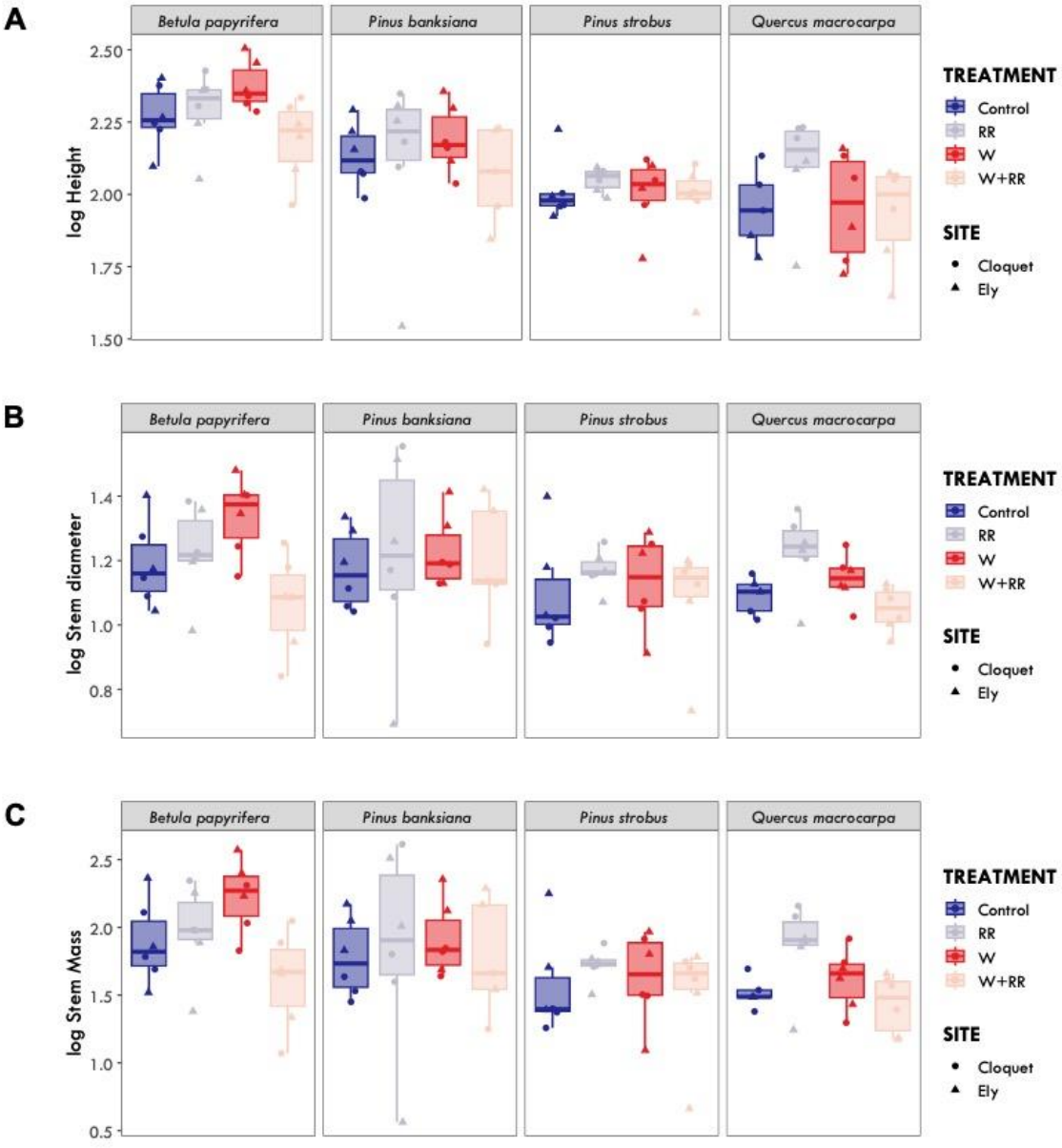

**Figure S4.** The relationship between daily mean soil moisture and host photosynthetic rates and stomatal conductance. Points represent the mean for each species in a plot measured over 2011-2016 during June-September and are color coded by treatment and shape is coded to site.

