Supplemental Materials

Table S1. Correlation matrix from Principal Component Analysis of initial soil characterization data and weekly timeseries data for the Lyon Arboretum field site in Honolulu, HI from November 2018 to November 2019.

	Principal Component (% Variance Explained)			
Measured Parameter	**PC1** 41%	**PC2** 17%	**PC3** 9.1%	**PC4** 8.7%
Carbon (%C)	-0.88	0.34	-0.10	-0.05
Nitrogen (%N)	-0.87	0.37	-0.12	-0.04
pH	-0.49	0.47	0.44	0.20
Δ pH	0.81	-0.39	-0.14	0.01
P-NCM ($Al_H + 0.5Fe_H$)	0.69	0.50	0.10	-0.28
Active Fe ratio ($\frac{\mathbf{Fe_H}}{\mathbf{Fe_D}}$)	0.74	0.47	0.03	-0.31
Organic-complexed aluminum (Al_P)	-0.61	-0.51	0.28	-0.38
Organic-complexed iron (Fe_P)	-0.66	-0.52	0.25	-0.38
16S OTU richness	-0.55	-0.30	-0.30	-0.06
ITS OTU richness	-0.26	-0.08	-0.11	0.72
Volumetric Water Content (VWC)	0.30	-0.63	0.18	0.21
CO_2 produced	-0.78	0.19	-0.34	-0.09
Soil Warming (Δ Temperature °C)	0.17	-0.15	-0.74	0.18

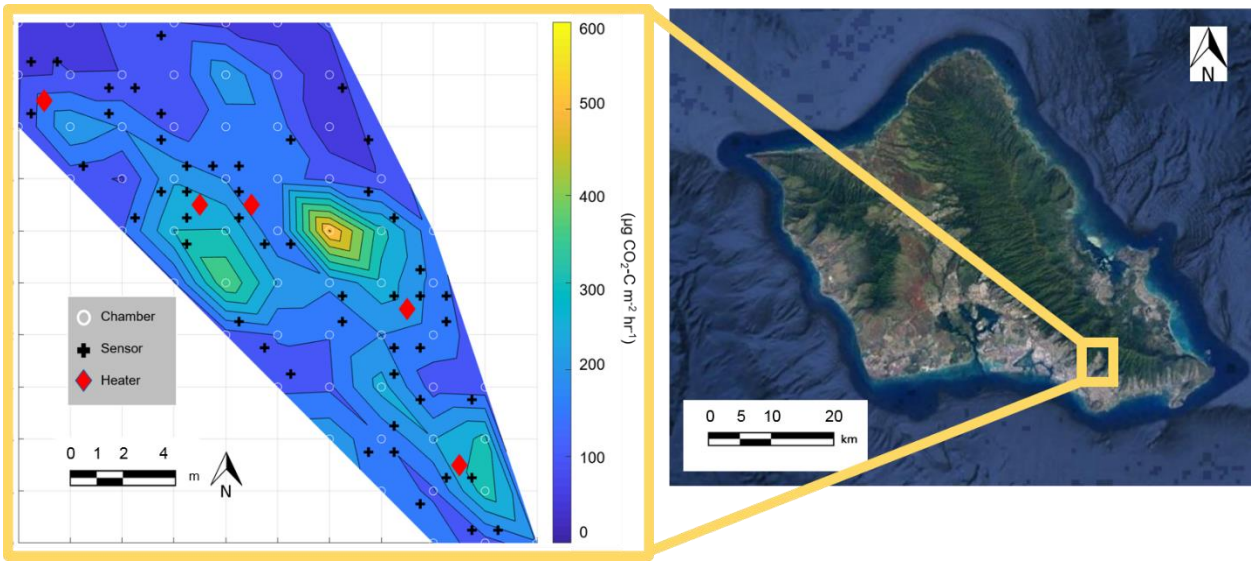

Figure S1. Location of the 200 m² hillslope field site at the Lyon Arboretum, Honolulu, HI on the island of Oahu (right). Randomization design of the 50 soil temperature sensors, 5 heating probes, and 64 static chambers for monitoring the initial hotspots of soil respiration (left).

