Supplementary material

Title: Herbivory, intraspecific trait variability and back to herbivory

Table S1. Model selected for PC1 of resident grasses. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): *PC1 ~ species + herbivory* $R^2_{GLMM(m)}$= 0.117						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*A. mendocina* : Herbivory=Light)	-0.75647	0.38948	617	-1.94225	0.0526	
Species = *G. paraguayensis*	-0.02348	0.16406	617	-0.14315	0.8862	<0.001
Species = *N. lophostachya*	0.73906	0.16874	617	4.37983	<0.0001	0.022
Species = *S. pyramidatus*	0.72044	0.18104	617	3.97936	0.0001	0.019
Species = *L. crinita*	0.00219	0.16385	617	0.01339	0.9893	<0.001
Species = *L. pluriflora*	0.34981	0.18188	617	1.92332	0.0549	0.004
Herbivory = Heavy	0.78329	0.13796	617	5.67776	<0.0001	0.065

Table S2. Model selected for N_{mass} of resident grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): N_{mass} ~ *species* + *herbivory* + *species:herbivory* $R^2_{GLMM(m)}$= 0.195						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya* : Herbivory=Light)	2.61686	0.08247	137	31.73020	<0.0001	
Species = *L. pluriflora*	-0.70770	0.08513	137	-8.31298	<0.0001	0.166
Herbivory = Heavy	-0.07212	0.11971	61	-0.60240	0.5491	0.002
Species=*L. pluriflora* : Herbivory=Heavy	0.45297	0.14847	137	3.05100	0.0027	0.040
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
N. lophostachya:Ligh - *N. lophostachya*:*H*eavy = 0	0.07212	0.11971		0.602	0.79442	
L. pluriflora:Ligh - *L. pluriflora*:Heavy = 0	-0.38085	0.09521		-4.000	0.00013	

Table S3. Model selected for SLA of resident grasses. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): *SLA* ~ *species* + *herbivory* $R^2_{GLMM(m)}$= 0.529						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*A. mendocina* : Herbivory=Light)	19.31842	0.86091	631	22.43944	<0.0001	
Species = *G. paraguayensis*	7.89648	0.34984	631	22.57195	<0.0001	0.328
Species = *N. lophostachya*	-0.15935	0.35426	631	-0.44981	0.653	<0.001
Species = *S. pyramidatus*	3.75351	0.38059	631	9.86223	<0.0001	0.104
Species = *L. crinita*	-2.25758	0.34862	631	-6.47575	<0.0001	0.039
Species = *L. pluriflora*	2.08060	0.38052	631	5.46782	<0.0001	0.030
Herbivory = Heavy	1.47194	0.25052	631	5.87548	<0.0001	0.052

Table S4. Model selected for LDMC of resident grasses. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): *LDMC ~ species + herbivory* $R^2_{GLMM(m)}$= 0.549						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*A. mendocina* : Herbivory=Light)	0.43598	0.00987	632	44.19182	<0.0001	
Species = *G. paraguayensis*	-0.02189	0.00456	632	-4.79704	<0.0001	0.021
Species = *N. lophostachya*	-0.01117	0.00471	632	-2.36901	0.0181	0.007
Species = *S. pyramidatus*	-0.13027	0.00506	632	-25.73793	<0.0001	0.450
Species = *L. crinita*	-0.04738	0.00457	632	-10.36210	<0.0001	0.095
Species = *L. pluriflora*	-0.07526	0.00503	632	-14.94594	<0.0001	0.195
Herbivory = Heavy	-0.00865	0.00424	632	-2.03976	0.0418	0.011

