

# ELECTRONIC APPENDIX

This is the Electronic Appendix to the article

Niches and not neutrality structure a grassland pioneer guild

by

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*Proc. R. Soc. B* (doi:10.1098/rspb.2005.3084)

Electronic appendices are refereed with the text; however, no attempt is made to impose a uniform editorial style on the electronic appendices.

Appendix Part 1. Results from the analysis of seedlings in single-sown plots. A) Analysis of deviance from logistic regression of presence/absence data. Table entries give the change in deviance (approximately distributed as a  $\chi^2$ ). B) Results from ANOVA of seedling numbers in occupied plots (at least one seedling present) performed on the square-root transformed data.

A)

Source	Df	Change in deviance	Residual df	Residual deviance	P
Quadrat	19	27.51	316	408.07	0.09
Density	1	39.48	315	368.59	<0.0001
Height	3	2.10	312	366.50	0.55
Log seed mass	1	38.61	311	327.89	<0.0001
Species	5	86.24	306	241.64	<0.0001
Density*height	3	13.12	303	228.52	<0.01
Density*log seed mass	1	4.98	302	223.54	0.03
Density*species	5	10.95	297	212.60	0.05
Height*log seed mass	3	1.83	294	210.76	0.61
Height*species	15	12.48	279	198.28	0.64
Density*height*log seed mass	3	12.20	276	186.09	0.01

B)

Source	Df	Sum of squares	Mean square	F	P
Quadrat	19	133.24	7.01	6.596	<0.0001
Density	1	333.18	333.18	313.4	<0.0001
Height	3	2.37	0.79	0.744	0.53
Log seed mass	1	108.06	108.06	101.6	<0.0001
Species	5	217.72	43.54	40.96	<0.0001
Density*height	3	14.06	4.69	4.407	0.005
Density*log seed mass	1	49.14	49.14	46.2	<0.0001
Density*species	5	40.53	8.11	7.625	<0.0001
Height*log seed mass	3	3.12	1.04	0.979	0.40
Height*species	15	6.19	0.41	0.388	0.98
Density*height*log seed mass	3	3.30	1.10	1.035	0.40
Residuals	158	167.97	1.06	1.06	

Appendix Part 2. Key results from the single species analyses. A) Analysis of deviance for presence/absence of seedlings, first-year adults and second-year adults. Table entries give the change in deviance (approximately distributed as a  $\chi^2$  with  $n$  degrees of freedom). For first and second-year adults, *Blackstonia* and *Centaureium* were combined. B) Results from ANOVA performed on the square-root transformed data for number of seedlings, first-year adults and second-year adults in occupied cells. The value of  $F$  and its significance is given (the degrees of freedom in the residual depends on the number of occupied plots). In B) significance is assessed from the full model (with all main effects and higher-order interactions fitted).

A)

	$n$	Bla	Cen	Gen	Eup	Lin	Med	Rhi
<b>Density</b> (seedlings)	1	16.5***	10.8**	47.6***	17.4***	8.83*	61.3***	21.1***
(first-year adults)		0.06	-	2.26	0.71	0.44	8.58*	22.2***
(second-year adults)		-	-	-	0.92	-	20.8***	9.78*
<b>Mix</b> (seedlings)	1	3.30	0.27	2.8	0.006	0.94	1.23	0.04
(first-year adults)		2.19	-	0.12	0.10	0.70	2.58	0.48
(second-year adults)		-	-	-	1.51	-	0.18	0.02
<b>Density.Mix</b> (seedlings)	1	3.48	0.92	-	0.00	0.41	1.47	0.00
(first-year adults)		2.63	-	2.89	0.003	0.07	16.1***	7.75*
(second-year adults)		-	-	-	0.91	-	17.4***	2.43

B)

	Bla	Cen	Gen	Eup	Lin	Med	Rhi
<b>Density</b> (seedlings)	5.01	0.61	34.15***	126.4***	108.5***	19.50**	292.3***
(first-year adults)	-	-	15.12**	7.34*	20.15**	9.96 <sup>+</sup>	43.97***
(second-year adults)	-	-	-	0.23	-	27.0**	2.80
<b>Mix</b> (seedlings)	7.14	1.55	5.14	14.7**	19.88***	0.01	1.79
(first-year adults)	-	-	0.64	3.82	0.65	0.59	1.38
(second-year adults)	-	-	-	4.32	-	2.85	0.71
<b>Density.Mix</b> (seedlings)	0.04	5.89	16.44**	4.73*	25.26***	3.69	2.65
(first-year adults)	-	-	0.09	0.06	0.20	3.51	0.19
(second-year adults)	-	-	-	0.036	-	0.07	0.28

Significance levels: +<0.05, \*<0.01 \*\*<0.001, \*\*\*<0.0001.