SUPPLEMENTARY INFORMATION TO:

Coordination of physiological and structural traits in Amazon forest trees

by Sandra Patiño, Nikolaos M. Fyllas, Timothy R. Baker, Romilda Paiva, Carlos Alberto Quesada, Alexandre J. B. Santos, Michael Schwarz, Hans ter Steege, Oliver Phillips and Jon Lloyd*

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Table S1: Mean value of each foliar property per plot. Seed class input data was in $\log_{10}$ steps [log classes: 1 = 10^{-5} - 10^{-4}, 2 = 10^{-4} - 10^{-3},.......8 = >100] as per ter Steege and Hammond (2001)

Plot	lat	long	L_A (x10^3 m^2)	ℓ_a (x10^3 m^2)	Φ_{LS} (m^2 cm^{-2})	ρ_X (kg m^{-3})	Ǿ	Seed Class	H_{max} (m)	M_A (g m^{-2})	C (mg g^{-1})	N (mg g^{-1})	P (mg g^{-1})	Ca (mg g^{-1})	K (mg g^{-1})	Mg (mg g^{-1})
AGP-01	-3.74	-70.31	26.8±45.4	13.1±10.1	1.23±0.79	569±69	0.13±0.03	5.5±1.1	27.9±7.0	103±31	455±41	20.9±4.2	1.06±0.38	9.8±6.0	9.1±6.0	2.8±1.7
AGP-02	-3.74	-70.30	26.7±45.5	11.7±8.1	0.91±0.46	560±80	0.13±0.03	5.6±0.8	30.9±7.8	96±19	457±29	19.2±3.4	0.96±0.24	9.9±4.3	6.8±2.6	2.8±1.8
ALP-11	-3.95	-73.43	2.4±0.0	4.9±3.2	ND	630±64	0.22±0.05	4.6±0.9	32.0±10.9	140±51	525±31	17.6±4.8	0.84±0.32	7.3±2.3	6.1±3.7	2.1±0.6
ALP-12	-3.95	-73.44	6.2±3.4	6.2±3.4	ND	644±64	0.22±0.05	5.2±0.8	32.7±3.0	124±19	513±16	20.3±4.7	0.78±0.19	6.9±2.5	4.9±1.6	1.6±0.7
ALP-21	-3.95	-73.44	3.4±1.4	3.3±1.5	ND	720±135	0.21±0.05	5.0±0.6	28.4±11.6	134±27	524±19	20.4±6.2	0.98±0.31	4.6±2.9	4.1±0.9	1.7±0.6
ALP-22	-3.95	-73.44	9.6±7.5	4.8±4.6	ND	670±74	0.20±0.03	5.3±0.8	31.9±3.8	95±23	497±24	21.2±5.4	1.02±0.19	7.6±4.1	6.7±2.5	1.8±0.8
ALP-30	-3.95	-73.43	19.9±23.8	3.2±2.3	ND	779±50	0.19±0.05	5.2±0.6	29.7±7.5	115±26	527±18	20.3±4.6	1.02±0.45	6.6±3.3	3.5±1.0	1.9±0.8
BNT-04	-2.63	-60.15	10.6±11.1	6.5±3.4	0.94±0.43	730±47	0.16±0.03	5.7±0.8	28.0±7.7	103±25	491±16	19.9±4.3	0.54±0.15	2.2±1.2	3.2±0.9	1.3±0.4
BOG-01	-0.70	-76.48	29.3±51.7	7.8±5.6	1.37±1.12	526±96	0.19±0.04	4.8±0.9	27.4±10.4	91±26	455±43	25.3±5.8	1.61±0.50	13.2±8.0	9.2±4.0	2.6±1.2
BOG-02	-0.70	-76.47	41.9±126.3	15.4±25.8	1.12±0.64	546±121	0.20±0.04	4.8±0.9	29.4±6.7	95±24	439±50	23.0±5.3	1.44±0.46	16.2±11.4	13.0±6.9	3.6±3.0
BRA-01	-0.83	-46.64	5.2±1.8	5.2±1.8	1.54±1.25	761±175	0.12±0.03	5.4±1.0	33.3±7.0	129±16	409±15	19.6±4.7	1.23±0.47	8.3±2.9	11.3±3.6	7.4±2.9
CAX-01	-1.74	-51.46	17.9±21.1	6.0±2.5	1.05±0.58	641±162	0.15±0.05	5.5±0.8	31.6±6.8	82±19	464±32	23.8±6.3	0.60±0.17	3.1±1.9	2.9±2.2	3.2±1.3
CAX-02	-1.74	-51.46	13.0±16.3	6.0±2.8	1.35±1.03	784±112	0.14±0.04	5.8±0.9	29.6±9.4	85±19	465±24	22.1±3.8	0.74±0.13	5.8±4.3	2.3±1.0	3.1±1.7
CUZ-03	-12.50	-68.96	17.5±8.7	9.1±5.3	1.16±0.51	585±151	0.12±0.04	5.9±1.2	26.3±8.4	88±26	438±31	21.8±4.8	1.68±0.68	14.1±4.9	11.7±4.5	2.5±1.0
ELD-12	6.10	-61.40	29.9±32.0	10.2±5.4	1.23±0.42	523±124	0.14±0.05	5.3±0.9	28.2±5.0	80±16	491±18	20.5±4.3	0.66±0.18	4.5±3.0	5.8±3.4	2.4±1.1
HCC-21	-14.56	-60.75	16.7±13.6	12.5±15.3	0.66±0.29	557±121	0.21±0.04	4.4±1.0	27.8±7.6	76±22	484±24	30.7±3.8	1.03±0.16	12.3±3.9	8.9±2.6	2.7±1.0
HCC-22	-14.57	-60.75	25.3±19.8	9.1±3.9	0.62±0.35	696±64	0.16±0.03	5.2±0.8	30.8±8.2	90±22	439±45	28.8±6.1	1.32±0.45	15.7±8.6	13.0±9.3	4.8±2.9
JAC-04	-2.61	-60.22	18.2±14.6	9.8±6.8	0.88±0.65	671±84	0.17±0.04	5.4±0.6	32.0±9.9	127±27	480±38	12.6±4.0	0.48±0.10	3.1±1.9	5.2±3.5	2.5±1.5
JAC-12	-2.61	-60.21	15.0±25.8	7.9±10.0	0.56±0.28	537±96	0.22±0.03	4.8±1.0	31.4±9.5	103±25	491±28	22.3±5.8	0.60±0.18	2.6±1.5	3.7±1.8	1.9±1.0
JAS-02	-1.07	-77.62	18.0±36.1	6.0±3.3	1.14±1.00	531±75	0.21±0.03	4.7±1.0	37.5±8.4	113±35	482±35	23.3±5.1	1.03±0.28	7.9±3.9	9.5±4.9	2.0±0.8
JAS-03	-1.08	-77.61	9.9±5.1	9.9±5.1	0.89±0.14	540±82	0.22±0.04	5.1±0.8	31.8±7.5	103±36	470±39	24.5±6.7	1.24±0.45	11.8±5.9	9.9±4.8	2.3±1.2