Table S5. Model selected for F_t of resident grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): $F_t \sim species + herbivory + species:herbivory$ $R^2_{GLMM(m)}$= 0.883						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya* : Herbivory=Light)	5.90499	0.18884	654	31.27025	<0.0001	
Species = *G. paraguayensis*	-2.89690	0.18580	654	-15.59154	<0.0001	0.460
Species = *N. lophostachya*	-1.58205	0.22761	654	-6.95059	<0.0001	0.691
Species = *S. pyramidatus*	-4.36838	0.18959	654	-23.04091	<0.0001	0.171
Species = *L. crinita*	-4.22699	0.17537	654	-24.10379	<0.0001	0.224
Species = *L. pluriflora*	-3.96527	0.18573	654	-21.34998	<0.0001	0.229
Herbivory = Heavy	-0.92676	0.24325	654	-3.80990	0.0002	0.043
Species=*G. paraguayensis* : Herbivory=Heavy	0.78577	0.25929	654	3.03053	0.0025	0.015
Species=*N. lophostachya* : Herbivory=Heavy	0.15100	0.30584	654	0.49372	0.6217	0.001
Species=*S. pyramidatus* : Herbivory=Heavy	0.61547	0.25582	654	2.40583	0.0164	0.010
Species=*L. crinita* : Herbivory=Heavy	0.55406	0.24543	654	2.25757	0.0243	0.008
Species=*L. pluriflora* : Herbivory=Heavy	0.50672	0.25825	654	1.96214	0.0502	0.006
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
A. mendocina:Heavy - *A. mendocina*:Ligh = 0	-0.92677	0.24325		-3.810	0.0008	
G. paraguayensis:Heavy - *G. paraguayensis*:Ligh = 0	-0.14099	0.10897		-1.294	0.7227	
N. lophostachya:Heavy - *N. lophostachya*:Ligh = 0	-0.77576	0.19091		-4.064	0.0003	
S. pyramidatus:Heavy - *S. pyramidatus*:Ligh = 0	-0.31130	0.08966		-3.472	0.0031	
L. crinita:Heavy - *L. crinita*:Ligh = 0	-0.37270	0.06643		-5.611	<0.0001	
L. pluriflora:Heavy - *L. pluriflora*:Ligh = 0	-0.42004	0.09773		-4.298	0.0001	

Table S6. Model selected for $PC1_{(t=0)}$ of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): $PC1_{(t=0)} \sim species + herbivory + species:herbivory$ $R^2_{GLMM(m)}$= 0.08						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya* : Herbivory=Light)	-0.72087	0.23464	451	-3.072267	0.0023	
Species = *G. paraguayensis*	0.82801	0.33100	207	2.50156	0.0131	0.014
Species = *N. lophostachya*	0.23283	0.32342	207	0.71988	0.4724	0.001
Species = *S. pyramidatus*	-0.00156	0.32942	207	-0.00473	0.9962	<0.001
Species = *L. crinita*	0.62993	0.33332	207	1.88985	0.0602	0.008
Species = *L. pluriflora*	0.46120	0.31793	207	1.45061	0.1484	0.005
Herbivory = Heavy	1.05525	0.35149	207	3.00219	0.0030	0.021
Species=*G. paraguayensis* : Herbivory=Heavy	-1.75269	0.52422	207	-3.34343	0.0010	0.025
Species=*N. lophostachya* : Herbivory=Heavy	-0.31752	0.47609	207	-0.66695	0.5055	0.001
Species=*S. pyramidatus* : Herbivory=Heavy	0.26899	0.49078	207	0.54809	0.5842	0.001
Species=*L. crinita* : Herbivory=Heavy	-1.04460	0.48631	207	-2.14799	0.0329	0.011
Species=*L. pluriflora* : Herbivory=Heavy	-0.64132	0.47526	207	-1.34943	0.1787	0.005
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
A. mendocina:Heavy - *A. mendocina*:Ligh = 0	1.05525	0.35150		3.002	0.01598	
G. paraguayensis:Heavy - *G. paraguayensis*:Ligh = 0	-0.69743	0.38892		-1.793	0.36515	
N. lophostachya:Heavy - *N. lophostachya*:Ligh = 0	0.73773	0.32111		2.297	0.12276	
S. pyramidatus:Heavy - *S. pyramidatus*:Ligh = 0	1.32425	0.34252		3.866	0.00066	
L. crinita:Heavy - *L. crinita*:Ligh = 0	0.01066	0.33608		0.032	1.00000	
L. pluriflora:Heavy - *L. pluriflora*:Ligh = 0	0.41393	0.31987		1.294	0.72919	

Table S7. Model selected for N_{mass} of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): N_{mass} ~ *species* $R^2_{GLMM(m)}$= 0.814						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya*)	2.53743	0.05818	71	43.61221	<0.0001	
Species = *L. pluriflora*	-1.19690	0.06853	71	-17.46570	<0.0001	0.814

