

## Supplementary

**Table S1: Statistics of the collinearity test between all variables. Variables with both a correlation coefficient equal to or greater than an absolute value of 0.65 and a  $p$ -value of less than 0.05 were not included together in the same stepwise regression model.**

<b>Variables</b>	<b>Correlation Coefficient</b>	<b><math>p</math>-value</b>
Median Water Table, Median Soil Water Content	0.71	< 0.001
Median Water Table, Deepest Thaw Depth ( $D_{thaw}$ )	0.28	0.002
Median Water Table, Maximum Soil Temperature: -15 cm	0.34	< 0.001
Median Water Table, Maximum Soil Temperature: -10 cm	0.15	0.105
Median Water Table, Maximum Soil Temperature: -5 cm	-0.36	< 0.001
Median Water Table, Maximum Soil Temperature: -1 cm	-0.58	< 0.001
Median Water Table, Median Air Temperature	0.29	0.001
Median Water Table, Green Moss Layer Thickness	-0.35	< 0.001
Median Water Table, Total Moss Layer Thickness	-0.17	0.069
Median Water Table, Median PAR	0.48	< 0.001
Median Water Table, Deviation from Mean Elevation (dz)	-0.48	< 0.001
Median Water Table, Temperature Difference (-1:-15 cm) ( $dT_{1-15}$ )	-0.63	< 0.001
Median Soil Water Content, Deepest Thaw Depth ( $D_{thaw}$ )	0.14	0.136
Median Soil Water Content, Maximum Soil Temperature: -15 cm	0.28	0.003
Median Soil Water Content, Maximum Soil Temperature: -10 cm	0.22	0.018
Median Soil Water Content, Maximum Soil Temperature: -5 cm	-0.08	0.420
Median Soil Water Content, Maximum Soil Temperature: -1 cm	-0.33	< 0.001
Median Soil Water Content, Median Air Temperature	0.25	0.007
Median Soil Water Content, Green Moss Layer Thickness	-0.22	0.018
Median Soil Water Content, Total Moss Layer Thickness	-0.13	0.165
Median Soil Water Content, Median PAR	0.18	0.056
Median Soil Water Content, Deviation from Mean Elevation (dz)	-0.31	< 0.001

Median Soil Water Content, Temperature Difference (-1:-15 cm) ( $dT_{1-15}$ )	-0.39	< 0.001
Deepest Thaw Depth ( $D_{thaw}$ ), Maximum Soil Temperature: -15 cm	0.06	0.555
Deepest Thaw Depth ( $D_{thaw}$ ), Maximum Soil Temperature: -10 cm	0.06	0.487
Deepest Thaw Depth ( $D_{thaw}$ ), Maximum Soil Temperature: -5 cm	-0.27	0.004
Deepest Thaw Depth ( $D_{thaw}$ ), Maximum Soil Temperature: -1 cm	-0.46	< 0.001
Deepest Thaw Depth ( $D_{thaw}$ ), Median Air Temperature	0.09	0.327
Deepest Thaw Depth ( $D_{thaw}$ ), Green Moss Layer Thickness	-0.19	0.041
Deepest Thaw Depth ( $D_{thaw}$ ), Total Moss Layer Thickness	-0.10	0.265
Deepest Thaw Depth ( $D_{thaw}$ ), Median PAR	0.36	< 0.001
Deepest Thaw Depth ( $D_{thaw}$ ), Deviation from Mean Elevation (dz)	-0.36	< 0.001
Deepest Thaw Depth ( $D_{thaw}$ ), Temperature Difference (-1:-15 cm) ( $dT_{1-15}$ )	-0.43	< 0.001
Maximum Soil Temperature: -15 cm, Maximum Soil Temperature: -10 cm	0.65	< 0.001
Maximum Soil Temperature: -15 cm, Maximum Soil Temperature: -5 cm	0.21	0.023
Maximum Soil Temperature: -15 cm, Maximum Soil Temperature: -1 cm	-0.13	0.163
Maximum Soil Temperature: -15 cm, Median Air Temperature	0.04	0.673
Maximum Soil Temperature: -15 cm, Green Moss Layer Thickness	-0.28	0.002
Maximum Soil Temperature: -15 cm, Total Moss Layer Thickness	-0.25	0.006
Maximum Soil Temperature: -15 cm, Median PAR	0.17	0.063
Maximum Soil Temperature: -15 cm, Deviation from Mean Elevation (dz)	-0.21	0.020
Maximum Soil Temperature: -15 cm, Temperature Difference (-1:-15 cm) ( $dT_{1-15}$ )	-0.46	< 0.001
Maximum Soil Temperature: -10 cm, Maximum Soil Temperature: -5 cm	0.49	< 0.001
Maximum Soil Temperature: -10 cm, Maximum Soil Temperature: -1 cm	0.04	0.665
Maximum Soil Temperature: -10 cm, Median Air Temperature	-0.10	0.298
Maximum Soil Temperature: -10 cm, Green Moss Layer Thickness	-0.29	0.001
Maximum Soil Temperature: -10 cm, Total Moss Layer Thickness	-0.32	< 0.001
Maximum Soil Temperature: -10 cm, Median PAR	-0.12	0.199
Maximum Soil Temperature: -10 cm, Deviation from Mean Elevation (dz)	-0.18	0.056