Plot	lat	long	L_A (x10^3 m^2)	ℓ_a (x10^3 m^2)	Φ_{LS} (m^2 cm^{-2})	ρ_x (kg m^{-3})	Ǿ	Seed Class	H_{max} (m)	M_A (g m^{-2})	C (mg g^{-1})	N (mg g^{-1})	P (mg g^{-1})	Ca (mg g^{-1})	K (mg g^{-1})	Mg (mg g^{-1})
JAS-04	-1.07	-77.61	23.3±25.3	7.8±5.2	1.33±1.49	465±70	0.22±0.03	4.6±0.8	32.1±6.4	120±34	500±33	18.9±3.3	0.83±0.27	7.3±2.8	6.2±4.6	1.6±0.8
JAS-05	-1.06	-77.62	5.2±3.6	4.5±3.0	0.93±0.40	776±115	0.22±0.05	5.0±0.7	25.0±7.1	94±21	482±33	27.0±4.9	2.10±0.71	12.6±6.8	11.5±5.0	2.7±1.4
JRI-01	-0.89	-52.19	0.0±0.0	0.0±0.0	ND	ND	0.18±0.05	5.3±0.4	30.8±8.0	120±29	483±19	17.9±4.6	0.57±0.14	5.0±2.9	3.4±2.2	2.2±0.7
JUR-01	-8.88	-72.79	8.8±7.2	8.8±7.2	1.06±0.94	555±102	0.14±0.04	4.3±1.1	32.7±12.1	97±32	396±28	25.3±.6	1.56±0.27	11.4±2.9	8.9±3.8	3.3±0.1
LFB-01	-14.56	-60.93	8.1±6.3	6.0±2.6	1.07±0.32	601±71	0.16±0.03	4.5±1.9	29.9±10.0	79±24	449±28	22.5±4.4	0.90±0.37	5.5±1.6	10.6±4.6	2.7±1.0
LFB-02	-14.58	-60.83	43.4±83.6	10.5±4.1	1.18±0.74	621±35	0.14±0.05	6.0±0.5	23.3±10.5	96±19	468±34	20.7±4.6	0.78±0.23	4.2±1.7	6.3±2.3	2.0±0.8
LOR-01	-3.06	-69.99	28.4±53.9	10.0±5.2	1.20±0.74	562±125	0.13±0.03	5.5±0.8	30.0±6.3	101±21	488±18	19.3±3.4	1.07±0.41	4.8±2.6	6.9±3.0	2.2±1.0
LOR-02	-3.06	-69.99	11.0±8.6	3.9±1.8	0.70±0.40	638±97	0.18±0.05	3.5±2.2	26.9±11.6	93±20	472±29	21.3±6.0	1.14±0.47	5.5±2.6	8.8±6.1	2.3±1.0
LSL-01	-14.41	-61.14	3.1±0.9	3.1±0.9	0.89±0.42	547±63	0.17±0.03	3.3±2.7	30.7±7.3	77±20	483±15	23.9±4.6	1.18±0.41	6.5±4.1	7.8±2.9	2.2±1.0
LSL-02	-14.41	-61.14	11.9±12.9	7.4±6.1	1.01±0.42	646±106	0.18±0.02	5.3±0.7	33.9±7.5	73±20	455±31	20.1±2.8	1.06±0.22	6.6±2.6	8.1±4.8	2.3±1.0
MBO-01	-1.45	-48.45	15.2±22.0	5.9±2.6	0.81±0.44	586±58	ND	4.8±0.9	33.4±9.7	90±20	474±28	21.4±5.2	0.74±0.16	2.9±1.7	3.9±1.1	2.3±1.1
RES-04	-10.80	-68.77	82.8±25.9	11.0±6.3	1.63±0.68	555±98	ND	5.3±0.7	31.5±10.0	93±30		19.5±4.1				
RES-05	-10.57	-68.31	37.1±48.9	7.7±6.3	1.36±0.80	611±80	0.18±0.05	4.8±0.6	31.4±12.4	85±20	424±45	22.6±4.7	0.95±0.21	13.2±10.2	7.6±5.0	3.4±1.5
RES-06	-10.56	-68.30	6.6±5.3	6.3±5.2	1.07±0.82	544±94	0.17±0.05	4.8±1.1	26.4±9.0	85±23	436±46	23.2±5.3	1.20±0.38	14.9±10.5	9.0±4.2	4.5±3.3
RIO-12	8.11	-61.69	17.3±22.7	9.2±5.2	1.08±0.59	603±90	0.14±0.03	5.8±0.8	33.6±6.9	96±27	455±42	16.6±5.4	0.59±0.16	7.4±7.7	4.4±3.1	3.4±1.9
SCR-01	1.93	-67.02	18.9±12.5	4.4±0.3	0.55±0.33	641±139	0.17±0.05	7.0±0.0	25.4±3.2	124±25	504±11	15.3±2.9	1.40±1.04	1.1±1.0	9.5±7.8	1.0±0.3
SCR-04	1.93	-67.04	16.3±15.6	6.2±2.3	0.15±0.33	562±84	0.17±0.04	5.5±1.1	28.7±7.6	141±39	512±15	12.5±5.2	1.03±0.53	5.2±3.2	5.7±1.9	1.9±0.8
SCR-05	1.93	-67.04	9.3±4.8	5.8±2.5	0.99±0.48	598±115	0.17±0.04	5.7±1.0	31.8±10.2	155±55	540±18	16.1±4.1	0.64±0.16	1.4±0.8	5.1±1.5	1.0±0.4
SUC-01	-3.25	-72.91	18.0±28.5	16.2±27.1	ND	636±122	0.16±0.05	5.2±1.3	33.1±11.1	127±56	510±38	19.9±4.3	0.90±0.28	5.8±2.5	6.3±3.1	2.5±1.6
SUC-02	-3.25	-72.90	28.8±36.9	18.8±29.4	ND	659±90	0.19±0.05	5.4±1.1	29.5±9.7	113±29	493±30	18.2±5.5	0.90±0.21	5.4±3.3	6.5±2.5	2.0±0.8
SUC-03	-3.25	-72.92	10.7±14.0	5.9±6.0	ND	698±128	0.17±0.05	5.5±0.9	30.8±10.8	109±28	495±24	18.5±2.8	0.91±0.20	8.7±4.4	5.2±1.9	2.8±1.6

Plot	lat	long	L_A ($x10^3$ m^2)	ℓ_a ($x10^3$ m^2)	Φ_{LS} (m^2 cm^{-2})	ρ_X (kg m^{-3})	Ǿ	Seed Class	H_{max} (m)	M_A (g m^{-2})	C (mg g^{-1})	N (mg g^{-1})	P (mg g^{-1})	Ca (mg g^{-1})	K (mg g^{-1})	Mg (mg g^{-1})
SUM-01	-1.75	-77.63	49.7±68.8	11.2±6.2	1.28±0.79	501±77	0.25±0.03	4.8±0.9	35.9±8.9	104±33	476±21	25.3±7.4	1.61±0.50	7.6±2.6	8.2±2.7	2.0±0.9
TAM-01	-12.84	-69.29	15.0±15.8	6.9±5.7	1.35±0.69	579±96	0.21±0.03	5.2±0.4	34.4±7.7	100±21	471±32	22.1±5.1	1.20±0.37	6.6±2.6	8.4±2.9	1.9±0.8
TAM-02	-12.83	-69.29	18.4±21.4	8.1±7.3	1.03±0.39	625±113	0.21±0.04	5.0±0.7	32.8±8.9	104±27	475±37	22.9±5.5	1.16±0.42	5.0±3.1	9.0±4.6	3.1±2.2
TAM-03	-12.84	-69.28	7.0±4.1	7.0±4.1	0.81±0.35	468±98	0.18±0.03	3.9±1.4	33.1±6.4	110±15	485±35	18.8±4.3	1.31±0.33	4.2±1.4	8.3±4.8	1.9±1.4
TAM-04	-12.84	-69.28	10.8±7.8	10.8±7.8	0.97±0.52	595±94	0.20±0.03	4.7±1.3	32.0±8.6	115±25	496±28	21.7±4.7	1.31±0.34	2.2±0.9	7.5±3.0	2.1±0.9
TAM-05	-12.83	-69.27	11.1±11.3	5.8±5.3	1.10±0.41	637±86	0.21±0.05	5.2±0.8	32.4±7.5	101±24	507±34	24.0±5.5	1.05±0.20	2.8±2.5	6.1±3.2	2.2±1.4
TAM-06	-12.84	-69.30	13.6±20.1	6.5±7.9	0.95±0.27	585±82	0.21±0.03	5.1±1.0	34.1±7.6	96±21	485±35	24.8±6.7	1.88±0.84	8.4±4.3	8.2±3.5	2.3±1.0
TAM-07	-12.83	-69.26	19.9±32.0	6.6±5.1	1.01±0.76	629±99	0.19±0.03	5.0±1.4	30.3±9.1	114±22	511±33	21.6±5.0	0.98±0.23	1.9±0.8	6.4±2.3	2.2±0.9
TAP-04	-2.85	-54.95	32.2±66.9	9.3±5.7	1.01±0.63	631±144	0.17±0.04	4.8±1.0	29.9±6.3	99±31	463±43	22.6±7.7	0.75±0.24	7.5±4.2	3.7±2.2	2.7±1.4
TAP-123	-3.31	-54.94	12.2±29.3	5.6±3.6	1.42±0.82	692±97	0.19±0.04	4.8±0.8	27.4±15.7	90±19	467±35	21.7±5.6	0.70±0.18	5.2±3.0	3.0±1.2	2.5±1.1
TIP-03	-0.64	-76.15	9.5±9.2	4.3±3.2	0.71±0.29	565±34	0.18±0.04	4.8±0.5	31.5±8.8	92±48	472±26	28.4±3.3	2.04±0.65	7.3±3.6	7.0±3.1	2.2±1.1
TIP-05	-0.64	-76.14	44.2±67.7	10.5±8.8	1.02±0.43	578±116	0.19±0.05	4.9±0.7	37.7±9.1	112±40	470±32	21.8±3.8	1.23±0.39	11.5±4.9	8.2±4.3	3.2±0.8
YAN-01	-3.44	-72.85	20.5±33.6	6.2±3.5	ND	570±97	0.22±0.04	4.5±1.1	33.7±10.5	86±29	474±36	19.7±5.3	1.24±0.33	19.1±10.7	9.1±4.3	3.2±1.5
YAN-02	-3.43	-72.84	13.6±8.0	13.6±8.0	ND	508±58	0.18±0.03	4.5±1.3	43.5±8.4	105±14	463±43	20.0±3.7	1.2±0.4	17.5±9.5	8.9±2.8	4.2±1.0