Table S8. Model selected for $SLA_{(t=0)}$ of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): $SLA_{(t=0)} \sim species + herbivory + species:herbivory$ $R^2_{GLMM(m)}$= 0.582						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya* : Herbivory=Light)	19.52798	0.42231	451	46.24078	<0.0001	
Species = *G. paraguayensis*	11.52269	0.79871	207	14.42666	<0.0001	0.393
Species = *N. lophostachya*	-0.08815	0.58094	207	-0.15173	0.8795	<0.001
Species = *S. pyramidatus*	0.13712	0.59560	207	0.23022	0.8181	<0.001
Species = *L. crinita*	4.62158	0.63499	207	7.27818	<0.0001	0.092
Species = *L. pluriflora*	4.11751	0.59742	207	6.89218	<0.0001	0.086
Herbivory = Heavy	2.50977	0.63011	207	3.98309	0.0001	0.027
Species=*G. paraguayensis* : Herbivory=Heavy	-4.62552	1.25358	207	-3.68985	0.0003	0.040
Species=*N. lophostachya* : Herbivory=Heavy	-1.29854	0.84839	207	-1.53059	0.1274	0.004
Species=*S. pyramidatus* : Herbivory=Heavy	-0.29009	0.87376	207	-0.33200	0.7402	<0.001
Species=*L. crinita* : Herbivory=Heavy	-3.45599	0.91403	207	-3.78102	0.0002	0.027
Species=*L. pluriflora* : Herbivory=Heavy	-2.35557	0.88596	207	-2.65878	0.0085	0.015
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
A. mendocina:Heavy - *A. mendocina*:Ligh = 0	2.5098	0.6301		3.983	0.0004	
G. paraguayensis:Heavy - *G. paraguayensis*:Ligh = 0	-2.1158	1.0837		-1.952	0.2691	
N. lophostachya:Heavy - *N. lophostachya*:Ligh = 0	1.2112	0.5681		2.132	0.1824	
S. pyramidatus:Heavy - *S. pyramidatus*:Ligh = 0	2.2197	0.6053		3.667	0.0015	
L. crinita:Heavy - *L. crinita*:Ligh = 0	-0.9462	0.6621		-1.429	0.6307	
L. pluriflora:Heavy - *L. pluriflora*:Ligh = 0	0.1542	0.6228		0.248	0.9999	

Table S9. Model selected for $LDMC_{(t=0)}$ of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): $LDMC_{(t=0)} \sim species + herbivory + species:herbivory$ $R^2_{GLMM(m)}$= 0.388						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya* : Herbivory=Light)	0.42583	0.00601	450	70.83098	<0.0001	
Species = *G. paraguayensis*	-0.02898	0.00793	207	-3.65426	0.0003	0.035
Species = *N. lophostachya*	-0.01634	0.00791	207	-2.06557	0.0401	0.012
Species = *S. pyramidatus*	-0.06715	0.00813	207	-8.26300	<0.0001	0.156
Species = *L. crinita*	-0.06202	0.00766	207	-8.09374	<0.0001	0.138
Species = *L. pluriflora*	-0.02152	0.00755	207	-2.84948	0.0048	0.022
Herbivory = Heavy	-0.03040	0.00855	207	-3.55741	0.0005	0.035
Species=*G. paraguayensis* : Herbivory=Heavy	0.04139	0.01239	207	3.34164	0.0010	0.029
Species=*N. lophostachya* : Herbivory=Heavy	0.01685	0.01119	207	1.50611	0.1336	0.007
Species=*S. pyramidatus* : Herbivory=Heavy	0.01244	0.01149	207	1.08301	0.2801	0.003
Species=*L. crinita* : Herbivory=Heavy	0.02631	0.01088	207	2.41706	0.0165	0.014
Species=*L. pluriflora* : Herbivory=Heavy	0.02452	0.01086	207	2.25698	0.0251	0.014
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
A. mendocina:Heavy - *A. mendocina*:Ligh = 0	-0.030402	0.008546		-3.557	0.00225	
G. paraguayensis:Heavy - *G. paraguayensis*:Ligh = 0	0.010988	0.008965		1.226	0.77541	
N. lophostachya:Heavy - *N. lophostachya*:Ligh = 0	-0.013554	0.007218		-1.878	0.31187	
S. pyramidatus:Heavy - *S. pyramidatus*:Ligh = 0	-0.017961	0.007676		-2.340	0.11028	
L. crinita:Heavy - *L. crinita*:Ligh = 0	-0.004094	0.006740		-0.607	0.99096	
L. pluriflora:Heavy - *L. pluriflora*:Ligh = 0	-0.005885	0.006705		-0.878	0.94326	

