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Supplement of

Parallel functional and stoichiometric trait shifts in South American and African forest communities with elevation

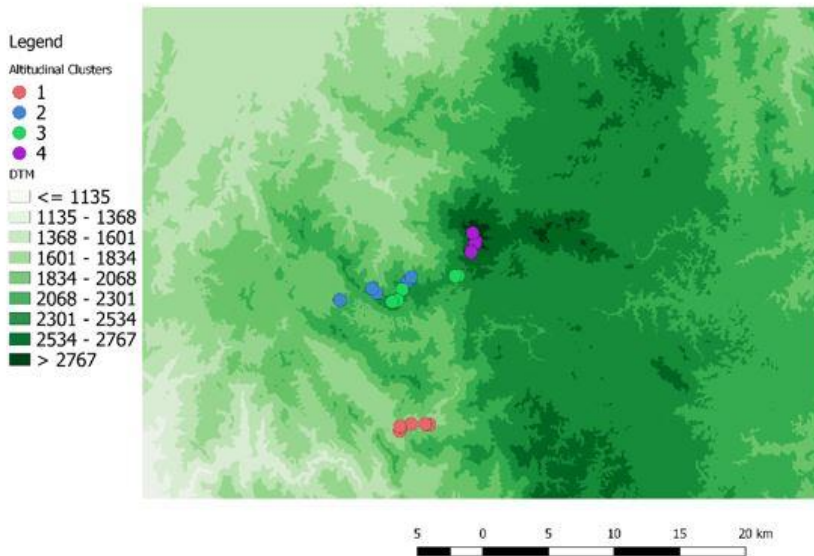
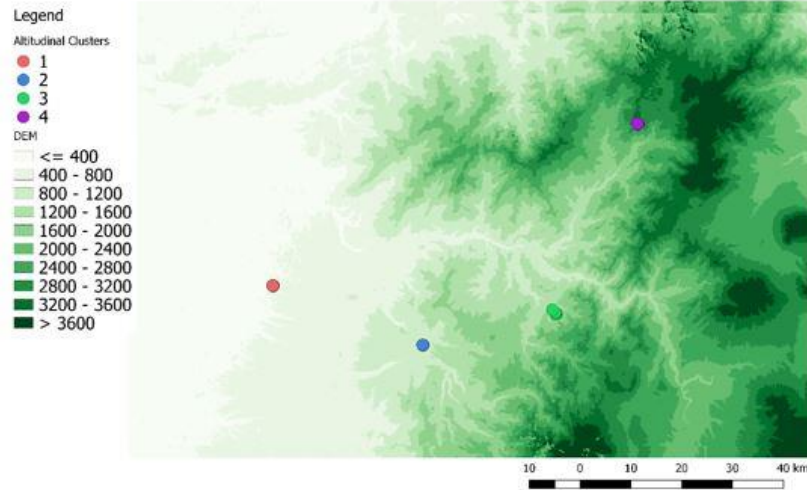
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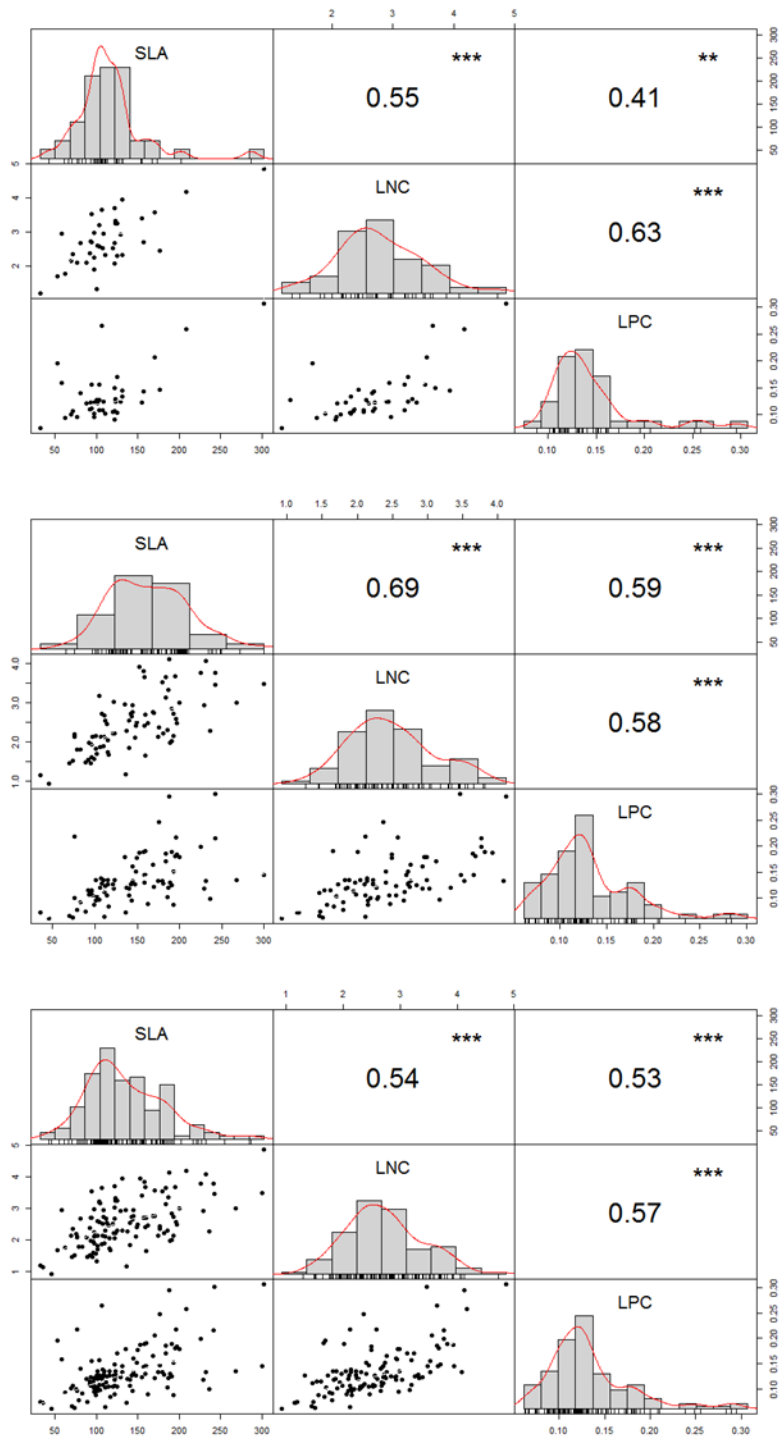
4 Fig. S1.