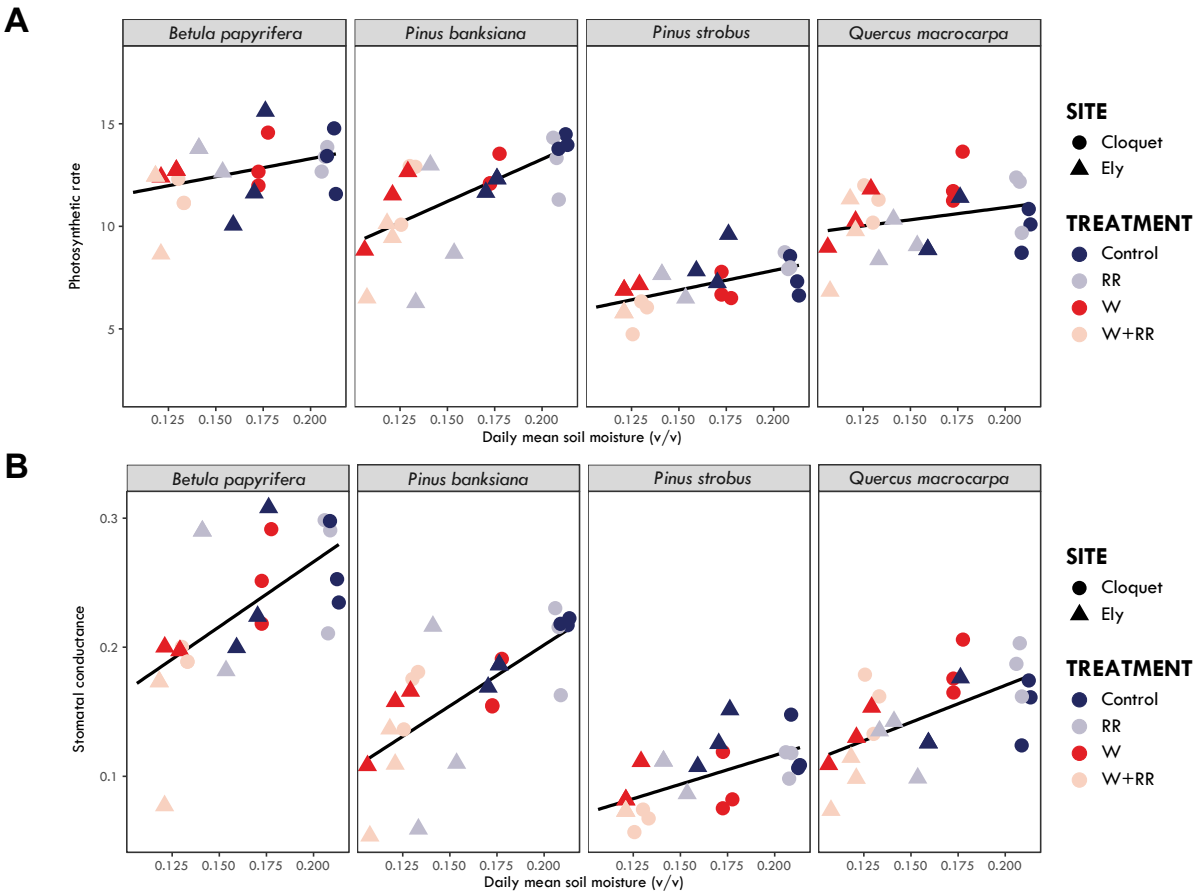

**Figure S5.** Response of ectomycorrhizal fungal OTU richness to warming (A), rainfall reduction (B), host plant (C) and treatment by host (D). Boxplots represent the median (line in box), 25 percentile (lower hinge) and 75 percentile (upper hinge) ranges, and whiskers represent the range. Points represent the number of OTUs in each sample (N=94) and are color coded by treatment and shape is coded to each host species. associated with *Betula papyrifera* (square), *Pinus banksiana* (circle), *Pinus strobus* (triangle), and *Quercus macrocarpa* (diamond) exposed to ambient conditions (Control), warming (W) and reduced rainfall (RR) and combined (W+RR) treatments.