Table S10. Model selected for $F_{t(t=0)}$ of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): $F_{t(t=0)} \sim species + herbivory + species:herbivory$ $R^2_{GLMM(m)}$= 0.778						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*N. lophostachya* : Herbivory=Light)	13.84230	0.48846	452	28.33894	<0.0001	
Species = *G. paraguayensis*	-8.71322	0.52102	207	-16.72323	<0.0001	0.503
Species = *N. lophostachya*	-5.36141	0.55598	207	-9.64316	<0.0001	0.289
Species = *S. pyramidatus*	-8.72674	0.52085	207	-16.75479	<0.0001	0.492
Species = *L. crinita*	-9.88949	0.50803	207	-19.46645	<0.0001	0.558
Species = *L. pluriflora*	-9.53230	0.50423	207	-18.90463	<0.0001	0.579
Herbivory = Heavy	-1.40838	0.68777	207	-2.04773	0.0418	0.023
Species=*G. paraguayensis* : Herbivory=Heavy	1.97847	0.75750	207	2.61182	0.0097	0.021
Species=*N. lophostachya* : Herbivory=Heavy	0.91540	0.78082	207	1.17235	0.2424	0.006
Species=*S. pyramidatus* : Herbivory=Heavy	-0.01037	0.73307	207	-0.01415	0.9887	<0.001
Species=*L. crinita* : Herbivory=Heavy	1.14702	0.71576	207	1.60252	0.1106	0.008
Species=*L. pluriflora* : Herbivory=Heavy	1.04732	0.71175	207	1.47147	0.1427	0.008
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
A. mendocina:Heavy - *A. mendocina*:Ligh = 0	-1.4084	0.6878		-2.048	0.220	
G. paraguayensis:Heavy - *G. paraguayensis*:Ligh = 0	0.5701	0.3175		1.796	0.363	
N. lophostachya:Heavy - *N. lophostachya*:Ligh = 0	-0.4930	0.3697		-1.334	0.701	
S. pyramidatus:Heavy - *S. pyramidatus*:Ligh = 0	-1.4187	0.2537		-5.592	<0.0001	
L. crinita:Heavy - *L. crinita*:Ligh = 0	-0.2614	0.1982		-1.319	0.712	
L. pluriflora:Heavy - *L. pluriflora*:Ligh = 0	-0.3611	0.1832		-1.971	0.259	

Table S11. Model selected for ΔPC1 of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): *ΔPC1 ~ species + treatment + species:treatment* $R^2_{GLMM(m)}$= 0.608						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Speceis=*N. lophostachya* : Treatment=C)	-1.76996	0.22637	117	-7.81890	<0.0001	
Species = *L. pluriflora*	5.26473	0.39023	73	13.49143	<0.0001	0.361
Treatment = PL	4.50913	0.49052	117	9.19249	<0.0001	0.272
Treatment = PS	6.89764	0.59743	117	11.54559	<0.0001	0.402
Species= *L. pluriflora* : Treatment=PL	-2.66307	0.65028	117	-4.09527	0.0001	0.064
Species= *L. pluriflora* : Treatment=PS	-4.40166	0.79327	117	-5.54877	<0.0001	0.137
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
N. lophostachya:PL - *N. lophostachya*:C = 0	4.5091	0.4905		9.192	<0.0001	
N. lophostachya:PS - *N. lophostachya*:C = 0	6.8976	0.5974		11.546	<0.0001	
N. lophostachya:PL - *N. lophostachya*:PS = 0	-2.3885	0.7200		-3.317	0.0051	
L. pluriflora:PL - *L. pluriflora*:C = 0	1.8461	0.4269		4.324	<0.0001	
L. pluriflora:PS - *L. pluriflora*:C = 0	2.4960	0.5219		4.783	<0.0001	
L. pluriflora:PL - *L. pluriflora*:PS = 0	-0.6499	0.5272		-1.233	0.6732	

Table S12. Model selected for Δ'SLA of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): *Δ'SLA ~ species + treatment + species:treatment* $R^2_{GLMM(m)}$= 0.538						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Speceis=*N. lophostachya* : Treatment=C)	-0.08087	0.01581	119	-5.11645	<0.0001	
Species = *L. pluriflora*	0.36484	0.03136	74	11.63531	<0.0001	0.267
Treatment = PL	0.24416	0.02447	119	9.97667	<0.0001	0.130
Treatment = PS	0.54408	0.05089	119	10.69183	<0.0001	0.367
Species= *L. pluriflora* : Treatment=PL	-0.14175	0.04702	119	-3.01486	0.0031	0.026
Species= *L. pluriflora* : Treatment=PS	-0.32965	0.07036	119	-4.68540	<0.0001	0.108
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
N. lophostachya:PL - *N. lophostachya*:C = 0	0.24416	0.02447		9.977	<0.0001	
N. lophostachya:PS - *N. lophostachya*:C = 0	0.54408	0.05089		10.692	<0.0001	
N. lophostachya:PL - *N. lophostachya*:PS = 0	-0.29992	0.05382		-5.573	<0.0001	
L. pluriflora:PL - *L. pluriflora*:C = 0	0.10241	0.04015		2.551	0.054	
L. pluriflora:PS - *L. pluriflora*:C = 0	0.21443	0.04859		4.413	<0.0001	
L. pluriflora:PL - *L. pluriflora*:PS = 0	-0.11202	0.05219		-2.146	0.148	

Table S13. Model selected for Δ'LDMC of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partial pseudo-R^2, and contrasts.