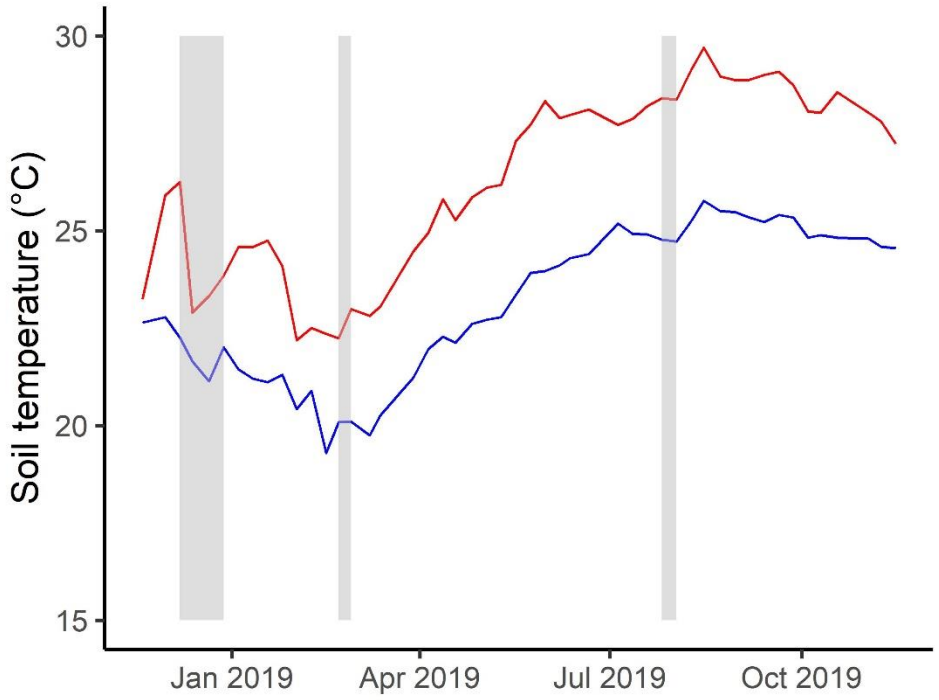

Figure S2. Average soil temperature for ambient soil temperature sensors (blue) and heater controller temperature sensors at a depth of 60 cm (red) for the sampling time period at the Lyon Arboretum. Several events sent the temperature sensors offline (shaded), first in December 2018 due to site vandalism, then late February and July 2019 due to internet connectivity problems. These unexpected shutdowns in the heating made maintaining a consistent +4°C of soil warming at the radius of heating difficult. However, the target +4°C soil temperature was maintained for the vast majority of the experiment and the warmed sensors were always greater than the control sensors. Thus, our experimental goal of a creating a gradient of soil warming from 0 to +4°C was still met.

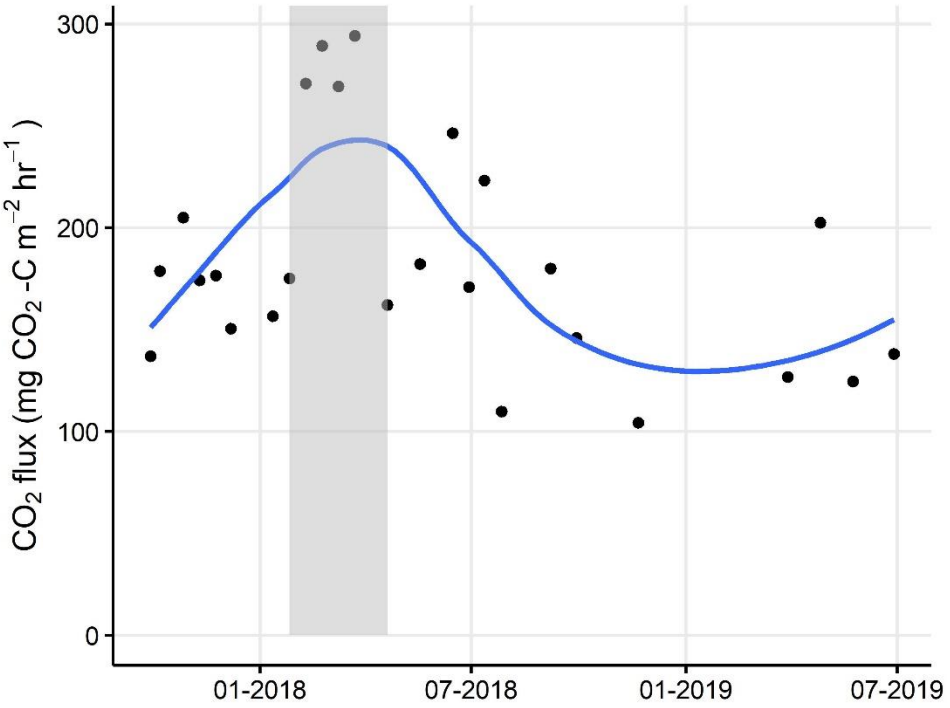

Figure S3. Figure S3. Site average CO2 flux from September 2017 (initial site clearing) to July 2019. There was an initial disturbance effect from the site clearing (06/09/2017) that was exacerbated by feral pig disturbances in February and March of 2018 (shaded). At the sampling locations where there was visible grubbing from the pigs there were "flare ups" in microbial activity indicated by increased surficial CO2 flux (data not shown). After the feral pigs were culled, the flux decreased indicating no lasting increases in activity from clearing the understory and the decomposition of roots. There was a seasonal effect with higher fluxes in the summer months corresponding with warmer temperatures.