



Supplementary Materials

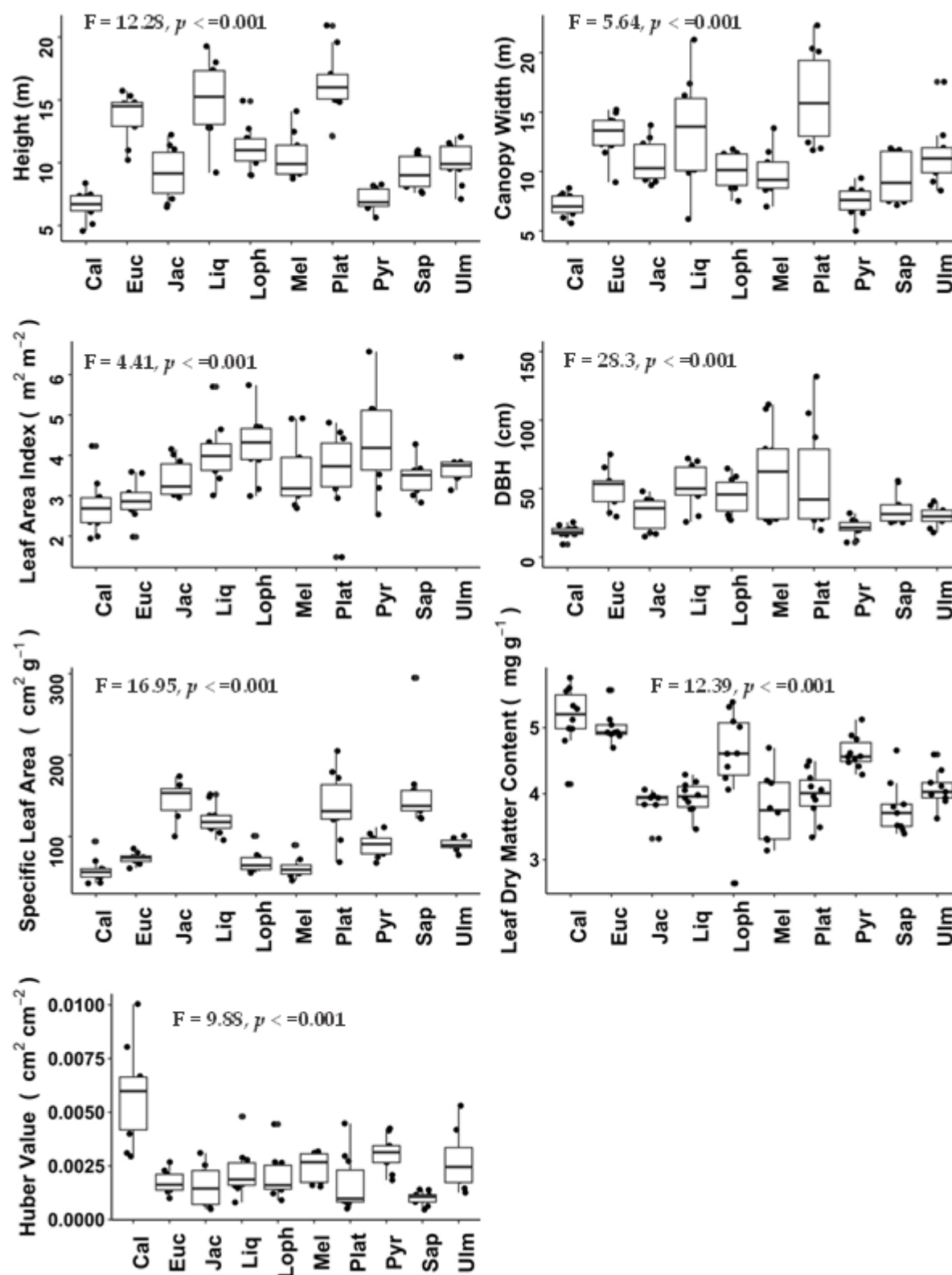


Figure S1. Within- and among species differences in tree characteristics; (a) canopy width, (b) DBH, (c) leaf area index, (d) height, (e) specific leaf area, (f) leaf dry matter content and (g) Huber value. ANOVA results of differences among species for respective traits are given in each plot.

Table S1. Analysis of variance results from LMER models to test whether delta temperature (ΔT) varies among tree species in the morning, afternoon and night-time. Tree species, solar irradiance and VPD (vapor pressure deficient) were considered as fixed effects, and Dates and suburbs as random effects.

| Morning | X² | df | p value |
|-------------------|----------------------|-----------|----------------|
| Solar irradiance | 0.7831 | 1 | 0.38 |
| VPD | 12.11 | 1 | < 0.001 |
| Tree species | 1653.89 | 9 | < 0.001 |
| Afternoon | | | |
| Solar irradiance | 599.72 | 1 | < 0.001 |
| VPD | 42480.98 | 1 | < 0.001 |
| Tree species | 1705 | 9 | < 0.001 |
| Night-time | | | |
| Solar irradiance | 599.72 | 1 | < 0.001 |
| VPD | 42480.98 | 1 | < 0.001 |
| Tree species | 1705.73 | 9 | < 0.001 |