5 Overview map with the locations of the Ecuador transect (upper; 400-3200 masl, 4-5 plots per

6 cluster) and the Rwanda transect (lower; 1600 - 3000 masl, 5 plots per cluster) plot locations

7 projected on a DEM (based on the Aster GDEM product (1)). For clarity different scale legends

8 are used in both maps.

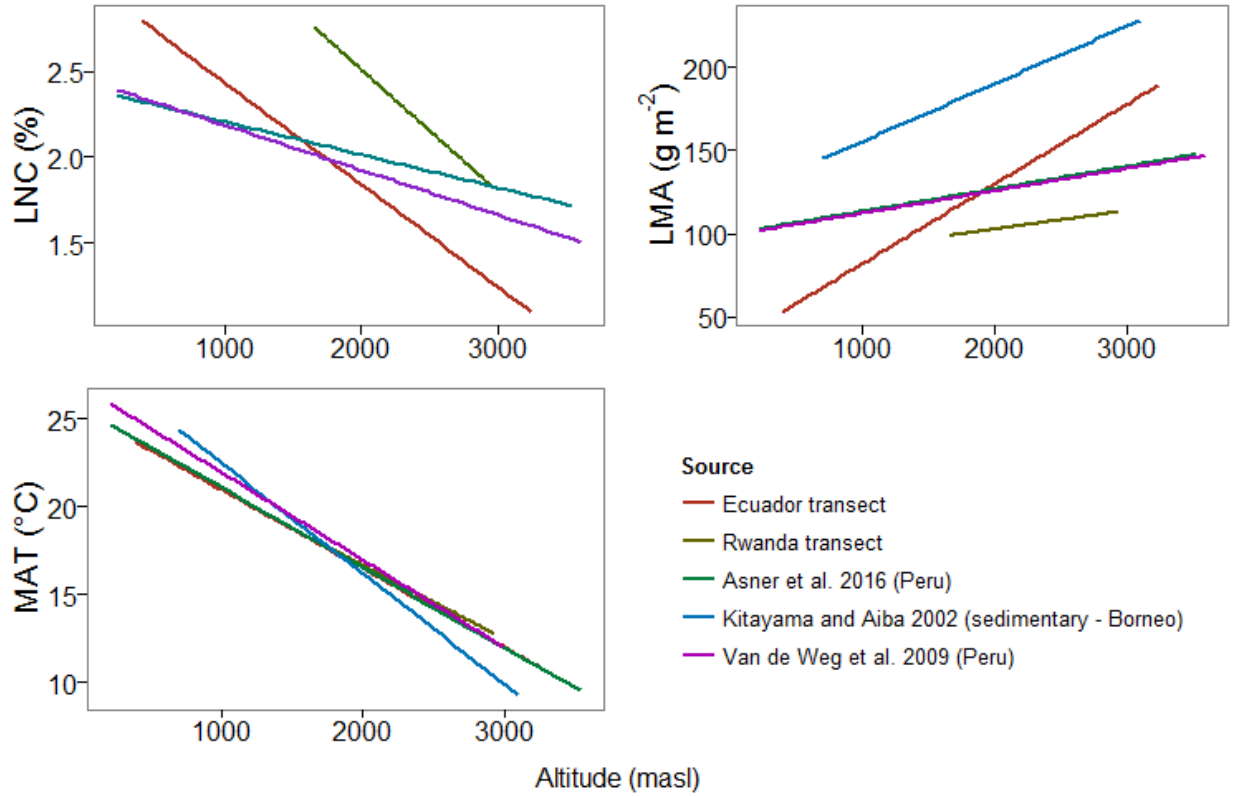


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10 Fig. S2.

11 Structure and correlations of the trait data in the Rwanda (upper), Ecuador (middle) and
 12 (lower) transects with Spearman correlation statistics and their significances (p-value < 0.001 ***,

13 < 0.01 **, < 0.05*, < 0.1 .). Diagonal shows the probability density function as fitted with fitted
14 kernel density plots. Shown for specific leaf area (SLA), leaf nitrogen content (LNC), and leaf
15 phosphorus content (LPC).



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18 Fig. S3.

19 Trends in community-level leaf nitrogen content (LNC), leaf mass area (LMA) and mean annual
20 temperature (MAT) on different transects (as described in Asner et al., 2016; Kitayama & Aiba,
21 2002; Van de Weg et al., 2009) compared to our transects in Ecuador and Rwanda. Figure was
22 obtained by using reported linear regression parameters, and by applying simple linear regression
23 lines to this study's data.

24 Table S1.

25 Coordinates, elevation and cluster membership of the different plots on both transects

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27

Ecuador					Rwanda				
Plot	Cluster	Latitude	Longitude	Elevation	Plot	Cluster	Latitude	Longitude	Elevation