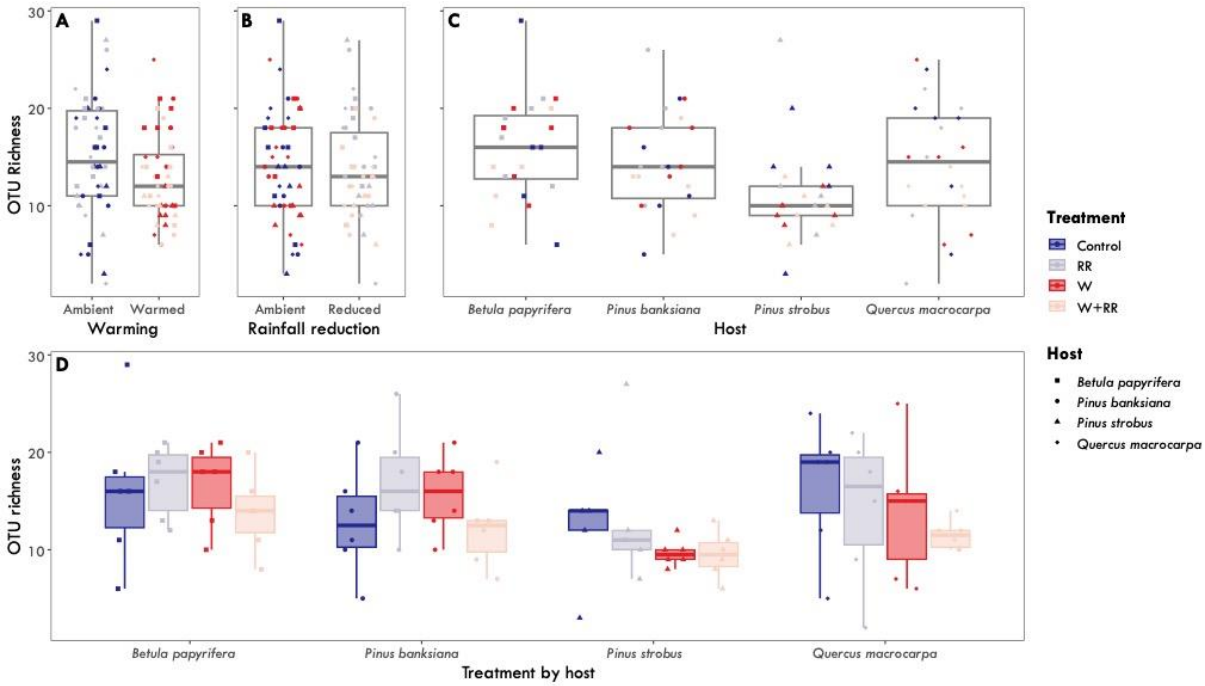

**Figure S6.** The relative abundance (square root transformed) of all ectomycorrhizal fungal genera associated with each host plant under the warming and rainfall reduction treatments. Boxplots represent the median (line in box), 25 percentile (lower hinge) and 75 percentile (upper hinge) ranges, whiskers represent the range. Boxplots and points are color coded by treatment. Points represent the relative abundance of each genus per sample (N=94) and are color coded by treatment and shape is coded to each host species.

**Figure S7.** The relative abundance (square root transformed) of *Pinus*-specialist ectomycorrhizal genera, *Suillus* and *Rhizopogon*. Boxplots represent the median (line in box), 25 percentile (lower hinge) and 75 percentile (upper hinge) ranges, whiskers represent the range. Boxplots and points are color coded by treatment. Points represent the relative abundance of each genus per sample and are color coded by treatment and shape is coded to each host species.