Table S2A: Pair-wise relationships of key foliar properties using the raw data (left panel), pooled genetic (middle panel) and pooled plot-environmental effects (right panel). For the raw data the intercept and slope are given, but for both the genetic and environmental effects only the slope is presented as all relationships were forced through (0,0). Also given are the 0.95 quantile confidence intervals, Pearson's *r* correlation coefficient, the significance of the correlation *(sig)*, and *n* the number of cases used. The (NS) sign indicates that the respective estimates could not be made. The genetic and plot effects lines are forced through (0,0).

		raw data									**genetic effects**						**plot-environmental effects**					
y	*x*	intercept	intercept 0.95 ci		slope	slope 0.95 ci		*r*	*sig*	*n*	slope	slope 0.95 ci		*r*	*sig*	*n*	slope	slope 95%ci		*r*	*sig*	*n*
			low	high		low	high					low	high					low	high			
log(L_A)	log(ℓ_d)	0.92	0.76	1.07	1.32	1.25	1.39	0.62	0.000	870	1.53	1.40	1.66	0.41	0.000	455	1.18	1.05	1.32	0.90	0.000	61
log(L_A)	log(Φ_{LS})	-1.92	-1.96	-1.87	1.44	1.34	1.55	0.15	0.000	683	5.26	4.77	5.79	0.26	0.000	388	NS	NS	NS	0.07	0.621	50
log(L_A)	ρ_x	0.23	0.08	0.38	-3.69	-3.46	-3.94	-0.19	0.000	870	-7.62	-6.95	-8.35	-0.10	0.033	456	-1.49	-1.15	-1.91	-0.25	0.059	60
log(L_A)	Ǿ	NS	NS	NS	NS	NS	NS	-0.02	0.548	813	28.58	26.04	31.36	0.11	0.019	443	NS	NS	NS	-0.14	0.272	60
log(L_A)	log(S)	NS	NS	NS	NS	NS	NS	NS	0.171	815	NS	NS	NS	NS	0.672	420	NS	NS	NS	NA	NA	NA
log(L_A)	H_{max}	NS	NS	NS	NS	NS	NS	NS	0.128	863	NS	NS	NS	NS	0.662	448	NS	NS	NS	NA	NA	NA
log(L_A)	log(M_A)	NS	NS	NS	NS	NS	NS	NS	0.442	855	NS	NS	NS	NS	0.068	453	NS	NS	NS	0.08	0.546	61
log(L_A)	[C]	NS	NS	NS	NS	NS	NS	NS	0.709	826	0.02	0.02	0.02	0.13	0.006	444	NS	NS	NS	-0.08	0.563	60
log(L_A)	log[N]	-7.03	-7.37	-6.69	3.80	3.55	4.06	0.12	0.000	837	6.38	5.83	6.97	0.27	0.000	449	NS	NS	NS	-0.09	0.467	61
log(L_A)	log[P]	-1.94	-1.98	-1.90	2.29	2.14	2.44	0.18	0.000	833	5.39	4.95	5.88	0.37	0.000	445	NS	NS	NS	-0.03	0.815	60
log(L_A)	log[Ca]	-2.94	-3.01	-2.86	1.23	1.15	1.31	0.06	0.109	834	NS	NS	NS	NS	0.619	446	NS	NS	NS	0.11	0.421	60
log(L_A)	log[K]	-3.07	-3.15	-2.99	1.42	1.33	1.52	0.11	0.001	834	NS	NS	NS	NS	0.819	446	NS	NS	NS	0.21	0.111	60
log(L_A)	log[Mg]	NS	NS	NS	NS	NS	NS	0.00	0.979	834	-2.99	-2.72	-3.27	-0.15	0.002	446	NS	NS	NS	0.07	0.586	60
log(ℓ_d)	log(Φ_{LS})	-2.17	-2.20	-2.13	1.01	0.94	1.09	0.12	0.002	693	NS	NS	NS	0.01	0.905	392	NS	NS	NS	0.08	0.582	50
log(ℓ_d)	ρ_x	-0.51	-0.62	-0.39	-2.83	-2.65	-3.02	-0.22	0.000	888	-5.03	-4.60	-5.50	-0.22	0.000	464	-1.26	-0.99	-1.62	-0.31	0.015	60
log(ℓ_d)	Ǿ	-0.93	-1.03	-0.84	-7.34	-6.86	-7.86	-0.12	0.001	825	NS	NS	NS	-0.08	0.110	449	-2.84	-2.21	-3.64	-0.28	0.027	60
log(ℓ_d)	log(S)	NS	NS	NS	NS	NS	NS	0.05	0.166	831	NS	NS	NS	-0.01	0.842	426	NS	NS	NS	NA	NA	NA
log(ℓ_d)	H_{max}	NS	NS	NS	NS	NS	NS	0.00	0.999	881	NS	NS	NS	0.00	0.928	456	NS	NS	NS	NA	NA	NA
log(ℓ_d)	log(M_A)	-7.66	-8.02	-7.30	2.74	2.56	2.93	0.09	0.007	869	4.34	3.97	4.75	0.17	0.000	459	NS	NS	NS	0.07	0.604	61
log(ℓ_d)	[C]	1.97	1.69	2.26	-0.01	-0.01	-0.01	-0.12	0.001	838	NS	NS	NS	-0.08	0.086	450	NS	NS	NS	-0.19	0.145	60
log(ℓ_d)	log[N]	NS	NS	NS	NS	NS	NS	-0.03	0.445	851	-4.20	-3.84	-4.61	-0.11	0.021	455	NS	NS	NS	-0.16	0.214	61
log(ℓ_d)	log[P]	NS	NS	NS	NS	NS	NS	0.05	0.162	845	NS	NS	NS	0.04	0.456	451	NS	NS	NS	-0.11	0.394	60
log(ℓ_d)	log[Ca]	NS	NS	NS	NS	NS	NS	0.06	0.096	846	NS	NS	NS	0.06	0.215	452	NS	NS	NS	0.09	0.496	60
log(ℓ_d)	log[K]	-3.04	-3.11	-2.98	1.10	1.03	1.18	0.16	0.000	846	2.62	2.39	2.87	0.18	0.000	452	NS	NS	NS	0.20	0.132	60
log(ℓ_d)	log[Mg]	-2.78	-2.83	-2.73	1.56	1.45	1.66	0.13	0.000	846	1.98	1.80	2.17	0.14	0.003	452	NS	NS	NS	0.15	0.256	60