1	1	00° 08' 50.58" N	079° 08' 37.03" W	406	1	4	02° 26' 47.28" S	029° 15' 09.96" E	2879
2	1	00° 08' 45.79" N	079° 08' 34.45" W	420	2	4	02° 26' 50.93" S	029° 15' 07.55" E	2875
3	1	00° 08' 50.31" N	079° 08' 31.87" W	404	3	4	02° 26' 25.68" S	029° 15' 00.96" E	2937
4	1	00° 08' 50.49" N	079° 08' 33.30" W	410	4	4	02° 27' 09.89" S	029° 14' 57.36" E	2767
5	1	00° 08' 50.27" N	079° 08' 35.04" W	394	5	4	02° 27' 12.42" S	029° 14' 57.29" E	2761
6	2	00° 02' 10.16" N	078° 52' 00.04" W	1098	6	2	02° 28' 52.79" S	029° 11' 04.08" E	2293
7	2	00° 02' 08.27" N	078° 51' 59.52" W	1055	7	2	02° 28' 41.45" S	029° 10' 53.51" E	2240
8	2	00° 02' 06.95" N	078° 51' 59.51" W	1077	8	1	02° 27' 33.59" S	029° 12' 02.52" E	1745
9	2	00° 02' 11.07" N	078° 52' 02.51" W	1041	9	1	02° 34' 16.07" S	029° 13' 14.40" E	1835
10	3	00° 05' 36.80" N	078° 37' 17.64" W	1953	10	1	02° 34' 15.35" S	029° 13' 04.25" E	1799
11	3	00° 05' 45.48" N	078° 37' 19.25" W	1893	11	1	02° 34' 15.12" S	029° 12' 29.88" E	1760
12	3	00° 05' 48.54" N	078° 37' 22.21" W	1873	12	1	02° 34' 21.47" S	029° 12' 01.91" E	1659
13	3	00° 06' 06.87" N	078° 37' 40.73" W	1764	13	2	02° 28' 23.51" S	029° 12' 21.42" E	2141
14	4	00° 26' 58.63" N	078° 28' 13.58" W	3214	14	2	02° 28' 13.91" S	029° 12' 29.69" E	2158
15	4	00° 26' 59.20" N	078° 28' 14.94" W	3222	15	3	02° 28' 10.44" S	029° 14' 25.68" E	2557
16	4	00° 26' 58.11" N	078° 28' 12.35" W	3191	16	3	02° 28' 11.09" S	029° 14' 18.17" E	2523
17	4	00° 27' 04.12" N	078° 28' 18.17" W	3241	17	2	02° 29' 10.61" S	029° 09' 33.90" E	2167
					18	3	02° 28' 43.97" S	029° 12' 07.85" E	2456
					19	3	02° 29' 10.61" S	029° 11' 55.74" E	2500
					20	3	02° 29' 14.16" S	029° 11' 42.83" E	2522

