**Table 1.** Mean topographic features for each site.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Site** | **Type** | **Latitude** | **Longitude** | **Elevation (m)** | **Slope (°)** | **Aspect** | **Compass** |
| Gorham Cliffs | Cliff | 44.328 | -68.185 | 100.867 | 31.867 | 151.467 | SE |
| South Cadillac | Ledge | 44.333 | -68.224 | 930.733 | 9.400 | 138.133 | SE |
| St. Sauveur | Ledge | 44.311 | -68.326 | 597.133 | 13.333 | 262.600 | W |
| Wonderland | Flat | 44.237 | -68.316 | 53.400 | 3.733 | 208.067 | S |

**Table 2.** Watson’s Two Sample Test of Homogeneity results for aspect at each site.\*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gorham Cliffs** | **St. Sauveur** | **South Cadillac** |
| **Wonderland** | t = 0.259 \* | t = 0.288 \*\* | t = 0.194 \* |
| **Gorham cliffs** |  | t = 0.385 \*\* | t = 0.166 *ns* |
| **St. Sauveur** |  |  | t = 0.519 \*\*\* |

\*Key: t = test statistic, *ns* =not significant, \* = P < 0.05, \*\* = P < 0.01, \*\*\* = P < 0.001, P = P-value.

**Table 3.** Analysis of variance results for the mixed effects models with soil organic nutrients: carbon (C), nitrogen (N), and C/N, and soil water retention (SWR).\*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Soil C** |  | **Soil N** |  | **Soil C/N** | |  | **SWR** |  |
|  | **df** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | | **χ2** | **P** |
| Elevation | 1 | 4.675 | **0.031** | 0.532 | 0.466 | 3.853 | *0.050* | | 0.448 | 0.503 |
| Fire | 1 | 2.718 | *0.099* | 0.137 | 0.712 | 1.493 | 0.222 | | 0.911 | 0.340 |
| Elevation x Fire | 1 | 0.404 | 0.525 | 0.118 | 0.731 | 2.771 | *0.096* | | 0.042 | 0.838 |

\* P-values < 0.05 are bolded. Sample size is 26 for soil organic nutrients and 40 for SWR. Key: df = degrees of freedom, F = F-value, P = P-value.

**Table 4.** Analysis of variance results for the mixed effects models with soil inorganic nutrients: calcium (Ca2+), phosphorus (P), potassium (K+), magnesium (Mg2+), aluminum (Al+), and zinc (Zn).\*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Soil Al+** | | **Soil Ca2+** | | **Soil K+** | | **Soil Mg2+** | | **Soil P** | | **Soil Zn** | |
|  | **df** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** |
| Elevation | 1 | 1.342 | 0.247 | 6.729 | **0.009** | 2.284 | 0.131 | 2.525 | 0.112 | 2.829 | *0.093* | 2.079 | 0.149 |
| Fire | 1 | 0.032 | 0.859 | 0.041 | 0.839 | 6.664 | **0.010** | 0.254 | 0.614 | 1.015 | 0.314 | 0.082 | 0.774 |
| Elevation x Fire | 1 | 7.851 | **0.005** | 0.135 | 0.713 | 0.100 | 0.752 | 0.224 | 0.636 | 0.065 | 0.799 | 2.883 | *0.090* |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Sample size is 31. Key: df = degrees of freedom, F = F-value, P = P-value.

**Table 5.** Analysis of variance results for the mixed effects models with foliar isotopes: δ13C and δ15N and foliar organic nutrients: carbon (C), nitrogen (N), and C/N.\*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **δ13C** | | **δ15N** | | **Foliar C** | | **Foliar N** | | **Foliar C/N** | |
|  | **df** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** |
| Elevation | 1 | 5.737 | **0.017** | 1.466 | 0.226 | 0.148 | 0.700 | 1.104 | 0.293 | 1.639 | 0.200 |
| Fire | 1 | 0.021 | 0.884 | 0.015 | 0.902 | 4.053 | **0.044** | 0.124 | 0.725 | 0.425 | 0.514 |
| Elevation x Fire | 1 | 0.377 | 0.539 | 1.642 | 0.200 | 0.001 | 0.981 | 0.392 | 0.531 | 1.707 | 0.191 |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Sample size is 55 for foliar isotopes and 56 for foliar organic nutrients. Key: df = degrees of freedom, F = F-value, P = P-value.

**Table 6.** Analysis of variance results for the mixed effects models with foliar inorganic nutrients: calcium (Ca2+), phosphorus (P), potassium (K+), magnesium (Mg2+), aluminum (Al+), and zinc (Zn).\*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Foliar Al+** | | **Foliar Ca2+** | | **Foliar K+** | | **Foliar Mg2+** | | **Foliar P** | | **Foliar Zn** | |
|  | **df** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** | **χ2** | **P** |
| Elevation | 1 | 0.341 | 0.559 | 13.302 | **0.000** | 3.158 | *0.076* | 0.018 | 0.894 | 1.048 | 0.306 | 0.267 | 0.605 |
| Fire | 1 | 0.021 | 0.886 | 0.843 | 0.358 | 4.071 | **0.044** | 0.016 | 0.899 | 0.309 | 0.578 | 0.004 | 0.949 |
| Elevation x Fire | 1 | 0.187 | 0.665 | 0.088 | 0.767 | 4.863 | **0.027** | 1.109 | 0.292 | 0.535 | 0.464 | 1.794 | 0.180 |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Sample size is 40. Key: df = degrees of freedom, F = F-value, P = P-value.

**Table 7.** Analysis of variance results for the mixed effects models with slope, tree height, canopy spread, diameter at breast height (DBH), and distance between neighbors.\*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Canopy Spread (m)** | | **DBH (cm)** | | **Distance Between Neighbors (m)** | | **Slope (°)** | | **Tree Height (m)** | |
|  | **df** | **χ2** | **P** | **χ2** | **P** |  |  | **χ2** | **P** | **χ2** | **P** |
| Elevation | 1 | 7.948 | **0.005** | 3.433 | *0.064* | **χ2** | **P** | 1.478 | 0.224 | 3.451 | *0.063* |
| Fire | 1 | 0.012 | 0.913 | 0.157 | 0.692 | 0.683 | 0.408 | 1.542 | 0.214 | 0.097 | 0.755 |
| Elevation x Fire | 1 | 0.068 | 0.794 | 0.061 | 0.806 | 0.012 | 0.911 | 0.260 | 0.610 | 6.593 | **0.010** |

\* P-values < 0.05 are bolded and < 0.1 are italicized. Sample size is 40 for tree height, canopy spread, and DBH and 60 for slope and distance between neighbors. Key: df = degrees of freedom, F = F-value, P = P-value.