Maximum Soil Temperature: -10 cm, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	-0.19	0.042
Maximum Soil Temperature: -5 cm, Maximum Soil Temperature: -1 cm	0.68	< 0.001
Maximum Soil Temperature: -5 cm, Median Air Temperature	-0.26	0.005
Maximum Soil Temperature: -5 cm, Green Moss Layer Thickness	0.03	0.769
Maximum Soil Temperature: -5 cm, Total Moss Layer Thickness	-0.03	0.726
Maximum Soil Temperature: -5 cm, Median PAR	-0.53	< 0.001
Maximum Soil Temperature: -5 cm, Deviation from Mean Elevation (dz)	0.35	< 0.001
Maximum Soil Temperature: -5 cm, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	0.53	< 0.001
Maximum Soil Temperature: -1 cm, Median Air Temperature	-0.25	0.006
Maximum Soil Temperature: -1 cm, Green Moss Layer Thickness	0.31	< 0.001
Maximum Soil Temperature: -1 cm, Total Moss Layer Thickness	0.20	0.031
Maximum Soil Temperature: -1 cm, Median PAR	-0.67	< 0.001
Maximum Soil Temperature: -1 cm, Deviation from Mean Elevation (dz)	0.57	< 0.001
Maximum Soil Temperature: -1 cm, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	0.94	< 0.001
Median Air Temperature, Green Moss Layer Thickness	0.02	0.843
Median Air Temperature, Total Moss Layer Thickness	0.07	0.462
Median Air Temperature, Median PAR	0.31	< 0.001
Median Air Temperature, Deviation from Mean Elevation (dz)	-0.21	0.023
Median Air Temperature, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	-0.24	0.009
Green Moss Layer Thickness, Total Moss Layer Thickness	0.66	< 0.001
Green Moss Layer Thickness, Median PAR	-0.11	0.251
Green Moss Layer Thickness, Deviation from Mean Elevation (dz)	0.36	< 0.001
Green Moss Layer Thickness, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	0.38	< 0.001
Total Moss Layer Thickness, Median PAR	0.04	0.642

Total Moss Layer Thickness, Deviation from Mean Elevation (dz)	0.39	< 0.001
Total Moss Layer Thickness, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	0.27	0.004
Median PAR, Deviation from Mean Elevation (dz)	-0.38	< 0.001
Median PAR, Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	-0.66	< 0.001
Deviation from Mean Elevation (dz), Temperature Difference (-1:-15 cm) (dT <sub>1_15</sub> )	0.58	< 0.001