28 Table S2a.

29 Summary of the plot-level (mean and standard deviation) leaf nitrogen content (LNC), leaf phosphorus content (LPC), specific leaf area
30 (SLA), and leaf C:N, C:P, N:P and $\delta^{15}\text{N}$, along with the total percentage of the basal area (BA) sampled per plot of the Ecuador transect.

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Transect	Plot	Altitude	SLA ($\text{cm}^2 \text{g}^{-1}$)	LNC (%)	LPC (%)	C:N	C:P	N:P	$\delta^{15}\text{N}$ (‰)	Percentage of BA sampled
Ecuador	1	404	149.74 \pm 66.55	2.61 \pm 0.48	0.13 \pm 0.03	17.43 \pm 2.88	359.7 \pm 65.25	20.89 \pm 3.06	2.7 \pm 1.5	77%
Ecuador	2	420	136.43 \pm 42.31	3.02 \pm 0.83	0.15 \pm 0.05	15.45 \pm 3.95	320.39 \pm 107.88	21.06 \pm 2.52	3.24 \pm 1.4	73%
Ecuador	3	404	148.83 \pm 54.33	2.62 \pm 0.57	0.13 \pm 0.03	17.69 \pm 3.11	356.46 \pm 76.83	20.62 \pm 3.72	2.66 \pm 0.79	83%
Ecuador	4	410	146.62 \pm 57.34	2.61 \pm 0.59	0.13 \pm 0.03	17.64 \pm 3.26	364.41 \pm 76.66	20.92 \pm 3.03	2.74 \pm 0.96	66%
Ecuador	5	394	146.04 \pm 68.13	2.57 \pm 0.58	0.12 \pm 0.03	17.73 \pm 3.15	371.72 \pm 67.92	21.32 \pm 3.26	2.54 \pm 0.86	61%
Ecuador	6	1098	142.58 \pm 35.07	2.31 \pm 0.52	0.14 \pm 0.04	20.6 \pm 4.23	369.76 \pm 137.5	18.57 \pm 6.64	-0.25 \pm 1.4	30%
Ecuador	7	1055	164.48 \pm 46.3	2.68 \pm 0.7	0.15 \pm 0.06	17.68 \pm 4.64	320.68 \pm 120.44	18.52 \pm 5.2	1.12 \pm 1.87	55%
Ecuador	8	1077	162.65 \pm 34.15	2.73 \pm 0.57	0.15 \pm 0.03	17.22 \pm 3.61	304.51 \pm 55.54	18.12 \pm 2.35	1.5 \pm 1.09	55%
Ecuador	9	1041	135.56 \pm 45.96	2.15 \pm 0.54	0.14 \pm 0.05	20.36 \pm 3.17	332.95 \pm 72.91	16.41 \pm 2.91	0.77 \pm 1.67	44%
Ecuador	10	1953	115.76 \pm 25.38	2.08 \pm 0.43	0.13 \pm 0.01	22.48 \pm 5.34	341.55 \pm 43.48	15.78 \pm 2.54	0.22 \pm 0.81	64%
Ecuador	11	1893	123.92 \pm 26.67	1.98 \pm 0.57	0.12 \pm 0.03	23.74 \pm 7.24	365.68 \pm 95	16.02 \pm 2.5	-0.04 \pm 1.1	83%
Ecuador	12	1873	113.68 \pm 29.9	2.28 \pm 0.38	0.15 \pm 0.04	20.51 \pm 3.75	323.25 \pm 80.78	16.44 \pm 4.47	0.18 \pm 0.73	76%
Ecuador	13	1764	113.57 \pm 18.51	1.99 \pm 0.38	0.13 \pm 0.01	23.28 \pm 4.46	360.03 \pm 37.76	15.67 \pm 2.39	0.12 \pm 0.52	72%
Ecuador	14	3214	47.95 \pm 26.12	0.97 \pm 0.36	0.06 \pm 0.01	50.96 \pm 13.85	772.64 \pm 115.72	15.56 \pm 3.55	-5.07 \pm 1.94	85%
Ecuador	15	3222	49.29 \pm 24.14	1.02 \pm 0.47	0.06 \pm 0.01	49.43 \pm 15.54	756.2 \pm 138.32	15.86 \pm 3.99	-4.83 \pm 2.3	95%
Ecuador	16	3191	46.88 \pm 18.44	0.98 \pm 0.43	0.06 \pm 0.01	51.07 \pm 14.52	770.36 \pm 141.15	15.46 \pm 3.23	-5.05 \pm 2.32	91%
Ecuador	17	3241	59.27 \pm 30.31	1.16 \pm 0.38	0.07 \pm 0.01	44.08 \pm 14.2	697.04 \pm 151.06	16.47 \pm 2.8	-4.23 \pm 1.84	95%

