

Soil and vegetation data for Umiujaq, Tasiapik Valley (Nunavik, Quebec, Canada).

All sampling sites were near 56.56° N, 76.48° W. The objective was to quantify the impact of shrub (*Betula glandulosa*) growth on lichen tundra on terrestrial carbon stocks (biomass + soil organic carbon). Sites sampled included the original lichen tundra (no shrubs), medium shrubs (40-80 cm tall) with lichen understory and tall shrubs (60-105 cm tall) with moss understory. These tall shrubs were growing in water tracks. This is detailed in Gagnon et al. (in revision) Environmental Research Communications.

Table 1. Detailed carbon data for the 16 plots studied in the upper Tasiapik Valley in September 2017.

| Vegetation | Site | Lichen carbon stocks (kg m ⁻²) | Birch carbon stocks (kg m ⁻²) | Moss carbon stocks (kg m ⁻²) | Soil Organic Carbon stocks (kg m ⁻²) | Surface carbon stocks (kg m ⁻²) |
|----------------|------|--------------------------------------------|-------------------------------------------|------------------------------------------|--------------------------------------------------|---------------------------------------------|
| Lichen | L1 | 1.13 ± 0.11 | 0 | 0 | 1.07 ± 0.13 | 2.20 ± 0.25 |
| | L2 | 0.46 ± 0.05 | 0 | 0 | 1.47 ± 0.17 | 1.93 ± 0.22 |
| | L3 | 0.94 ± 0.09 | 0 | 0 | 1.73 ± 0.20 | 2.67 ± 0.29 |
| Birch + lichen | BL1 | 0.21 ± 0.02 | 1.08 ± 0.15 | 0 | 3.12 ± 0.36 | 4.41 ± 0.53 |
| | BL2 | 0.52 ± 0.05 | 1.08 ± 0.13 | 0 | 3.16 ± 0.35 | 4.76 ± 0.54 |
| | BL3 | 0.59 ± 0.06 | 1.55 ± 0.19 | 0 | 3.53 ± 0.39 | 5.67 ± 0.64 |
| | BL4 | 0.18 ± 0.02 | 1.53 ± 0.19 | 0 | 4.18 ± 0.49 | 5.89 ± 0.69 |
| | BL5 | 0.63 ± 0.06 | 0.92 ± 0.15 | 0 | 4.7 ± 0.52 | 6.25 ± 0.74 |
| | BL6 | 0.82 ± 0.08 | 1.49 ± 0.24 | 0 | 5.25 ± 0.68 | 7.55 ± 1.00 |
| | BL7 | 0.33 ± 0.03 | 1.55 ± 0.21 | 0 | 5.25 ± 0.59 | 7.12 ± 0.83 |
| | BL8 | 0.73 ± 0.07 | 1.6 ± 0.23 | 0 | 5.45 ± 0.67 | 7.77 ± 0.97 |
| Birch + moss | BM1 | 0 | 1.88 ± 0.20 | 0.528 ± 0.016 | 3.01 ± 0.32 | 5.13 ± 0.67 |
| | BM2 | 0 | 3.27 ± 0.29 | 0.123 ± 0.004 | 3.96 ± 0.48 | 7.47 ± 0.92 |
| | BM3 | 0 | 2.02 ± 0.25 | 0.244 ± 0.007 | 4.25 ± 0.46 | 6.51 ± 0.86 |
| | BM4 | 0 | 2.87 ± 0.27 | 0.021 ± 0.001 | 7.91 ± 0.84 | 11.02 ± 1.26 |
| | BM5 | 0 | 1.7 ± 0.17 | 0.096 ± 0.003 | 12.10 ± 1.35 | 14.04 ± 1.66 |

Table 2. Detailed dendrochronological data for the 16 plots studied in the upper Tasiapik Valley in September 2017.

| Vegetation | Site | All measured birch ages (years) | Max. birch age (yrs) | Age ratio (youngest /oldest) | Canopy height (cm) |
|----------------|------|---------------------------------|----------------------|------------------------------|--------------------|
| Lichen | L1 | - | - | - | 0 |
| | L2 | - | - | - | 0 |
| | L3 | - | - | - | 0 |
| Birch + lichen | BL1 | 21, 24, 35, 38 45 | 45 | 0.47 | 54 ± 5 |
| | BL2 | 31, 34, 46, 54, 79 | 79 | 0.39 | 44 ± 5 |
| | BL3 | 18, 25, 25, 27, 38, 46 | 46 | 0.39 | 46 ± 2 |
| | BL4 | 38, 39, 42, 51, 74 | 74 | 0.51 | 76 ± 6 |
| | BL5 | 20, 33, 42 | 42 | 0.48 | 31 ± 5 |
| | BL6 | 21, 21, 23, 23, 26, 26 | 26 | 0.81 | 35 ± 5 |
| | BL7 | 32, 51, 55 | 55 | 0.58 | 56 ± 4 |
| | BL8 | 36, 39, 44, 47 | 47 | 0.77 | 46 ± 6 |
| Birch + moss | BM1 | 39, 51, 64 | 64 | 0.61 | 62 ± 3 |
| | BM2 | 26, 31, 31, 48, 48, 50 | 50 | 0.52 | 94 ± 12 |
| | BM3 | 30, 33, 37, 41 | 41 | 0.73 | 104 ± 11 |
| | BM4 | 23, 28, 30, 33, 42 | 42 | 0.55 | 102 ± 7 |
| | BM5 | 21, 33, 36, 40, 40, 47 | 47 | 0.45 | 85 ± 11 |