Model (fixed part): *Δ'LDMC ~ species + treatment + species:treatment* $R^2_{GLMM(m)}$= 0.589						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Speceis=*N. lophostachya* : Treatment=C)	0.16671	0.01490	118	11.19115	<0.0001	
Species = *L. pluriflora*	-0.29908	0.02093	74	-14.29141	<0.0001	0.371
Treatment = PL	-0.23276	0.03528	118	-6.59842	<0.0001	0.244
Treatment = PS	-0.30036	0.04163	118	-7.21518	<0.0001	0.299
Species= *L. pluriflora* : Treatment=PL	0.14048	0.04097	118	3.42841	0.0008	0.058
Species= *L. pluriflora* : Treatment=PS	0.18206	0.04677	118	3.89290	0.0002	0.082
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
N. lophostachya:PL - *N. lophostachya*:C = 0	-0.23276	0.03528		-6.598	<0.0001	
N. lophostachya:PS - *N. lophostachya*:C = 0	-0.30036	0.04163		-7.215	<0.0001	
N. lophostachya:PL - *N. lophostachya*:PS = 0	0.06760	0.05036		1.342	0.600	
L. pluriflora:PL - *L. pluriflora*:C = 0	-0.09228	0.02085		-4.427	<0.0001	
L. pluriflora:PS - *L. pluriflora*:C = 0	-0.11830	0.02131		-5.551	<0.0001	
L. pluriflora:PL - *L. pluriflora*:PS = 0	0.02602	0.02145		1.213	0.688	

Table S14. Model selected for $\Delta'F_t$ of descendant grasses. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): $\Delta'F_t \sim species + treatment + species:treatment$ $R^2_{GLMM(m)}$= 0.321						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Speceis=*N. lophostachya* : Treatment=C)	0.11236	0.05535	120	2.03011	0.0446	
Species = *L. pluriflora*	-0.23757	0.06417	74	-3.70236	0.0004	0.067
Treatment = PL	-0.45521	0.07764	120	-5.86328	<0.0001	0.199
Treatment = PS	-0.66486	0.09165	120	-7.25450	<0.0001	0.279
Species= *L. pluriflora* : Treatment=PL	0.41235	0.08794	120	4.68902	<0.0001	0.094
Species= *L. pluriflora* : Treatment=PS	0.64579	0.10082	120	6.40511	<0.0001	0.174
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
N. lophostachya:PL - *N. lophostachya*:C = 0	-0.45521	0.07764		-5.863	<0.0001	
N. lophostachya:PS - *N. lophostachya*:C = 0	-0.66486	0.09165		-7.255	<0.0001	
N. lophostachya:PL - *N. lophostachya*:PS = 0	0.20966	0.09344		2.244	0.123	
L. pluriflora:PL - *L. pluriflora*:C = 0	-0.04286	0.04130		-1.038	0.799	
L. pluriflora:PS - *L. pluriflora*:C = 0	-0.01907	0.04203		-0.454	0.988	
L. pluriflora:PL - *L. pluriflora*:PS = 0	-0.02379	0.04269		-0.557	0.975	

Table S15. Model selected for PC1 of resident woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): *PC1 ~ position + herbivory* $R^2_{GLMM(m)}$= 0.111						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Position=High : Herbivory=Light)	-0.19532	0.11486	175	-1.70044	0.0908	
Position = Low	0.73294	0.08092	168	9.05788	<0.0001	0.090
Herbivory = Heavy	-0.36503	0.15561	175	-2.34582	0.0201	0.024

