

Supplementary Material

Supplementary Table 1: Soil BSi concentrations by year, raw and pretreatment-corrected data.

In the pre-treatment (2002) soil samples, we found higher mean BSi concentrations in the heated plot compared to the control plot (Table 1). While the difference between means ($n=3$ for each plot \times layer \times year), was not statistically significant, it was substantial (17% difference for organic and 21% for mineral soil. As such, we present the data in our paper after scaling the heated treatment soil data by a pre-treatment correction factors, which we calculated according to the methods described by Meillilo et al. (2011). Specifically, the pre-treatment correction factor scales the pre-treatment heated plot BSi concentration to equal the pre-treatment control plot BSi concentration in order to account for pre-existing site differences. We calculated correction factors for mineral and organic soil layers using the pre-treatment (2002) data, and applied the correction factors to the treatment period data (2005, 2010, 2015). We report data here both with and without the pretreatment correction. BSi concentrations are reported as percent dry weight biogenic silica (SiO_2).

Layer	Plot	Correction Applied	% Dry wt BSi (2002)	% Dry wt BSi (2005)	% Dry wt BSi (2010)	% Dry wt BSi (2015)
Mineral	Control	No	0.98 ± 0.2	0.59 ± 0.09	0.79 ± 0.08	0.73 ± 0.05
	Heated	No	1.19 ± 0.15	0.95 ± 0.07	0.82 ± 0.11	0.93 ± 0.04
	Heated	Yes		0.78 ± 0.05	0.67 ± 0.09	0.77 ± 0.03
Organic	Control	No	1.03 ± 0.08	0.77 ± 0.06	1.08 ± 0.11	0.84 ± 0.12
	Heated	No	1.2 ± 0.10	1 ± 0.07	1.32 ± 0.05	0.99 ± 0.11
	Heated	Yes		0.86 ± 0.06	1.13 ± 0.05	0.84 ± 0.10

Supplementary Table 2: Soil BSi stocks. Soil BSi stocks were calculated for the top 10 cm in each plot, and the data reported here are means across all samples analyzed from all years during experimental treatment. Both raw values and pretreatment-corrected values are reported here.

Layer	Treatment	BSi (kg ha^{-1}), Uncorrected	BSi (kg ha^{-1}), Pre-Treatment Corrected
Organic	Control	464.44 ± 35.83	464.44 ± 35.83
	Heated	571.61 ± 35.28	488.01 ± 30.12
Mineral	Control	4723.97 ± 320.07	4723.97 ± 320.07
	Heated	6030.09 ± 292.47	4957.93 ± 240.47

Supplementary Table 3. Average litterfall composition at the Barre Woods soil experiment between 2006-2016, and BSi concentrations used in this study to estimate total plot-level canopy BSi fixation. Litter mass percent composition was calculated as total dry litter mass for each species divided by total litter mass for all species combined within each plot. Litter BSi concentrations were measured directly in this study in *Quercus rubra* and *Acer rubrum*. For all other species present in the plots,

literature values for green leaves were used and scaled by the ratio of litter BSi concentration to green leaf concentration measured in our study (scaling factor=1.48). When species-specific values were not available in the literature, we used the mean value for the smallest taxonomic classification containing that species. The final BSi concentrations which we used (directly measured values or scaled literature values) are reported here. The source of literature values is also reported, along with the taxonomic unit used.

Species	Control Plot Percent Composition (Dry Mass)	Heated Plot Percent Composition (Dry Mass)	Litter Percent Dry Weight BSi	BSi Data Source	Smallest Taxonomic Unit Available
<i>Quercus rubra</i>	57.9	73.7	0.56	Measured directly in this study	Species
<i>Acer rubrum</i>	14.2	16.5	1.83	Measured directly in this study	Species
<i>Betula sp.</i>	12.5	2.7	0.98	Hodson et al., 2005	Genus (<i>Betula</i>)
<i>Fraxinus americana</i>	11.6	3.3	0.15	Hodson et al., 2005	Species
<i>Acer saccharum</i>	1.9	1.4	1.66	Hodson et al., 2005	Species
<i>Populus grandidentata</i>	1.2	0	1.22	Hodson et al., 2005	Genus (<i>Populus</i>)
<i>Acer pennsylvanicum</i>	0.2	0.8	1.06	Hodson et al., 2005	Genus (<i>Acer</i>)
<i>Castanea dentata</i>	0.1	0.8	1.58	Hodson et al., 2005	Family (<i>Fagaceae</i>)
<i>Fagus grandifolia</i>	0.1	0	2.18	Clymans et al., 2016	Species
<i>Prunus serotina</i>	0.1	0.3	0.41	Hodson et al., 2005	Species
<i>Quercus alba</i>	0	0.1	1.00	Hodson et al., 2005	Species
Unknown species	0	0.3	1.15	Used mean value of all known species in this study	N/A