

	days to emergence			pre-emergence weight loss			post-emergence lifespan		
	df	F	P	df	F	P	df	F	P
<i>Osmia spp.</i>									
sex	1,287	135.90	<0.001	1,252	33.68	<0.001	1,279	25.44	<0.001
temperature	1,287	0.04	0.845	1,252	7.38	0.007	1,279	20.05	<0.001
fall duration	1,287	0.07	0.791	1,252	0.03	0.864	1,279	1.27	0.261
spring onset	1,287	42.06	<0.001	1,252	58.86	<0.001	1,279	116.26	<0.001
body size	1,287	1.53	0.218	1,252	13.94	<0.001	1,279	1.07	0.302
sex x temp	1,287	3.31	0.070	1,252	3.36	0.068	1,279	11.41	0.001
sex x fall	1,287	2.38	0.124	1,252	2.25	0.135	1,279	0.08	0.777
sex x spring	1,287	4.88	0.028	1,252	1.01	0.315	1,279	8.28	0.004
temp x fall	1,287	1.66	0.198	1,252	1.54	0.216	1,279	11.71	0.001
temp x spring	1,287	0.01	0.905	1,252	0.02	0.900	1,279	15.42	<0.001
temp x body size	1,287	2.88	0.091	1,252	0.30	0.584	1,279	0.07	0.798
fall x spring	1,287	7.65	0.006	1,252	1.34	0.249	1,279	0.00	0.963
fall x body size	1,287	0.27	0.607	1,252	0.23	0.630	1,279	1.79	0.182
spring x body size	1,287	2.21	0.138	1,252	0.33	0.566	1,279	2.30	0.131
temp x fall x spring	1,287	2.05	0.154	1,252	0.05	0.823	1,279	0.05	0.817
<i>Megachile spp.</i>									
sex	1,38	137.53	<0.001	1,38	0.59	0.446	1,34	0.34	0.564
temperature	1,38	4048.58	<0.001	1,38	16.90	<0.001	1,34	26.12	<0.001
fall duration	1,38	0.47	0.496	1,38	0.11	0.747	1,34	3.23	0.080
spring onset	1,38	9.48	0.004	1,38	13.15	0.001	1,34	2.52	0.121
sex x temp	1,38	0.71	0.406	1,38	1.70	0.200	1,34	0.11	0.743
sex x fall	1,38	0.14	0.710	1,38	0.01	0.912	1,34	0.34	0.562
sex x spring	1,38	4.15	0.049	1,38	1.37	0.249	1,34	2.88	0.098
temp x fall	1,38	0.40	0.529	1,38	0.79	0.381	1,34	0.75	0.392
temp x spring	1,38	1.41	0.242	1,38	36.93	<0.001	1,34	14.91	<0.001
fall x spring	1,38	0.05	0.826	1,38	0.63	0.434	1,34	0.03	0.860
temp x fall x spring	1,38	0.93	0.340	1,38	3.35	0.075	1,34	3.91	0.055

Table S4. Full ANOVA tables (i.e., results for all independent variables and interactions) of the linear mixed-effects models fitted separately to *Osmia spp.* (i.e., adult-wintering species) and *Megachile spp.* (i.e., prepupal-wintering species). Results shown for individual models fitted to each response variable: days to emergence (relative to the start of the spring onset treatment), pre-emergence weight loss, and post-emergence lifespan (without feeding). See Materials and Methods: *Statistical Analyses: Mixed-effects and Generalized Linear Models* for description of independent variables.