Table S16. Model selected for SLA of resident woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): *SLA ~ species + position + herbivory + species:position* $R^2_{GLMM(m)}$= 0.85						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*V. aroma* : Position=High : Herbivory=Light)	13.15224	0.34022	173	38.65793	<0.0001	
Species = *S. gilliessii*	9.56454	0.56359	173	16.97067	<0.0001	0.553
Species = *P. flexuosa*	-1.55890	0.38266	173	-4.07391	0.0001	0.034
Species = *P. torquata*	-0.92667	0.39478	173	-2.34728	0.0200	0.011
Position = Low	1.50199	0.36712	166	4.09133	0.0001	0.030
Herbivory = Heavy	-0.68190	0.23346	173	-2.92080	0.0040	0.026
Species= *S. gilliessii* : Position=Low	1.15315	0.70353	166	1.63909	0.1031	0.009
Species= *P. flexuosa* : Position=Low	-0.73471	0.41149	166	-1.78550	0.0760	0.004
Species= *P. torquata* : Position=Low	-0.13632	0.42038	166	-0.32428	0.7461	<0.001
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
V. aroma:High - *V. aroma*:Low = 0	-1.5020	0.3671		-4.091	0.0002	
S. gilliesii:High - *S. gilliesii*:Low = 0	-2.6551	0.6002		-4.424	<0.0001	
P. flexuosa:High - *P. flexuosa*:Low = 0	-0.7673	0.1858		-4.129	0.0001	
P. torquata:High - *P. torquata*:Low = 0	-1.3657	0.2048		-6.667	<0.0001	

Table S17. Model selected for N_{mass} of resident woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): N_{mass} ~ *species* + *herbivory* $R^2_{GLMM(m)}$= 0.824						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*P. flexuosa* : Herbivory=Light)	4.09428	0.04931	88	83.02447	<0.0001	
Species = *P. torquata*	-1.35582	0.05800	87	-23.37679	<0.0001	0.814
Herbivory = Heavy	0.21345	0.05764	87	3.70330	0.0004	0.098

Table S18. Model selected for LDMC of resident woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): *LDMC* ~ *species* + *position* $R^2_{GLMM(m)}$= 0.54						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*V. aroma* : Position=High)	0.46720	0.00429	173	108.94989	<0.0001	
Species = *S. gilliesii*	-0.07717	0.00591	173	-13.05444	<0.0001	0.470
Species = *P. flexuosa*	-0.07332	0.00520	173	-14.10687	<0.0001	0.458
Species = *P. torquata*	-0.04473	0.00537	173	-8.32827	<0.0001	0.223
Position = Low	-0.00866	0.00172	172	-5.03298	<0.0001	0.022

Table S19. Model selected for $PC1_{(t=0)}$ of descendant woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): $PC1_{(t=0)} \sim herbivory$ $R^2_{GLMM(m)}$= 0.012						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Herbivory=Light)	0.14373	0.09950	372	1.44449	0.1494	
Herbivory = Heavy	-0.27825	0.13624	137	-2.04241	0.0430	0.012

Table S20. Model selected for $LDMC_{(t=0)}$ of descendant woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): $LDMC_{(t=0)} \sim species + herbivory$ $R^2_{GLMM(m)}$= 0.226						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*V. aroma* : Herbivory=Light)	0.43053	0.00538	372	79.97502	<0.0001	
Species=*S. gilliesii*	-0.00065	0.00740	134	-0.08772	0.9302	<0.001
Species=*P. flexuosa*	-0.05187	0.00641	134	-8.09502	<0.0001	0.173
Species=*P. torquata*	-0.02765	0.00668	134	-4.13871	0.0001	0.051
Herbivory = Heavy	0.01090	0.00486	134	2.24236	0.0266	0.016

Table S21. Model selected for $SLA_{(t=0)}$ of descendant woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): *$SLA_{(t=0)}$* ~ *species* + *herbivory* + *species:herbivory* $R^2_{GLMM(m)}$= 0.519						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*V. aroma* : Herbivory=Light)	19.63959	0.42389	372	46.33125	<0.0001	
Species = *S. gilliessii*	0.69918	0.71528	131	0.97749	0.3301	0.003
Species = *P. flexuosa*	-4.52843	0.56416	131	-8.02691	<0.0001	0.181
Species = *P. torquata*	-3.06054	0.51572	131	-5.93444	<0.0001	0.079
Herbivory = Heavy	0.84881	0.56534	131	1.50141	0.1357	0.007
Species= *S. gilliessii* : Herbivory=Heavy	-0.38271	0.92370	131	-0.41433	0.6793	0.001
Species= *P. flexuosa* : Herbivory=Heavy	-2.19964	0.77567	131	-2.83579	0.0053	0.025
Species= *P. torquata* : Herbivory=Heavy	-1.51331	0.70346	131	-2.15125	0.0333	0.011
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
V. aroma:Heavy - *V. aroma*:Light = 0	0.8488	0.5653		1.501	0.4356	
S. gilliesii:Heavy - *S. gilliesii*:Light = 0	0.4661	0.7305		0.638	0.9484	
P. flexuosa:Heavy - *P. flexuosa*:Light = 0	-1.3508	0.5311		-2.544	0.0432	
P. torquata:Heavy - *P. torquata*:Light = 0	-0.6645	0.4186		-1.587	0.3794	

Table S22. Model selected for N_{mass} of descendant woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): N_{mass} ~ *species* + *herbivory* $R^2_{GLMM(m)}$= 0.305						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*P. flexuosa* : Herbivory=Light)	3.30953	0.08967	71	36.90648	<0.0001	
Species=*P. torquata*	-0.48453	0.09173	71	-5.28191	<0.0001	0.266
Herbivory = Heavy	-0.22552	0.08757	71	-2.57530	0.0121	0.073

Table S23. Model selected for ΔPC1 of *P. torquata* descendants. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2.