32 Table S2b.

33 Summary of the plot-level (mean and standard deviation) leaf nitrogen content (LNC), leaf phosphorus content (LPC), specific leaf area
 34 (SLA) and leaf C:N, C:P, N:P and $\delta^{15}\text{N}$, along with the total percentage of the basal area (BA) sampled per plot of the Rwanda transect.

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Transect	Plot	Altitude	SLA (cm ² g ⁻¹)	LNC (%)	LPC (%)	C:N	C:P	N:P	$\delta^{15}\text{N}$ (‰)	Percentage of BA sampled
Rwanda	1	2879	42.04 ± 28.52	1.53 ± 0.94	0.09 ± 0.04	34.58 ± 13.74	564.61 ± 171.59	16.81 ± 2.85	-0.12 ± 1.46	90%
Rwanda	2	2875	45.83 ± 23.33	1.83 ± 1.03	0.1 ± 0.05	30.78 ± 14.2	508.9 ± 191.33	17.16 ± 2.3	0.52 ± 1.89	95%
Rwanda	3	2937	35.53 ± 26.65	1.33 ± 1.09	0.08 ± 0.05	37.72 ± 15.34	598.75 ± 202.9	16.09 ± 2.42	-0.2 ± 1.6	99%
Rwanda	4	2767	60.76 ± 31.92	2.09 ± 0.93	0.11 ± 0.04	27.67 ± 11.72	483.82 ± 147.81	19.26 ± 5.05	0.8 ± 1.73	91%
Rwanda	5	2761	60.19 ± 32.62	2.09 ± 0.98	0.11 ± 0.04	27.95 ± 12.02	488.41 ± 149.64	19.55 ± 5.66	0.68 ± 1.59	97%
Rwanda	6	2293	99.03 ± 21.26	2.54 ± 0.49	0.12 ± 0.03	19.85 ± 3.8	398.62 ± 86.35	21.01 ± 3.94	3.2 ± 1.85	86%
Rwanda	7	2240	112.49 ± 25.8	2.49 ± 0.53	0.13 ± 0.02	20.88 ± 4.5	380.75 ± 78.3	19.57 ± 3.17	4.07 ± 1.9	94%
Rwanda	8	1745	110.11 ± 25.21	2.59 ± 0.66	0.13 ± 0.02	20.59 ± 4.03	385.18 ± 73.06	20.44 ± 3.37	3.52 ± 1.94	99%
Rwanda	9	1835	106.3 ± 32.8	2.68 ± 0.74	0.13 ± 0.04	19.81 ± 4.91	384.09 ± 96.91	20.83 ± 3.7	3.8 ± 1.83	97%
Rwanda	10	1799	106.11 ± 30.81	2.62 ± 0.72	0.13 ± 0.05	20.19 ± 5.37	388.53 ± 115.94	20.4 ± 5.11	4.23 ± 1.98	92%
Rwanda	11	1760	111.25 ± 21.64	2.6 ± 0.63	0.12 ± 0.02	20.4 ± 4.39	388.3 ± 62.55	20.89 ± 3.51	3.97 ± 1.48	100%
Rwanda	12	1659	104.19 ± 39.07	2.39 ± 0.71	0.12 ± 0.04	21.88 ± 4.92	404.88 ± 97.93	19.63 ± 3.97	3.51 ± 2.27	100%
Rwanda	13	2141	102.67 ± 21.38	2.61 ± 0.56	0.12 ± 0.03	19.39 ± 4.36	413.08 ± 102.42	22.01 ± 4.45	4.01 ± 1.99	97%
Rwanda	14	2158	105.99 ± 22.76	2.55 ± 0.39	0.11 ± 0.02	20.85 ± 3.29	439.03 ± 66.3	23.06 ± 3.52	3.31 ± 1.42	100%