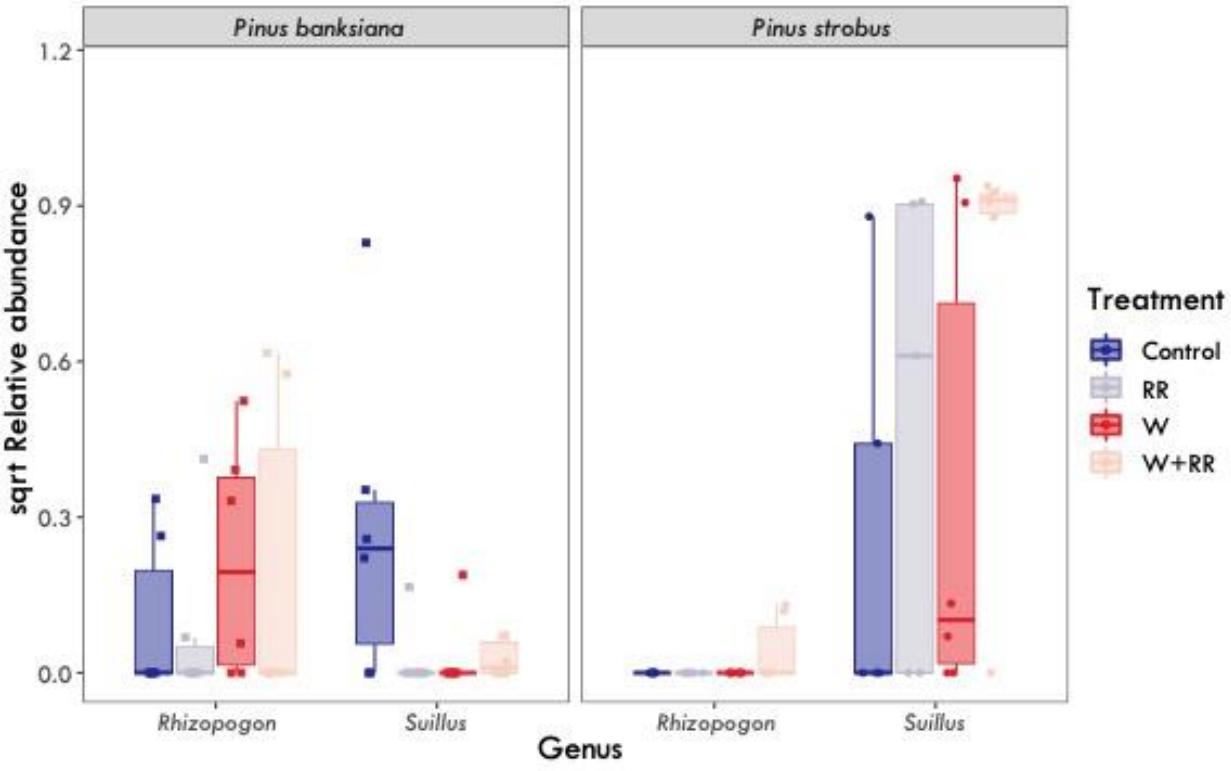

**Figure S8.** Bipartite network visualizations for each site and treatment combination using the LGL layout algorithm. Host nodes are represented as circles and labeled with their 5 letter code: *Betula papyrifera* (BETPA), *Pinus banksiana* (PINBA), *Pinus strobus* (PINST), *Quercus macrocarpa* (QUEMA) and associated ectomycorrhizal OTU nodes are represented as squares. Node size indicates the degree number (number of interactions with the opposite guild) in the network. The width of links between hosts and ectomycorrhizal OTUs indicates the weight of the interaction, which is based on relative abundance of the ectomycorrhizal fungus found on host roots. Nodes are color coded based on the climate change treatment ambient temperature & ambient precipitation (Control; dark blue), ambient temperature & reduced rainfall (RR; light blue), warmed & ambient precipitation (W; red), warmed & reduced rainfall (W+RR; pink).