Model (fixed part): *ΔPC1 ~ herbivory* $R^2_{GLMM(m)}$= 0.083						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Herbivory=Light)	0.74254	0.37055	43	2.00391	0.0514	
Herbivory = Heavy	1.11701	0.53637	32	2.08256	0.0454	0.083

Table S24. Model selected for Δ'SLA of *P. torquata* descendants. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): *Δ'SLA ~ treatment* $R^2_{GLMM(m)}$= 0.035						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Treatment=C)	0.28469	0.03235	44	8.79919	<0.0001	
Treatment = PL	-0.08119	0.03979	44	-2.04029	0.0474	0.035
Treatment = PS	-0.04501	0.03121	44	-1.44206	0.1564	0.011
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
PL - C = 0	-0.08119	0.03979		-2.040	0.101	
PS - C = 0	-0.04501	0.03121		-1.442	0.315	
PS - PL = 0	0.03618	0.03333		1.086	0.519	

Table S25. Model selected for Δ'LDMC of *P. torquata* descendants. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts.

Model (fixed part): *Δ'LDMC ~ herbivory + treatment + herbivory:treatment* $R^2_{GLMM(m)}$= 0.155						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Herbivory=Light : Treatment=C)	0.09311	0.05771	39	1.61336	0.1147	
Herbivory = Heavy	-0.12314	0.08020	32	-1.53546	0.1345	0.042
Treatment = PL	-0.05943	0.05700	39	-1.04259	0.3036	0.010
Treatment = PS	0.03327	0.07121	39	0.46723	0.6429	0.003
Herbivory=Heavy : Treatment=PL	0.07682	0.07898	39	0.97262	0.3367	0.009
Herbivory=Heavy : Treatment=PS	-0.08031	0.08977	39	-0.89459	0.3765	0.010
Contrasts	Value	Std. Error		z-value	Pr(>|z|)	
Light:PL - Light:C = 0	-0.05943	0.05700		-1.043	0.8676	
Light:PS - Light:C = 0	0.03327	0.07121		0.467	0.9958	
Light:PS - Light:PL = 0	0.09270	0.05161		1.796	0.3851	
Heavy:PL - Heavy:C = 0	0.01739	0.05467		0.318	0.9993	
Heavy:PS - Heavy:C = 0	-0.04704	0.05467		-0.860	0.9368	
Heavy:PS - Heavy:PL = 0	-0.06442	0.02917		-2.208	0.1744	
Heavy:C - Light:C = 0	-0.12314	0.08020		-1.535	0.5611	
Heavy:PL - Light:PL = 0	-0.04633	0.04489		-1.032	0.8723	
Heavy:PS - Light:PS = 0	-0.20345	0.06120		-3.324	0.0074	

Table S26. Model selected for the length of spines (SL) of resident woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials pseudo-R^2. SL (plus one) was log10 transformed previous to analysed.

Model (fixed part): *SL ~ herbivory + position + species + species:position + herbivory:position* $R^2_{GLMM(m)}$= 0.174						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=V. *aroma* : Herbivory=Light : Position=High)	0.72147	0.03999	174	18.03966	<0.0001	
Herbivory = Heavy	0.09523	0.03692	174	2.57924	0.0107	0.018
Position = Low	0.04487	0.04291	170	1.04571	0.2972	0.002
Species = *S. gilliesii*	-0.03549	0.05016	174	-0.70741	0.4803	0.001
Species = *P. flexuosa*	-0.16017	0.05452	174	-2.93801	0.0038	0.026
Species = *P. torquata*	0.02159	0.05083	174	0.42470	0.6716	<0.001
Species=*S. gilliesii* : Position=Low	-0.07048	0.05352	170	-1.31679	0.1897	0.002
Species=*P. flexuosa* : Position=Low	0.12859	0.06262	170	2.05350	0.0416	0.008
Species=*P. torquata* : Position=Low	-0.05645	0.05451	170	-1.03566	0.3018	0.002
Herbivory=Heavy : Position=Low	0.12281	0.04044	170	3.03654	0.0028	0.015

Table S27. Model selected for the length of spines (SL) of descendant woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts. SL (plus one) was log10 transformed previous to analysed.