Table S2A (continued)

		raw data									genetic effects						plot-environmental effects					
y	*x*	intercept	intercept 0.95 ci		slope	slope 0.95 ci		*r*	*sig*	*n*	slope	slope 0.95 ci		*r*	*sig*	*n*	slope	slope 0.95 c.i.		*r*	*sig*	*n*
			low	high		low	high					low	high					low	high			
$\log(\Phi_{LS})$	ρ_x	-1.66	-1.78	-1.54	2.61	2.42	2.81	0.09	0.012	712	NS	NS	NS	0.07	0.153	402	NS	NS	NS	0.17	0.236	50
$\log(\Phi_{LS})$	Ǿ	1.18	1.08	1.28	-7.08	-6.57	-7.63	-0.09	0.017	686	NS	NS	NS	-0.08	0.113	396	NS	NS	NS	-0.09	0.531	49
$\log(\Phi_{LS})$	log(*S*)	NS	NS	NS	NS	NS	NS	-0.03	0.373	696	NS	NS	NS	-0.09	0.069	374	NA	NA	NA	NA	NA	NA
$\log(\Phi_{LS})$	H_{max}	NS	NS	NS	NS	NS	NS	0.01	0.785	741	NS	NS	NS	-0.06	0.206	403	NA	NA	NA	NA	NA	NA
$\log(\Phi_{LS})$	$\log(M_A)$	5.03	4.67	5.39	-2.59	-2.41	-2.78	-0.26	0.000	727	-1.26	-1.14	-1.38	-0.24	0.000	405	-3.49	-2.66	-4.60	-0.29	0.041	50
$\log(\Phi_{LS})$	[C]	3.91	3.62	4.21	-0.01	-0.01	-0.01	-0.13	0.000	699	NS	NS	NS	0.05	0.284	396	-0.01	-0.01	-0.01	-0.25	0.081	49
$\log(\Phi_{LS})$	log[N]	-3.65	-3.91	-3.39	2.72	2.53	2.92	0.19	0.000	713	1.22	1.11	1.34	0.20	0.000	401	3.06	2.34	4.00	0.36	0.011	50
$\log(\Phi_{LS})$	log[P]	NS	NS	NS	NS	NS	NS	0.01	0.782	705	1.03	0.93	1.13	0.13	0.007	397	NS	NS	NS	-0.07	0.638	49
$\log(\Phi_{LS})$	log[Ca]	NS	NS	NS	NS	NS	NS	0.02	0.613	706	NS	NS	NS	0.00	0.954	398	NS	NS	NS	-0.02	0.914	49
$\log(\Phi_{LS})$	log[K]	NS	NS	NS	NS	NS	NS	-0.03	0.400	706	NS	NS	NS	0.04	0.406	398	NS	NS	NS	-0.21	0.149	49
$\log(\Phi_{LS})$	log[Mg]	NS	NS	NS	NS	NS	NS	0.03	0.446	706	NS	NS	NS	-0.09	0.067	398	NS	NS	NS	0.10	0.501	49
ρ_x	Ǿ	1.09	1.05	1.12	-2.63	-2.46	-2.80	-0.13	0.000	868	NS	NS	NS	-0.09	0.064	469	NS	NS	NS	-0.18	0.181	59
ρ_x	log(*S*)	0.02	-0.02	0.06	0.12	0.11	0.13	0.23	0.000	876	0.05	0.04	0.05	0.25	0.000	444	NA	NA	NA	NA	NA	NA
ρ_x	H_{max}	NS	NS	NS	NS	NS	NS	0.01	0.673	930	NS	NS	NS	-0.03	0.492	477	NA	NA	NA	NA	NA	NA
ρ_x	$\log(M_A)$	-1.32	-1.45	-1.19	0.98	0.92	1.05	0.10	0.002	897	0.88	0.80	0.96	0.12	0.007	477	NS	NS	NS	0.08	0.532	60
ρ_x	[C]	-0.91	-1.01	-0.81	0.00	0.00	0.00	0.10	0.004	882	NS	NS	NS	0.07	0.143	470	0.00	0.00	0.00	0.27	0.039	59
ρ_x	log[N]	2.01	1.92	2.10	-1.06	-0.99	-1.13	-0.18	0.000	895	NS	NS	NS	-0.07	0.111	475	NS	NS	NS	-0.22	0.089	60
ρ_x	log[P]	0.59	0.58	0.60	-0.64	-0.60	-0.68	-0.45	0.000	889	-0.72	-0.66	-0.79	-0.20	0.000	471	-0.45	-0.37	-0.55	-0.64	0.000	59
ρ_x	log[Ca]	0.87	0.85	0.89	-0.34	-0.32	-0.37	-0.32	0.000	890	-0.37	-0.34	-0.41	-0.21	0.000	472	-0.26	-0.20	-0.33	-0.46	0.000	59
ρ_x	log[K]	0.90	0.88	0.92	-0.39	-0.37	-0.42	-0.52	0.000	890	-0.53	-0.48	-0.57	-0.24	0.000	472	-0.30	-0.25	-0.34	-0.82	0.000	59
ρ_x	log[Mg]	0.81	0.79	0.83	-0.56	-0.53	-0.60	-0.15	0.000	890	-0.40	-0.36	-0.43	-0.12	0.011	472	NS	NS	NS	-0.06	0.657	59
Ǿ	log(*S*)	0.40	0.38	0.41	-0.04	-0.04	-0.05	-0.18	0.000	877	-0.38	-0.35	-0.41	-0.20	0.000	449	NA	NA	NA	NA	NA	NA
Ǿ	H_{max}	0.02	0.00	0.03	0.01	0.00	0.01	0.13	0.000	934	0.00	0.00	0.00	0.13	0.005	484	NA	NA	NA	NA	NA	NA
Ǿ	$\log(M_A)$	-0.52	-0.57	-0.48	0.35	0.33	0.38	0.20	0.000	923	0.23	0.21	0.25	0.10	0.031	491	0.57	0.45	0.73	0.32	0.011	61
Ǿ	[C]	-0.39	-0.43	-0.36	0.001	0.001	0.001	0.08	0.015	926	NS	NS	NS	0.04	0.335	488	0.002	0.001	0.002	0.28	0.032	61
Ǿ	log[N]	-0.34	-0.38	-0.31	0.40	0.37	0.42	0.16	0.000	936	0.22	0.20	0.24	0.23	0.000	492	NS	NS	NS	0.24	0.065	61
Ǿ	log[P]	0.19	0.18	0.19	0.24	0.23	0.25	0.36	0.000	931	0.19	0.17	0.21	0.27	0.000	488	0.20	0.16	0.25	0.49	0.000	61
Ǿ	log[Ca]	0.09	0.08	0.09	0.13	0.12	0.14	0.17	0.000	932	0.09	0.09	0.10	0.11	0.016	489	NS	NS	NS	0.25	0.055	61
Ǿ	log[K]	0.07	0.06	0.08	0.15	0.14	0.16	0.22	0.000	932	NS	NS	NS	0.06	0.210	489	0.13	0.10	0.17	0.31	0.015	61
Ǿ	log[Mg]	NS	NS	NS	NS	NS	NS	0.00	0.930	932	0.10	0.09	0.11	0.09	0.050	489	NS	NS	NS	-0.22	0.088	61

