**Table 1.** Regression coefficients for linear mixed effects model with ln *N*area as the dependent variable and soil treatment variables, climate, leaf traits, and species characteristics as fixed effects.\*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Slope** | ***p*** | **Relative Importance** |
| Soil N | - | **< 0.001** | 1% |
| Soil P | - | 0.726 | 0.1% |
| Soil K+µ | - | 0.489 | 0.1% |
| χ | -0.278 ± 0.121 | **0.021** | 5% |
| Temperature | -0.028 ± 0.013 | **0.030** | 5% |
| ln PAR | -0.115 ± 0.286 | 0.684 | 19% |
| ln VPD | -0.033 ± 0.086 | 0.696 | 2% |
| Elevation | 0.0001 ± 0.0001 | 0.327 | 3% |
| ln LMA | 0.936 ± 0.009 | **< 0.001** | 53% |
| N fixer | - | **< 0.001** | 5% |
| C3/C4 | - | **< 0.001** | 4% |
| Soil N x Soil P | - | **0.003** | 0.1% |
| Soil N x Soil K | - | 0.578 | 0.1% |
| Soil P x Soil K | - | 0.767 | 0.05% |
| Soil N x Soil P x Soil K | - | 0.898 | 0.1% |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Key: χ = ratio of intercellular to extracellular CO2 concentration, LMA = leaf mass per leaf area, PAR = photosynthetically active radiation, *p* = p-value, VPD = vapor pressure deficit.

**Table 2.** Regression coefficients for linear mixed effects model with *N*area as the dependent variable and soil treatment variables, predicted nitrogen components, and species characteristics as fixed effects.\*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Slope** | ***p*** | **Relative Importance** |
| ln *N*photo | 0.533 ± 0.090 | **< 0.001** | 23% |
| ln *N*structure | 0.955 ± 0.009 | **< 0.001** | 38% |
| Soil N | - | **< 0.001** | 5% |
| Soil P | - | 0.700 | 4% |
| Soil K+µ | - | 0.366 | 4% |
| N fixer | - | **< 0.001** | 4% |
| C3/C4 | - | **< 0.001** | 7% |
| Soil N x Soil P | - | *0.095* | 1% |
| Soil N x Soil P | - | 0.336 | 1% |
| Soil P x Soil K | - | 0.458 | 1% |
| Soil N x Soil P x Soil K | - | 0.476 | 1% |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Key: *N*photo = leaf N used for photosynthesis, *N*structure = leaf N in structural tissue, *p* = p-value.

**Table 3.** AGB

|  |  |  |  |
| --- | --- | --- | --- |
|  | **χ2** | **df** | ***p*** |
| Soil N | 49.657 | 1 | **< 0.001** |
| Soil P | 37.955 | 1 | **< 0.001** |
| Soil K+µ | 2.739 | 1 | *0.098* |
| Soil N x Soil P | 0.010 | 1 | 0.919 |
| Soil N x Soil P | 5.532 | 1 | **0.019** |
| Soil P x Soil K | 0.378 | 1 | 0.538 |
| Soil N x Soil P x Soil K | 0.087 | 1 | 0.767 |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Key: df = degrees of freedom, *p* = p-value.

**Table 4.** LAI

|  |  |  |  |
| --- | --- | --- | --- |
|  | **χ2** | **df** | ***p*** |
| Soil N | 49.148 | 1 | **< 0.001** |
| Soil P | 8.287 | 1 | **0.004** |
| Soil K+µ | 0.747 | 1 | 0.388 |
| Soil N x Soil P | 5.086 | 1 | **0.024** |
| Soil N x Soil P | 1.758 | 1 | 0.185 |
| Soil P x Soil K | 0.446 | 1 | 0.504 |
| Soil N x Soil P x Soil K | 0.279 | 1 | 0.597 |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Key: df = degrees of freedom, *p* = p-value.

**Table 5.** ∆*N*area

|  |  |  |  |
| --- | --- | --- | --- |
|  | **χ2** | **df** | ***p*** |
| ∆AGB | 1.900 | 1 | 0.168 |
| Soil P | 7.957 | 1 | 0.005 |
| Soil K+µ | 0.191 | 1 | 0.662 |
| C3/C4 | 0.175 | 1 | 0.676 |
| N fixer | 2.036 | 1 | 0.154 |
| ∆LMA | 92.327 | 1 | 0.000 |
| ∆χ | 0.572 | 1 | 0.450 |
| Soil P x Soil K+µ | 0.515 | 1 | 0.473 |
| ∆AGB x ∆LMA | 4.423 | 1 | 0.035 |
| ∆AGB x ∆χ | 0.094 | 1 | 0.759 |
| ∆LMA x ∆χ | 1.196 | 1 | 0.274 |
| ∆AGB x ∆LMA x ∆χ | 2.539 | 1 | 0.111 |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Key: df = degrees of freedom, *p* = p-value.