

Yip, E. C., Rao, D. Smith, D. R. and Lubin, Y. 2019. Interacting maternal and spatial cues influence natal – dispersal out of social groups. – Oikos doi: 10.1111/oik.06531

## Appendix 1

Table A1. The species and number of prey given to each spider per feeding and the number of feedings per week. High indicates feedings per week for spiders on the high diet, and low indicates feedings per week for spiders on the low diet. Diets were assigned after spiders molted twice outside the sac (spiders molt once within the sac).

Spider instar	Prey species	No. of prey per feeding	Feedings per week
2nd	<i>S. curviseta</i>	$\geq 4$	2
3rd	<i>D. melanogaster</i>	1	2
4th	<i>D. melanogaster</i>	1-2	high - 2; low - 1
5th	<i>D. melanogaster</i>	2-3	high - 2; low - 1
6th–7th	<i>D. melanogaster</i>	3-4	high - 2; low - 1
8th	<i>D. melanogaster</i>	5-7	high - 2; low - 1
9th-adult	<i>L. migratoria</i>	1	high - 2; low - 1

Table A2. Statistics for fixed effects and their interactions on emigration from the natal nest, including a significant 4-way interaction. Positive values indicate that dispersal increased with the variable, and negative values indicate that dispersal decreased. High maternal feeding was coded as having a higher value than low feeding, and the second egg sac had a higher value than the first sac. \* indicates that the effect significantly correlated with dispersal at  $p < 0.05$ ; \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . With the 4-way interaction, the effect of the maternal web varied by maternal feeding; offspring with poorly fed mothers stayed in the mother's web if the web was larger, while the effect varied between sacs for offspring of well-fed mothers (Fig. 2). For the first sac, the effect of web volume on dispersal was similar between diets, but the slopes differed for sac 2 (Fig. 2). There was no overall (i.e. across maternal diets and sacs) interaction between web volume and the number of emerging juveniles; however, the interaction varied with sac order, and created four-way interaction with maternal feeding. This indicated that, while spiderlings from poorly fed mothers tended to stay in larger maternal webs, they dispersed more, even from large webs, when they had to contend with more emerging siblings; this was true only for the second sac. While this 4-way interaction was statistically significant, the AIC-value for this model was higher (AIC = 422.6) than for the reduced model presented in the main text (AIC = 421.7).

Fixed effects	Standardized effect size	Error	z-value	p
Maternal feeding	- 0.34	0.14	- 2.4	0.017*
Number of emerging juveniles	+ 0.64	0.20	3.3	0.001**
Maternal web vol.	- 0.62	0.22	- 2.8	0.005**
Sac order	+ 0.77	0.15	5.2	< 0.0001***
Year	- 0.23	0.13	- 1.7	0.09
Distance from windbreak	+ 0.09	0.14	0.6	0.53
Feeding × emerging juveniles	- 0.07	0.41	- 0.2	0.86
Feeding × sac order	+ 0.03	0.29	0.1	0.91
Emerging juveniles × sac order	+ 0.12	0.42	0.3	0.77
Emerging juveniles × web vol.	+ 0.41	0.48	0.9	0.39
Feeding × web vol.	+ 1.38	0.48	2.9	0.004**

Web vol. × sac order	- 0.32	0.50	- 0.6	0.52
Feeding × emerging juveniles × sac order	+ 1.5	0.88	1.7	0.09
Feeding × emerging juveniles × web vol.	- 1.5	0.98	- 1.5	0.14
Feeding × sac order × web vol.	+ 2.78	1.07	2.6	0.0009**
Emerging juveniles × sac order × web vol.	+ 2.14	1.04	2.0	0.04*
Feeding × emerging juveniles × sac order × web vol.	- 6.71	2.5	- 2.7	0.006**

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