Table S2A (continued)

		raw data									genetic effects						plot-environmental effects					
y	*x*	intercept	intercept 0.95 ci low	intercept 0.95 ci high	slope	slope 0.95 ci low	slope 0.95 ci high	*r*	*sig*	*n*	slope	slope 0.95 ci low	slope 0.95 ci high	*r*	*sig*	*n*	slope	slope low	slope high	*r*	*sig*	*n*
log(*S*)	H_{max}	1.18	0.92	1.45	0.12	0.12	0.13	0.18	0.000	941	0.17	0.16	0.17	0.14	0.002	457	NA	NA	NA	NA	NA	NA
log(*S*)	log(M_A)	-11.64	-12.73	-10.55	8.46	7.92	9.02	0.11	0.001	905	90.28	82.45	98.86	0.12	0.014	456	NA	NA	NA	NA	NA	NA
log(*S*)	[C]	-8.13	-9.00	-7.27	0.03	0.03	0.03	0.12	0.001	891	0.23	0.21	0.26	0.18	0.000	448	NA	NA	NA	NA	NA	NA
log(*S*)	log[N]	17.06	16.27	17.84	-9.13	-8.56	-9.74	-0.14	0.000	905	86.20	78.70	94.42	-0.16	0.001	453	NA	NA	NA	NA	NA	NA
log(*S*)	log[P]	4.80	4.71	4.89	-5.66	-5.31	-6.04	-0.18	0.000	898	0.19	0.17	0.21	0.27	0.000	488	NA	NA	NA	NA	NA	NA
log(*S*)	log[Ca]	7.25	7.08	7.41	-3.01	-2.82	-3.21	-0.23	0.000	899	-38.13	-34.92	-41.62	-0.34	0.000	450	NA	NA	NA	NA	NA	NA
log(*S*)	log[K]	7.52	7.34	7.70	-3.42	-3.21	-3.64	-0.24	0.000	899	-53.10	-48.52	-58.11	-0.23	0.000	450	NA	NA	NA	NA	NA	NA
log(*S*)	log[Mg]	6.74	6.60	6.88	-4.94	-4.63	-5.27	-0.15	0.000	899	-39.38	-36.14	-42.91	-0.25	0.000	450	NA	NA	NA	NA	NA	NA
H_{max}	log(M_A)	-103.16	-111.59	-94.73	67.84	63.72	72.22	0.15	0.000	960	526.33	482.23	574.46	0.18	0.000	490	NA	NA	NA	NA	NA	NA
H_{max}	[C]	-75.39	-82.17	-68.60	0.22	0.21	0.24	0.08	0.011	949	NS	NS	NS	0.05	0.253	483	NA	NA	NA	NA	NA	NA
H_{max}	log[N]	NS	NS	NS	NS	NS	NS	-0.04	0.167	963	NS	NS	NS	-0.03	0.534	488	NA	NA	NA	NA	NA	NA
H_{max}	log[P]	NS	NS	NS	NS	NS	NS	0.00	0.979	956	NS	NS	NS	0.00	0.918	484	NA	NA	NA	NA	NA	NA
H_{max}	log[Ca]	48.32	46.96	49.68	-24.10	-22.62	-25.68	-0.07	0.030	957	NS	NS	NS	-0.06	0.167	485	NA	NA	NA	NA	NA	NA
H_{max}	log[K]	NS	NS	NS	NS	NS	NS	-0.03	0.302	957	NS	NS	NS	-0.03	0.506	485	NA	NA	NA	NA	NA	NA
H_{max}	log[Mg]	44.33	43.18	45.48	-39.81	-37.38	-42.41	-0.11	0.001	957	NS	NS	NS	-0.09	0.054	485	NA	NA	NA	NA	NA	NA

Table S2B. Pair-wise relationships between the genetic components of key foliar properties of species found in low and high fertility plots. The genetic component is computed by summing the *Family* + *Genus* + *Species* effect as estimated from the multilevel model. *Slope* of the SMA, Pearson's *r* correlation coefficient, *sig* the significance of the correlation, and *n* the number of cases used. Boldface indicates significant difference (p < 0.05) in slope or elevation and/or shift across the SMA axis.

		low fertility									**high fertility**									significance		
y	*x*	int. low	intercept 0.95 ci		slope	slope 0.95 ci		*r*	*sig*	*n*	intercept high	intercept 0.95 ci		slope	Slope 0.95 ci		*r*	*sig*	*n*	slope	elev	shift
			low	high		low	high					low	high		low	high						
log(L_A)	log(ℓ_d)	0.09	0.03	0.15	1.55	1.34	1.79	0.30	0.000	168	0.06	0.01	0.10	1.47	1.33	1.63	0.47	0.000	279	0.575	0.423	0.768
log(L_A)	log(Φ_{LS})	0.08	0.01	0.15	5.19	4.43	6.09	0.22	0.007	147	0.00	-0.05	0.06	5.42	4.81	6.12	0.32	0.000	240	0.664	0.122	0.451
log(L_A)	ρ_x	0.10	0.03	0.17	-6.72	-5.79	-7.81	-0.17	0.028	169	NS	NS	NS	NS	NS	NS	-0.06	0.317	279	-	-	-
log(L_A)	Ó	0.09	0.02	0.16	24.65	21.16	28.71	0.16	0.040	164	NS	NS	NS	NS	NS	NS	0.05	0.393	273	-	-	-
log(L_A)	log(*S*)	NS	NS	NS	NS	NS	NS	0.00	0.956	163	NS	NS	NS	NS	NS	NS	0.04	0.563	253	-	-	-
log(L_A)	H_{max}	NS	NS	NS	NS	NS	NS	-0.11	0.165	168	NS	NS	NS	NS	NS	NS	0.00	0.979	272	-	-	-
log(L_A)	log(M_A)	0.16	0.09	0.23	-6.17	-5.32	-7.16	-0.20	0.011	169	NS	NS	NS	NS	NS	NS	-0.06	0.360	276	-	-	-
log(L_A)	[C]	NS	NS	NS	NS	NS	NS	0.08	0.302	167	NS	NS	NS	NS	NS	NS	0.11	0.081	269	-	-	-
log(L_A)	log[N]	0.06	0.00	0.12	5.77	5.00	6.67	0.33	0.000	168	-0.05	-0.11	0.01	6.61	5.89	7.42	0.25	0.000	273	0.151	**0.016**	0.097
log(L_A)	log[P]	0.10	0.04	0.15	5.10	4.46	5.84	0.46	0.000	167	-0.01	-0.07	0.04	5.50	4.91	6.16	0.33	0.000	270	0.405	**0.006**	0.099
log(L_A)	log[Ca]	NS	NS	NS	NS	NS	NS	-0.03	0.655	167	NS	NS	NS	NS	NS	NS	-0.02	0.806	271	-	-	-
log(L_A)	log[K]	NS	NS	NS	NS	NS	NS	0.05	0.503	167	NS	NS	NS	NS	NS	NS	0.00	0.954	271	-	-	-
log(L_A)	log[Mg]	-0.11	-0.19	-0.04	-2.99	-2.58	-3.48	-0.20	0.009	167	NS	NS	NS	NS	NS	NS	-0.10	0.099	271	-	-	-
log(ℓ_d)	log(Φ_{LS})	NS	NS	NS	NS	NS	NS	0.05	0.528	146	NS	NS	NS	NS	NS	NS	0.02	0.815	244	-	-	-
log(ℓ_d)	ρ_x	0.00	-0.04	0.05	-4.42	-3.82	-5.13	-0.23	0.003	171	-0.04	-0.08	0.00	-5.45	-4.86	-6.11	-0.21	0.000	285	**0.028**	0.156	0.043
log(ℓ_d)	Ó	NS	NS	NS	NS	NS	NS	-0.08	0.336	166	NS	NS	NS	NS	NS	NS	0.09	0.132	277	-	-	-
log(ℓ_d)	log(*S*)	NS	NS	NS	NS	NS	NS	-0.06	0.440	165	NS	NS	NS	NS	NS	NS	0.06	0.329	258	-	-	-
log(ℓ_d)	H_{max}	NS	NS	NS	NS	NS	NS	-0.02	0.805	170	NS	NS	NS	NS	NS	NS	-0.05	0.453	278	-	-	-
log(ℓ_d)	log(M_A)	-0.08	-0.13	-0.04	4.07	3.50	4.72	0.19	0.011	171	-0.01	-0.05	0.03	4.64	4.13	5.22	0.15	0.015	280	0.168	0.018	0.273
log(ℓ_d)	[C]	NS	NS	NS	NS	NS	NS	-0.10	0.200	169	NS	NS	NS	NS	NS	NS	-0.10	0.111	273	-	-	-
log(ℓ_d)	log[N]	NS	NS	NS	NS	NS	NS	-0.09	0.236	170	0.08	0.04	0.12	-4.51	-4.01	-5.08	-0.12	0.049	277	-	-	-
log(ℓ_d)	log[P]	NS	NS	NS	NS	NS	NS	-0.01	0.948	169	NS	NS	NS	NS	NS	NS	0.05	0.413	274	-	-	-
log(ℓ_d)	log[Ca]	NS	NS	NS	NS	NS	NS	0.10	0.192	169	NS	NS	NS	NS	NS	NS	0.03	0.591	275	-	-	-
log(ℓ_d)	log[K]	0.07	0.02	0.11	2.49	2.15	2.89	0.21	0.006	169	0.01	-0.03	0.05	2.68	2.38	3.01	0.17	0.004	275	0.455	0.060	**0.011**
log(ℓ_d)	log[Mg]	NS	NS	NS	NS	NS	NS	0.14	0.072	169	0.05	0.01	0.09	2.06	1.83	2.32	0.17	0.006	275	-	-	-