Model (fixed part): *SL ~ species + herbivory* $R^2_{GLMM(m)}$= 0.396						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*V. aroma* : Herbivory=Ligh)	0.70168	0.01741	370	40.30724	<0.0001	
Species = *S. gilliesii*	-0.21929	0.02641	134	-8.30162	<0.0001	0.193
Species = *P. flexuosa*	-0.16689	0.02055	134	-8.12287	<0.0001	0.162
Species = *P. torquata*	0.07375	0.02144	134	3.44072	0.0008	0.033
Herbivory = Heavy	0.05209	0.01597	134	3.26105	0.0014	0.031

Table S28. Model selected for the average area per leaf (LA) of resident woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, and partials paseudo-R^2. LA was log10 transformed previous to analysed.

Model (fixed part): *LA ~ species + herbivory + position + species:position* $R^2_{GLMM(m)}$= 0.675						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=V. *aroma* : Herbivory=Light : Position=High)	2.96165	0.02857	173	103.64934	<0.0001	
Species = *S. gilliesii*	-0.35904	0.03356	173	-10.69880	<0.0001	0.226
Species = *P. flexuosa*	-0.24110	0.03594	173	-6.70799	<0.0001	0.537
Species = *P. torquata*	-0.71531	0.03731	173	-19.17263	<0.0001	0.124
Herbivory = Heavy	-0.03332	0.02039	173	-1.63395	0.1041	0.011
Position = Low	-0.04135	0.02954	167	-1.39962	0.1635	0.004
Species=*S. gilliesii* : Position=Low	0.11798	0.03452	167	3.41739	0.0008	0.016
Species=*P. flexuosa* : Position=Low	0.04541	0.03999	167	1.13552	0.2578	0.003
Species=*P. torquata* : Position=Low	0.12170	0.04132	167	2.94493	0.0037	0.017

Table S29. Model selected for the average area per leaf (LA) of descendant woody legumes. Fixed part, overall pseudo-R^2, coefficients of the model, partials pseudo-R^2, and contrasts. LA was log10 transformed previous to analysed.

Model (fixed part): *LA ~ species + herbivory* $R^2_{GLMM(m)}$= 0.689						
Terms	Value	Std. Error	d.f.	t-value	p-value	$R^2_{GLMM(m)}$
Intercept (Species=*V. aroma* : Herbivory=Ligh)	2.72782	0.01916	372	142.38231	<0.0001	
Species = *S. gilliesii*	-0.66670	0.02684	134	-24.83957	<0.0001	0.662
Species = *P. flexuosa*	-0.17497	0.02312	134	-7.56712	<0.0001	0.158
Species = *P. torquata*	-0.37100	0.02195	134	-16.90345	<0.0001	0.434
Herbivory = Heavy	-0.03560	0.01654	134	-2.15280	0.0331	0.013

Table S30. Mean and Standard Deviation (SD) of the soil properties from each history of herbivory (Light and Heavy). In bold, the soil properties where significant differences (p-value<0.05) were found after Hommel (1988) correction.

Soil properties	History of Herbivory			
	Light (n=10)		Heavy (n=12)	
	Mean	SD	Mean	SD
pH	6.757	0.2962	6.891	0.2115
Conductivity (µS)	148.2	51.885	125.3	44.751
Superficial compaction (kg cm^{-2})	2.059	0.7568	2.935	0.7709
Compaction 0 - 5cm depth (kg cm^{-2})	**9.899**	**3.8936**	**16.34**	**4.6564**
Compaction 5 - 10cm depth (kg cm^{-2})	24.91	5.9442	32.47	10.279
Water content 3' depth (%)	4.864	0.6709	5.544	1.6188
Organic mater (% W/W)	**3.251**	**0.7513**	**2.204**	**0.4626**
Nitrogen content (mg g^{-1})	0.273	0.0653	0.204	0.0510
PO_4^{2-} (mg kg^{-1})	31.90	6.5858	27.72	6.8121
SiO_4^{2-} (mg kg^{-1})	247.5	56.684	288.9	61.754
Ca^{2+} (meq $100g^{-1}$)	12.90	2.8655	11.71	3.5385
Mg^{2+} (meq $100g^{-1}$)	1.850	0.7472	1.583	0.9495
Na^{+} (meq $100g^{-1}$)	1.116	0.2730	1.208	0.3832
K^{+} (meq $100g^{-1}$)	0.072	0.0230	0.087	0.0359