

Roeder, A., Schweingruber, F. H., Fischer, M. and Roscher, C. 2019. Increasing plant diversity of experimental grasslands alters the age and growth of *Plantago lanceolata* from younger and faster to older and slower. – Oikos doi: 10.1111/oik.05739

Appendix 1

Table A1. Plots with *Plantago lanceolata* in the sown species combination, their species richness, functional group number and composition and number of sampled individuals per population (total and generative).

Plot	SR	FG	GR	SH	TH	LE	N	N _{Gen}
B2A13	1	1	0	0	0	0	19	15
B1A16	2	2	1	0	0	0	21	12
B2A20	2	3	0	0	1	1	21	19
B4A14	2	1	0	1	0	0	20	7
B1A04	4	4	1	0	1	1	20	11
B2A06	4	2	0	1	0	1	20	17
B2A09	4	1	0	1	0	0	23	11
B3A11	4	2	1	1	0	0	20	3
B4A04	4	4	1	0	1	1	18	13
B1A14	8	4	1	1	1	1	20	13
B4A08	8	2	1	1	0	0	20	9
B1A01	16	4	1	1	1	1	21	12
B1A20	16	3	0	1	1	1	20	10
B2A10	16	2	1	1	0	0	21	12
B1A22	60	4	1	1	1	1	8	3
B2A03	60	4	1	1	1	1	10	1
B3A14	60	4	1	1	1	1	19	11
B4A01	60	4	1	1	1	1	6	2

Abbreviations are: SR = sown species richness, FG = sown functional group number, GR = presence of grass species (0 = no, 1 = yes), SH = presence of small herb species in addition to *P. lanceolata* (0 = no, 1 = yes), TH = presence of tall herb species (0 = no, 1 = yes), LE = presence of legume species (0 = no, 1 = yes), N = total number of sampled individuals per population, N_{Gen} = number of sampled generative individuals per population.

Table A2. Summary of mixed-effects model analysis testing for effects of plant community diversity and composition on age and shoot mass of vegetative and generative individuals of *Plantago lanceolata*.

Source of variation	Age			Shoot mass			
	df	χ^2	p	χ^2	p		
Life-stage	1	56.35	<0.001	↑	246.89	<0.001	↑
Species richness (SR)	1	8.06	0.005	↑	0.30	0.582	
Functional group number (FG)	1	0.93	0.335		4.38	0.036	↑
Grass presence (GR)	1	1.83	0.176		10.22	0.001	↓
Legume presence (LE)	1	0.44	0.506		13.98	<0.001	↑
Life-stage × SR	1	0.46	0.496		3.50	0.061	
Life-stage × FG	1	1.62	0.203		0.47	0.493	
Life stage × GR	1	0.18	0.673		0.02	0.891	
Life stage × LE	1	0.16	0.686		0.13	0.721	

Sample numbers entering statistical analyses were: age (n = 326), and shoot mass (n = 327). Fixed effects were fitted stepwise. Listed are the results of likelihood ratio tests (χ^2) that were applied to assess model improvement and the statistical significance of the fixed effects (p-values). Significant effects (p < 0.05) are marked in bold. Arrows indicate an increase (↑) or decrease (↓) with increasing species richness, functional group number, presence of grasses and legumes and reaching the generative stage (Life stage: 0 = vegetative, 1 = generative), respectively. Note that model terms shown in indented rows were fitted in separate models.

Table A3. Summary of mixed-effects model analysis of stem diameter and shoot mass of *Plantago lanceolata*.

Source of variation	Stem diameter			Shoot mass			
	df	χ^2	p	χ^2	p		
Species richness	1	0.23	0.632	0.85	0.357		
Functional group number	1	10.25	0.001	↑	4.17	0.041	↑
Grass presence	1	9.88	0.002	↓	7.85	0.005	↓
Legume presence	1	12.02	0.001	↑	14.57	<0.001	↑

Sample numbers entering statistical analyses were: stem diameter (n = 315), and shoot mass (n = 327). Fixed effects were fitted stepwise. Listed are the results of likelihood ratio tests (χ^2) that were applied to assess model improvement and the statistical significance of the fixed effects (p-values). Significant effects (p < 0.05) are marked in bold. Arrows indicate an increase (↑) or decrease (↓) with increasing species richness, functional group number or presence of grasses and legumes, respectively. Note that model terms shown in indented rows were fitted in separate models.

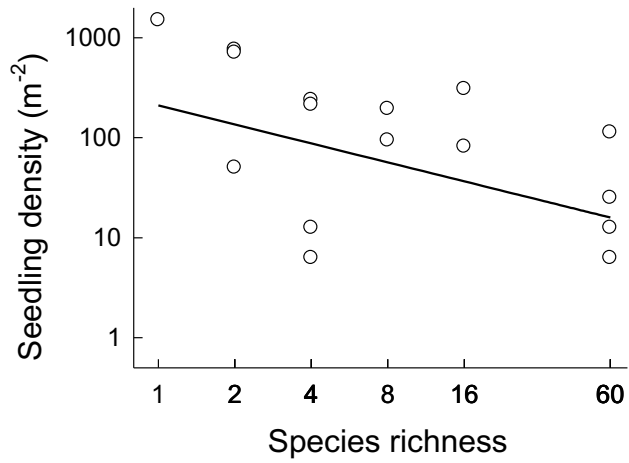


Figure A1. Seedling density of *Plantago lanceolata* as a function of sown species richness. The regression line indicates a significant relationship according to the results of linear mixed-effects models ($p < 0.05$).