Table S2B (continued)

		low fertility									**high fertility**									significance		
Y	*x*	int. low	intercept 0.95 ci		slope	slope 0.95 ci		*r*	*sig*	*n*	intercept high	intercept 0.95 ci		slope	Slope 0.95 ci		*r*	*sig*	*n*	slope	elev	shift
			low	high		low	high					low	high		low	high						
log(Φ_{LS})	ρ_X	NS	NS	NS	NS	NS	NS	0.05	0.576	151	NS	NS	NS	NS	NS	NS	0.09	0.148	248	-	-	-
log(Φ_{LS})	Ø	NS	NS	NS	NS	NS	NS	-0.06	0.471	151	NS	NS	NS	NS	NS	NS	-0.11	0.082	243	-	-	-
log(Φ_{LS})	log(*S*)	NS	NS	NS	NS	NS	NS	-0.15	0.058	151	NS	NS	NS	NS	NS	NS	-0.06	0.408	226	-	-	-
log(Φ_{LS})	H_{max}	NS	NS	NS	NS	NS	NS	-0.06	0.487	155	NS	NS	NS	NS	NS	NS	-0.11	0.096	245	-	-	-
log(Φ_{LS})	log(M_A)	0.02	0.00	0.03	-1.17	-1.00	-1.37	-0.19	0.016	156	0.01	0.00	0.02	-1.28	-1.14	-1.45	-0.28	0.000	246	0.372	0.615	**0.035**
log(Φ_{LS})	[C]	NS	NS	NS	NS	NS	NS	0.04	0.582	154	NS	NS	NS	NS	NS	NS	0.05	0.469	239	-	-	-
log(Φ_{LS})	log[N]	NS	NS	NS	NS	NS	NS	0.08	0.307	155	-0.01	-0.03	0.00	1.27	1.12	1.44	0.26	0.000	243	-	-	-
log(Φ_{LS})	log[P]	NS	NS	NS	NS	NS	NS	0.04	0.596	154	-0.01	-0.02	0.01	1.04	0.92	1.18	0.17	0.007	240	-	-	-
log(Φ_{LS})	log[Ca]	NS	NS	NS	NS	NS	NS	0.09	0.245	154	NS	NS	NS	NS	NS	NS	-0.07	0.256	241	-	-	-
log(Φ_{LS})	log[K]	NS	NS	NS	NS	NS	NS	0.03	0.727	154	NS	NS	NS	NS	NS	NS	0.04	0.531	241	-	-	-
log(Φ_{LS})	log[Mg]	NS	NS	NS	NS	NS	NS	-0.02	0.823	154	0.00	-0.01	0.01	-0.56	-0.50	-0.64	-0.14	0.033	241	-	-	-
ρ_X	Ø	NS	NS	NS	NS	NS	NS	0.00	0.983	176	-0.01	-0.02	-0.01	-3.98	-3.55	-4.47	-0.14	0.022	286	-	-	-
ρ_X	log(*S*)	-0.26	-0.30	-0.22	0.05	0.04	0.06	0.20	0.007	177	-0.23	-0.25	-0.20	0.05	0.04	0.05	0.20	0.001	265	0.193	0.779	**0.001**
ρ_X	H_{max}	NS	NS	NS	NS	NS	NS	-0.02	0.781	182	NS	NS	NS	NS	NS	NS	-0.01	0.834	286	-	-	-
ρ_X	log(M_A)	-0.01	-0.02	0.00	0.94	0.81	1.09	0.16	0.032	181	NS	NS	NS	NS	NS	NS	0.11	0.056	288	-	-	-
ρ_X	[C]	-0.01	-0.02	0.00	0.00	0.00	0.00	0.15	0.049	179	NS	NS	NS	NS	NS	NS	-0.02	0.682	282	-	-	-
ρ_X	log[N]	NS	NS	NS	NS	NS	NS	-0.09	0.249	180	NS	NS	NS	NS	NS	NS	-0.06	0.280	286	-	-	-
ρ_X	log[P]	0.00	-0.01	0.01	-0.78	-0.68	-0.90	-0.23	0.002	179	0.00	-0.01	0.01	-0.69	-0.62	-0.78	-0.15	0.012	283	0.197	0.606	**0.000**
ρ_X	log[Ca]	-0.02	-0.03	-0.01	-0.42	-0.36	-0.48	-0.27	0.000	179	-0.01	-0.02	0.00	-0.38	-0.34	-0.42	-0.15	0.012	284	0.261	0.248	**0.000**
ρ_X	log[K]	-0.02	-0.03	-0.01	-0.59	-0.51	-0.67	-0.31	0.000	179	-0.01	-0.02	0.00	-0.49	-0.43	-0.55	-0.21	0.000	284	0.046	0.423	**0.000**
ρ_X	log[Mg]	-0.02	-0.04	-0.01	-0.45	-0.39	-0.52	-0.17	0.024	179	NS	NS	NS	NS	NS	NS	-0.10	0.101	284	-	-	-

Table S2B (continued)