Rwanda	15	2557	98.84 ± 24.87	2.5 ± 0.73	0.11 ± 0.02	22.43 ± 4.52	433.44 ± 65.02	22.89 ± 6.92	1.01 ± 0.88	99%
Rwanda	16	2523	100.12 ± 27.99	2.38 ± 0.73	0.11 ± 0.02	23.16 ± 5.33	440.96 ± 61.48	22.02 ± 6.44	0.94 ± 0.8	100%
Rwanda	17	2167	89.7 ± 30.72	2.18 ± 0.63	0.11 ± 0.03	24.28 ± 7.86	448.71 ± 101.96	19.45 ± 2.82	1.93 ± 1.83	97%
Rwanda	18	2456	94.81 ± 32.58	2.04 ± 0.46	0.11 ± 0.02	25.36 ± 5.17	452.75 ± 75.93	19.01 ± 2.84	0.94 ± 0.9	99%
Rwanda	19	2500	89.29 ± 32.47	2.24 ± 0.43	0.12 ± 0.02	21.6 ± 3.85	386.74 ± 73.89	18.15 ± 1.34	0.98 ± 1.27	93%
Rwanda	20	2522	86.38 ± 23.57	2.2 ± 0.55	0.12 ± 0.03	23.02 ± 5.39	410.66 ± 91.2	18.45 ± 0.81	1.36 ± 1.13	98%

36 **Table S3** Fixed effects estimates (altitude in km asl) for the different canopy-level response
 37 variables for the full model including interaction term; leaf nitrogen content (LNC), inverse C:N
 38 ratio, specific leaf area (SLA), leaf phosphorus content (LPC), N:P ratio, canopy and topsoil $\delta^{15}\text{N}$.
 39 The ΔAIC shows the differences in Akaike information criterion between the full model and model
 40 without interaction term, with positive values for a reduction in AIC when discarding the
 41 interaction term.

Response	Effect	Estimate	Standard Error	P-value	ΔAIC
LNC (%)	Ecuador intercept	3.010	0.145	<0.001	1.10
	Rwanda intercept	3.930	0.466	0.114	
	Altitude	-0.572	0.000	0.001	
	Altitude:Transect	-0.140	0.000	0.525	
SLA ($\text{cm}^2 \text{g}^{-1}$)	Ecuador intercept	171.377	15.534	<0.001	1.16
	Rwanda intercept	199.016	44.535	0.552	
	Altitude	-33.849	0.008	0.009	
	Altitude:Transect	-13.755	0.019	0.496	
N:C	Ecuador intercept	0.066	0.004	<0.001	1.94
	Rwanda intercept	0.075	0.011	0.472	
	Altitude	-0.013	0.000	0.002	
	Altitude:Transect	-0.000	0.000	0.930	
LPC (%)	Ecuador intercept	0.157	0.014	<0.001	2.00
	Rwanda intercept	0.170	0.042	0.763	
	Altitude	-0.024	0.000	0.024	
	Altitude:Transect	0.000	0.000	0.985	
N:P	Ecuador intercept	20.440	1.215	<0.001	1.60
	Rwanda intercept	25.885	3.842	0.218	
	Altitude	-1.686	0.001	0.051	
	Altitude:Transect	-0.913	0.002	0.607	

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