Table S2. Results of LMER models assessing the relationship between delta temperature (ΔT) in the morning and tree traits (leaf area index [LAI], tree height, crown width, specific leaf area [SLA], Huber value and leaf dry matter content [LMDC], and microclimatic variables (solar irradiance, VPD and wind speed).

| Fixed Effects | Estimate | Std. Error | df | t value | p value |
|------------------------------------|-----------------|-------------------|-----------------|----------------|----------------|
| (Intercept) | -0.360 | 0.456 | 51.71 | -0.79 | NS |
| Solar irradiance | -0.193 | 0.045 | 104400 | -4.30 | 0.001 |
| VPD | -0.276 | 0.012 | 103900 | -23.10 | 0.001 |
| Wind speed | 0.035 | 0.002 | 94580 | 14.33 | 0.001 |
| Canopy width | -0.052 | 0.005 | 95 | -11.31 | 0.001 |
| LDMC | -0.046 | 0.022 | 95 | -2.05 | 0.04 |
| LAI | -0.207 | 0.011 | 95 | -18.78 | 0.001 |
| Height | -0.009 | 0.005 | 95 | -1.61 | NS |
| SLA | -0.292 | 0.358 | 95 | -0.82 | NS |
| Huber value | 0.072 | 0.009 | 95 | 7.90 | 0.001 |
| Random Effects | Variance | | Std.Dev. | | |
| Tree species | 0.12 | | 0.34 | | |
| Date | 6.23 | | 2.50 | | |
| Suburb | 0.02 | | 0.16 | | |
| Residual | 5.20 | | 2.28 | | |
| Rc ² (Rm ²) | 0.48 (0.12) | | | | |

Table S3. Results of LMER models assessing the relationship between delta temperature (ΔT) in the afternoon and tree traits (leaf area index [LAI], tree height, crown width, specific leaf area [SLA], Huber value and leaf dry matter content [LMDC], and microclimatic variables (solar irradiance, VPD and wind speed).

| Fixed Effects | Estimate | Std. Error | df | t value | p value |
|-----------------------|-----------------|-------------------|-----------|----------------|----------------|
| (Intercept) | 3.915 | 0.433 | 25.77 | 9.034 | 0.001 |
| Solar irradiance | -0.283 | 0.029 | 75440 | -9.612 | 0.001 |
| VPD | -1.356 | 0.007 | 75430 | -184.987 | 0.001 |
| Wind speed | 0.115 | 0.001 | 75390 | 119.621 | 0.001 |
| Canopy width | -0.021 | 0.003 | 95 | -8.159 | 0.001 |
| LDMC | 0.016 | 0.013 | 95 | 1.271 | NS |
| LAI | -0.203 | 0.006 | 95 | -33.054 | 0.001 |
| Height | 0.007 | 0.003 | 95 | 2.379 | 0.02 |
| SLA | 1.043 | 0.201 | 95 | 5.199 | 0.001 |
| Huber value | 0.014 | 0.005 | 95 | 2.647 | 0.01 |
| Random Effects | Variance | Std.Dev. | | | |
| Tree species | 0.03 | 0.18 | | | |
| Date | 5.05 | 2.25 | | | |

| | | |
|------------------------------------|-------------|------|
| Suburbs | 0.12 | 0.35 |
| Residual | 1.37 | 1.17 |
| Rc ² (Rm ²) | 0.92 (0.49) | |

Table S4. Results of LMER models assessing the relationship between night-time ΔT and tree traits (leaf area index [LAI], tree height, crown width, specific leaf area [SLA], Huber value and leaf dry matter content [LMDC], and microclimatic variables (solar irradiance, VPD and wind speed).

| Fixed Effects | Estimate | Std. Error | df | t value | p value |
|------------------------------------|-------------|------------|----------|---------|---------|
| (Intercept) | 1.214 | 0.493 | 39.14 | 2.464 | 0.02 |
| VPD | -0.601 | 0.016 | 75370 | -37.7 | 0.001 |
| Wind speed | -0.026 | 0.001 | 75350 | -23.74 | 0.001 |
| Canopy width | -0.008 | 0.002 | 95 | -4.48 | 0.001 |
| LDMC | 0.067 | 0.008 | 95 | 7.95 | 0.001 |
| LAI | 0.065 | 0.004 | 95 | 15.65 | 0.001 |
| Height | 0.015 | 0.002 | 95 | 7.431 | 0.001 |
| SLA | 0.502 | 0.135 | 95 | 3.710 | 0.001 |
| Huber value | -0.037 | 0.003 | 95 | -10.837 | 0.001 |
| Random Effects | Variance | | Std.Dev. | | |
| Tree species | 0.01 | | 0.10 | | |
| Date | 8.27 | | 2.87 | | |
| Suburbs | 0.04 | | 0.22 | | |
| Residual | 0.61 | | 0.78 | | |
| Rc ² (Rm ²) | 0.93 (0.03) | | | | |