		low fertility									high fertility									significance		
y	*x*	int. low	intercept 0.95 ci		slope	slope 0.95 ci		*r*	*sig*	*n*	intercept high	intercept 0.95 ci		slope	Slope 0.95 ci		*r*	*sig*	*n*	slope	elev	shift
			low	high		low	high					low	high		low	high						
Ǿ	log(*S*)	NS	NS	NS	NS	NS	NS	-0.13	0.080	178	0.05	0.05	0.06	-0.01	-0.01	-0.01	-0.25	0.000	264	-	-	-
Ǿ	H_{max}	NS	NS	NS	NS	NS	NS	0.01	0.856	184	-0.04	-0.04	-0.03	0.00	0.00	0.00	0.14	0.020	286	-	-	-
Ǿ	log(M_A)	NS	NS	NS	NS	NS	NS	0.12	0.099	185	NS	NS	NS	NS	NS	NS	0.02	0.687	293	-	-	-
Ǿ	[C]	NS	NS	NS	NS	NS	NS	0.14	0.053	184	NS	NS	NS	NS	NS	NS	-0.05	0.441	290	-	-	-
Ǿ	log[N]	0.00	0.00	0.00	0.24	0.20	0.27	0.28	0.000	185	-0.01	-0.01	0.00	0.21	0.19	0.24	0.24	0.000	293	0.265	**0.007**	0.245
Ǿ	log[P]	0.00	0.00	0.00	0.21	0.18	0.24	0.35	0.000	184	0.00	-0.01	0.00	0.17	0.15	0.19	0.24	0.000	290	0.033	**0.002**	0.164
Ǿ	log[Ca]	NS	NS	NS	NS	NS	NS	0.10	0.190	184	0.00	0.00	0.00	0.09	0.08	0.10	0.22	0.000	291	-	-	-
Ǿ	log[K]	NS	NS	NS	NS	NS	NS	0.12	0.117	184	NS	NS	NS	NS	NS	NS	0.08	0.150	291	-	-	-
Ǿ	log[Mg]	NS	NS	NS	NS	NS	NS	0.07	0.379	184	0.00	0.00	0.00	0.09	0.08	0.11	0.14	0.013	291	-	-	-
log(*S*)	H_{max}	1.87	1.36	2.38	0.12	0.10	0.13	0.18	0.012	185	1.55	1.11	1.99	0.11	0.10	0.13	0.16	0.009	265	0.826	**0.002**	0.184
log(*S*)	log(M_A)	NS	NS	NS	NS	NS	NS	0.08	0.275	183	4.83	4.66	5.00	19.17	17.02	21.59	0.17	0.005	266	-	-	-
log(*S*)	[C]	4.82	4.61	5.02	0.05	0.04	0.06	0.16	0.029	181	4.80	4.63	4.97	0.05	0.04	0.05	0.17	0.005	260	0.331	0.742	**0.000**
log(*S*)	log[N]	NS	NS	NS	NS	NS	NS	-0.06	0.413	182	5.22	5.05	5.38	-18.90	-16.79	-21.26	-0.24	0.000	264	-	-	-
log(*S*)	log[P]	NS	NS	NS	NS	NS	NS	0.08	0.296	181	5.09	4.92	5.27	-15.77	-13.98	-17.80	-0.14	0.019	261	-	-	-
log(*S*)	log[Ca]	4.68	4.49	4.86	-8.06	-7.02	-9.26	-0.35	0.000	181	4.73	4.57	4.88	-8.67	-7.72	-9.73	-0.32	0.000	262	0.429	0.523	**0.000**
log(*S*)	log[K]	4.77	4.56	4.98	-11.49	-9.93	-13.28	-0.15	0.043	181	4.85	4.68	5.01	-10.81	-9.60	-12.16	-0.24	0.000	262	0.522	0.646	**0.000**
log(*S*)	log[Mg]	4.59	4.38	4.79	-9.08	-7.86	-10.48	-0.21	0.004	181	4.65	4.48	4.82	-8.50	-7.55	-9.57	-0.23	0.000	262	0.491	0.790	**0.000**
H_{max}	log(M_A)	26.2	24.6	27.9	161.6	140.2	186.1	0.19	0.010	189	29.17	27.78	30.55	170.85	152.64	191.23	0.24	0.000	288	0.546	0.006	0.347
H_{max}	[C]	NS	NS	NS	NS	NS	NS	0.03	0.686	187	NS	NS	NS	NS	NS	NS	0.10	0.111	282	-	-	-
H_{max}	log[N]	NS	NS	NS	NS	NS	NS	-0.10	0.183	188	NS	NS	NS	NS	NS	NS	-0.05	0.403	286	-	-	-
H_{max}	log[P]	NS	NS	NS	NS	NS	NS	-0.11	0.143	187	NS	NS	NS	NS	NS	NS	-0.04	0.522	283	-	-	-
H_{max}	log[Ca]	NS	NS	NS	NS	NS	NS	-0.13	0.084	187	NS	NS	NS	NS	NS	NS	-0.08	0.205	284	-	-	-
H_{max}	log[K]	NS	NS	NS	NS	NS	NS	-0.09	0.239	187	NS	NS	NS	NS	NS	NS	-0.10	0.106	284	-	-	-
H_{max}	log[Mg]	23.5	21.7	25.4	-77.6	-67.3	-89.5	-0.16	0.031	187	NS	NS	NS	NS	NS	NS	-0.10	0.109	284	-	-	-

Table S3: Decomposition of the χ^2_{total} according to the Flury hierarchy. In this procedure a range of models are examined ranging from the two covariance matrices being unrelated through partial common principal components, CPC(1) through CPC(11), then extending to the full CPC model, followed by the proportional or equality models. According to the "step-up" procedure outlined by Flury (1988), the CPC model clearly emerges as the best model fit. See also Phillips and Arnold (1999).

Model		χ^2	**df**	**P**	$\frac{\chi^2}{df}$	AIC for Higher Model
Higher	Lower					
Equality	Proportional	3.318	3	0.3451	1.106	564.800
Proportional	CPC	162.709	36	0.0000	4.520	567.482
CPC	CPC(11)	3.836	3	0.2797	1.279	476.773
CPC(11)	CPC(10)	5.362	6	0.4983	0.894	478.937
CPC(10)	CPC(9)	10.801	9	0.2896	1.200	485.575
CPC(9)	CPC(8)	19.704	12	0.0729	1.642	492.774
CPC(8)	CPC(7)	15.762	15	0.3980	1.051	497.071
CPC(7)	CPC(6)	41.291	18	0.0014	2.294	511.308
CPC(6)	CPC(5)	33.360	21	0.0424	1.589	506.018
CPC(5)	CPC(4)	39.074	24	0.0268	1.628	514.657
CPC(4)	CPC(3)	58.826	27	0.0004	2.179	523.583
CPC(3)	CPC(2)	39.902	30	0.1068	1.330	518.757
CPC(2)	CPC(1)	78.028	33	0.0000	2.364	538.855
CPC(1)	Unrelated	52.828	36	0.0348	1.467	526.828
Unrelated						546.00

Table S4. Test results for sphericity of adjacent eigenvectors (λ) according to Eq. 1.40 of Chapter 3 of Flury (1988). According to the $\chi2$ test the sixth eigenvector was not unique to the seventh and thus only the first five λ were retained (See Table 2).

λ	(1, 2)	(2, 3)	(3, 4)	(4, 5)	(5, 6)	(6, 7)	(7, 8)	(8, 9)	(9,10)	(10,11)	(11,12)	(12,13)
$\chi2$	7.7	35.34	10.84	15.95	35.38	3.46	5.96	6.54	6.87	3.64	38.85	2.06
P	0.05	<0.01	0.01	<0.01	<0.01	0.33	0.11	0.09	0.07	0.03	<0.01	0.56

Table S5. Common Principal Component Analysis for species associated with low and high fertility soils. Values in brackets represent standard errors and, for each component. M_A = leaf mass per unit area; elemental concentrations are on a dry weight basis, L_A = leaf area; Φ_{LS}= leaf area:sapwood area ratio, ρ_X = branch xylem density, Ǿ = stomatal limitation index (see Eq. 1), S = seed mass, H_{max} = species maximum height.

