Table S1: Slope and r^2 of the linear regression models between nitrogen and three canopy traits (leaf mass per area, chlorophyll a+b, and phosphorus) modeled separately for each trait. Models were developed for each elevation and soil substrate age range. Canopy traits were estimated from crown spectroscopy data using universal chemometric equations developed by Asner et al. [15].

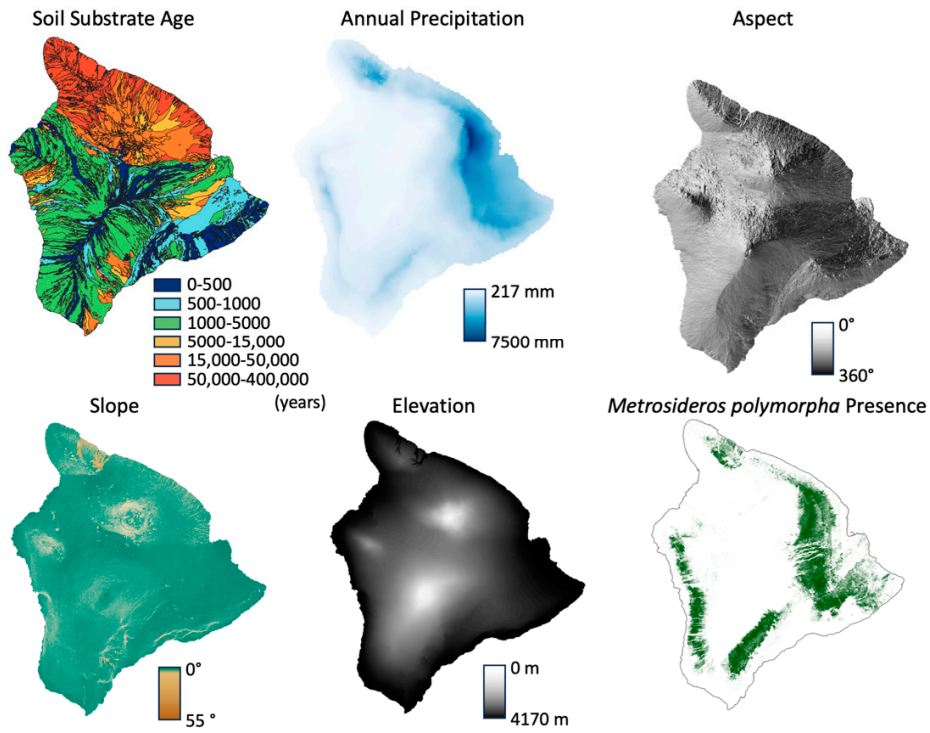|	Leaf Mass per Area		Chlorophyll a+b		Phosphorus	
	Slope	r^2	Slope	r^2	Slope	r^2
Elevation						
0-150	-76.8405	0.5371	4.3809	0.8170	-0.0594	0.0274
150-300	-62.6388	0.4731	3.8010	0.8275	-0.0146	0.0093
300-600	-75.4696	0.5007	3.7097	0.7687	-0.0215	0.0243
600-900	-75.6550	0.4140	2.4701	0.6793	0.0221	0.0125
900-1200	-106.0681	0.4139	2.4923	0.7305	0.0175	0.0070
1200-1500	-95.4291	0.2695	2.2021	0.7743	0.0121	0.0023
1500-1800	-81.2976	0.2786	2.8517	0.8415	0.0543	0.1026
1800-2100	-128.0184	0.3163	2.2932	0.8235	0.0595	0.0549
2100-3000	-151.9670	0.3298	2.2403	0.7363	-0.0093	0.0006
Soil Substrate Age						
0-500	-111.4388	0.4080	3.5938	0.7222	0.0676	0.0686
500-1000	-101.3131	0.3857	2.8239	0.8015	0.0136	0.0034
1000-5000	-106.5572	0.4670	3.2230	0.8211	0.0217	0.0067
5000-15000	-102.9993	0.4292	3.4663	0.7327	0.0150	0.0043
15000-50000	-93.1436	0.4999	4.0413	0.8460	0.0052	0.0003
50000-400000	-86.5524	0.3738	3.4105	0.7880	-0.0012	0.0001

Figures

Figure S1: Spatial data of the soil substrate age, annual precipitation, aspect, slope, elevation, and *Metrosideros polymorpha* presence for Hawai'i Island. Soil substrate age spatial data were developed by the U.S. Geological Survey [27], and annual precipitation data (30-year normal from 1991-2020) were developed by the PRISM Climate Group [26]. Elevation, aspect, and slope data were derived from the Shuttle Radar Topography Mission (SRTM) digital elevation model (DEM) [25]. *M. polymorpha* presence data were developed by Seeley et al [22].