	Component												
Variable	U_1	U_2	U_3	U_4	U_5	U_6	U_7	U_8	U_9	U_{10}	U_{11}	U_{12}	U_{13}
$\log(M_A)$	-.220	-.230	0.440	0.220	0.350	0.160	-.060	0.280	0.280	-.300	-.460	0.190	0.080
	(0.053)	(0.061)	(0.071)	(0.107)	(0.088)	(0.121)	(0.141)	(0.124)	(0.192)	(0.147)	(0.142)	(0.062)	(0.080)
[C]	-.350	0.240	0.010	-.060	0.340	-.110	-.230	0.330	0.240	-.150	0.580	-.280	-.170
	(0.049)	(0.070)	(0.071)	(0.115)	(0.088)	(0.098)	(0.106)	(0.123)	(0.227)	(0.173)	(0.115)	(0.081)	(0.108)
log[N]	0.150	0.530	-.020	-.220	-.030	-.280	0.120	-.100	0.080	-.510	-.190	0.330	-.360
	(0.097)	(0.039)	(0.087)	(0.085)	(0.080)	(0.073)	(0.122)	(0.101)	(0.130)	(0.072)	(0.145)	(0.135)	(0.121)
log[P]	0.250	0.450	0.120	-.310	0.080	0.030	-.040	0.150	0.080	0.020	-.210	-.350	0.640
	(0.083)	(0.052)	(0.067)	(0.052)	(0.063)	(0.076)	(0.120)	(0.071)	(0.097)	(0.085)	(0.067)	(0.224)	(0.123)
log[Ca]	0.420	-.130	0.150	0.310	0.000	0.120	-.020	-.180	-.120	-.460	0.030	-.610	-.210
	(0.033)	(0.081)	(0.068)	(0.062)	(0.081)	(0.080)	(0.129)	(0.093)	(0.107)	(0.070)	(0.142)	(0.085)	(0.215)
log[K]	0.480	-.010	0.000	-.160	0.050	0.210	0.050	0.500	0.210	0.390	-.110	-.030	-.480
	(0.023)	(0.091)	(0.075)	(0.094)	(0.105)	(0.083)	(0.137)	(0.084)	(0.133)	(0.095)	(0.149)	(0.173)	(0.040)
log[Mg]	0.490	-.210	0.070	-.060	0.190	0.140	0.080	-.040	0.160	-.210	0.530	0.450	0.310
	(0.042)	(0.091)	(0.059)	(0.069)	(0.065)	(0.063)	(0.078)	(0.100)	(0.201)	(0.151)	(0.093)	(0.118)	(0.161)
$\log(L_A)$	-.010	0.480	0.250	0.350	-.160	0.500	-.310	-.300	0.180	0.210	0.100	0.170	-.070
	(0.092)	(0.047)	(0.133)	(0.155)	(0.095)	(0.127)	(0.198)	(0.121)	(0.107)	(0.084)	(0.112)	(0.047)	(0.068)
$\log(\Phi_{LS})$	-.010	0.290	-.440	0.530	0.180	0.190	0.390	0.340	-.260	-.080	0.000	0.090	0.130
	(0.065)	(0.055)	(0.113)	(0.164)	(0.108)	(0.175)	(0.214)	(0.135)	(0.100)	(0.092)	(0.123)	(0.060)	(0.046)
ρ_X	-.140	-.030	-.220	-.120	0.260	0.210	0.530	-.420	0.540	0.090	-.050	-.200	-.050
	(0.034)	(0.051)	(0.104)	(0.206)	(0.113)	(0.170)	(0.134)	(0.162)	(0.110)	(0.133)	(0.213)	(0.052)	(0.081)
Ǿ	0.100	0.140	0.390	0.100	0.600	-.310	0.150	-.240	-.350	0.370	0.030	0.030	-.100
	(0.043)	(0.051)	(0.088)	(0.132)	(0.080)	(0.116)	(0.146)	(0.147)	(0.112)	(0.107)	(0.175)	(0.063)	(0.045)
$\log(S)$	-.100	0.070	0.530	0.130	-.470	-.180	0.570	0.210	0.110	0.050	0.220	-.060	0.040
	(0.043)	(0.061)	(0.100)	(0.223)	(0.090)	(0.195)	(0.125)	(0.155)	(0.125)	(0.104)	(0.088)	(0.045)	(0.042)
H_{max}	-.230	0.010	0.190	-.480	0.590	0.200	0.050	0.030	-.490	-.160	0.080	0.000	-.110
	(0.033)	(0.060)	(0.098)	(0.098)	(0.081)	(0.116)	(0.196)	(0.160)	(0.085)	(0.123)	(0.194)	(0.062)	(0.042)
Characteristic roots													
$\lambda_{low,j}$	1876.	1472.	641.	717.	698.	454.	540.	442.	271.	315.	240.	166.	138.
	(258.9)	(203.1)	(88.5)	(99.0)	(96.3)	(62.7)	(74.5)	(61.0)	(37.4)	(43.5)	(33.1)	(22.9)	(19.0)
$\lambda_{high,j}$	2341.	1641.	898.	564.	318.	707.	560.	408.	379.	265.	318.	134.	116.
	(237.1)	(166.2)	(91.0)	(57.1)	(32.2)	(71.6)	(56.7)	(41.3)	(38.4)	(26.8)	(32.2)	(13.6)	(11.7)

Table S6: Covariance (***F***$_i$)and correlation (***R***$_i$) matrices of CPCs. The generally low correlations between the various vectors are of little practical consequence and indicate a reasonable model fit (Flury 1988).

$R_{low} \backslash F_{low} =$

1869.87	-50.57	55.93	177.24	-293.55	168.46	-59.64	13.26	-92.68	-57.31	112.82	-17.27	-63.85
-0.03	1465.59	83.40	-157.88	123.83	-85.35	-166.14	-48.23	-83.57	9.77	-42.26	24.18	-11.81
0.05	0.09	647.98	-40.42	170.45	-65.95	-75.39	33.56	-59.68	58.17	-20.97	-27.34	-21.33
0.15	-0.15	-0.06	715.87	-105.51	162.36	50.95	64.20	-11.96	-11.25	43.78	-22.24	-3.79
-0.23	0.11	0.23	-0.13	855.89	4.24	72.03	-56.99	-47.80	12.06	-19.87	-23.74	4.09
0.21	-0.12	-0.14	0.33	0.01	333.31	-50.07	34.32	37.40	14.77	-22.48	-56.48	-7.33
-0.06	-0.19	-0.13	0.08	0.11	-0.12	506.83	27.49	22.09	-20.47	49.18	39.80	-34.93
0.01	-0.06	0.06	0.11	-0.09	0.09	0.06	437.01	2.03	-7.12	-29.58	-18.40	23.46
-0.13	-0.13	-0.14	-0.03	-0.10	0.12	0.06	0.01	269.98	-16.70	-1.68	14.44	-33.31
-0.07	0.01	0.13	-0.02	0.02	0.05	-0.05	-0.02	-0.06	317.07	-18.66	-29.31	-3.81
0.17	-0.07	-0.05	0.11	-0.04	-0.08	0.14	-0.09	-0.01	-0.07	237.93	-15.66	7.16
-0.03	0.05	-0.08	-0.06	-0.06	-0.24	0.14	-0.07	0.07	-0.13	-0.08	166.54	0.20
-0.13	-0.03	-0.07	-0.01	0.01	-0.03	-0.13	0.10	-0.17	-0.02	0.04	0.00	136.43

$R_{high} \backslash F_{high} =$

2328.48	13.29	-48	-57.22	-302.31	230.41	145.18	-5.86	92.51	25.13	-69.53	10.98	34.65
0.01	1631.92	-71.03	45.95	-14.14	42.24	86.74	27.27	69.42	-7.35	42.78	0.79	6.25
-0.03	-0.06	906.44	-2.92	95.54	-58.9	-13.88	-4.51	39.76	-14.66	17.46	10.58	14.85
-0.05	0.05	0	561.82	-138.36	122.81	63.24	-46.59	18.72	3.21	-46.77	12.66	4.00
-0.28	-0.02	0.14	-0.26	512.91	75.94	-0.01	-16.31	-84.25	-49.87	29.91	10.12	-7.64
0.22	0.05	-0.09	0.23	0.15	490.35	-50.05	-15.66	85.61	19.57	-3.75	22.2	12.62
0.13	0.09	-0.02	0.11	0.00	-0.1	547.19	-9.88	24.84	18.19	-47.27	-14.18	18.12
-0.01	0.03	-0.01	-0.1	-0.04	-0.04	-0.02	403.65	-1.55	0.79	43.46	5.51	-9.59
0.1	0.09	0.07	0.04	-0.19	0.2	0.05	0	379.58	-2.38	1.91	-1.21	9.52
0.03	-0.01	-0.03	0.01	-0.14	0.05	0.05	0	-0.01	265.53	-15.53	13.66	-0.42
-0.08	0.06	0.03	-0.11	0.07	-0.01	-0.11	0.12	0.01	-0.05	314.62	3.08	-1.18
0.02	0	0.03	0.05	0.04	0.09	-0.05	0.02	-0.01	0.07	0.01	134.96	1.09
0.07	0.01	0.05	0.02	-0.03	0.05	0.07	-0.04	0.05	0	-0.01	0.01	114.97