Primer validation and sequences

The BLAST tool (nucleotide and protein) was used to search the assembled *Daphnia pulex* genome (https://mycocosm.jgi.doe.gov/Dappu1/Dappu1.home.html) for DNA methyaltransferase genes homologous to Dnmt1, 2, and 3 found within *Daphnia magna, Homo sapiens, Mus musculus, Apis meliferna, Drosophila melanogaster, Vespa mandarina, and Vespula germanica.* Primers were designed with IDTDNA's PrimerQuest and then synthesized by IDTDNA (Coralville, Iowa, USA). Primer sequences for each gene were aligned to the *D. pulex* genome to ensure target specificity. PCR products for each gene were sequenced confirming each primer set amplified the gene of interest.

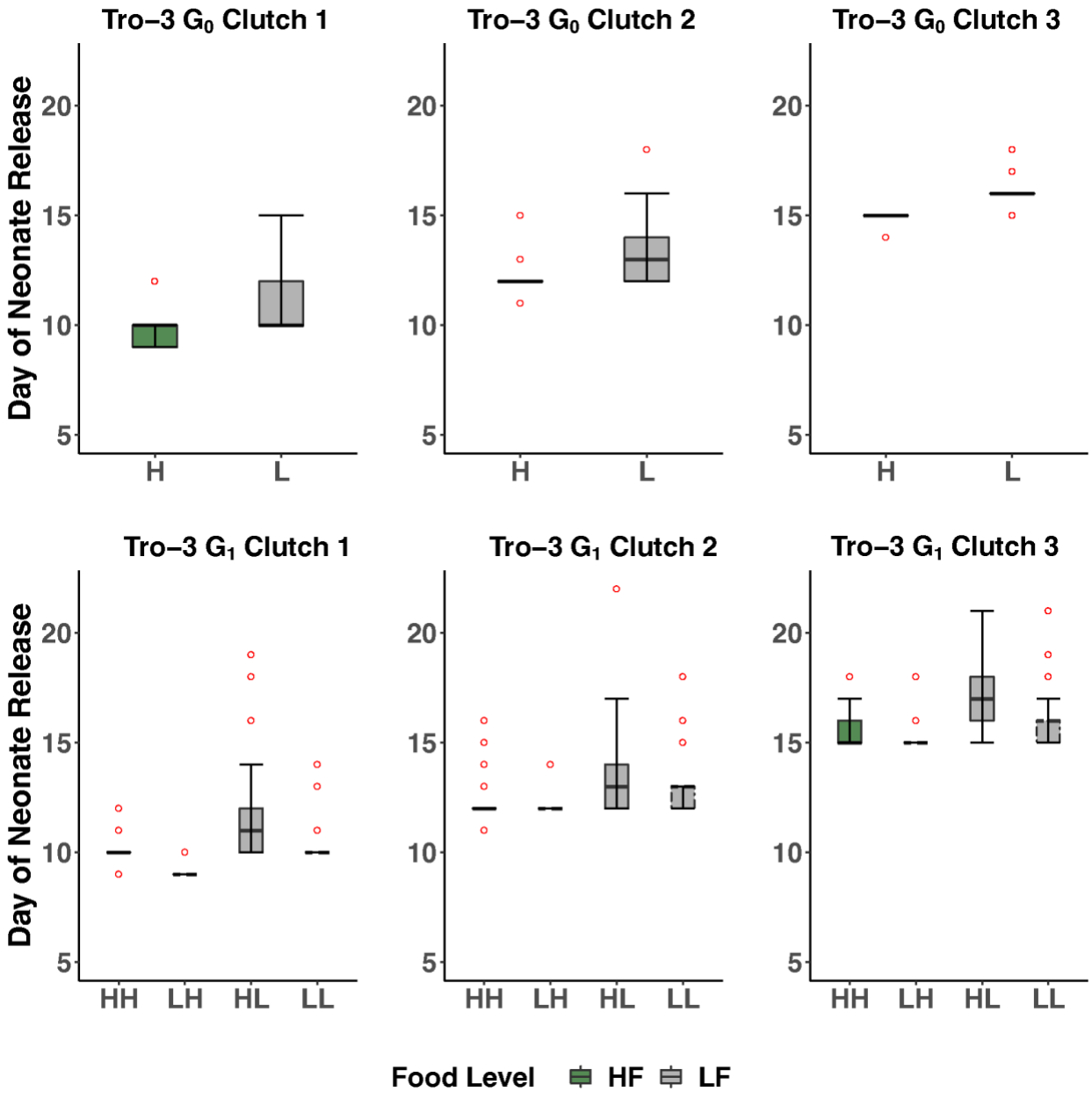
Dnmt1 qPCR Primer Set
F: AGCCTGTGTGGAACGATAAC
R: CCATCGAAGCCACTGATGAA

Dnmt2 qPCR Primer Set
F: GACCAATCAACAAGCAAGGAA
R: GGCAAGGTGGACTCATCATTA

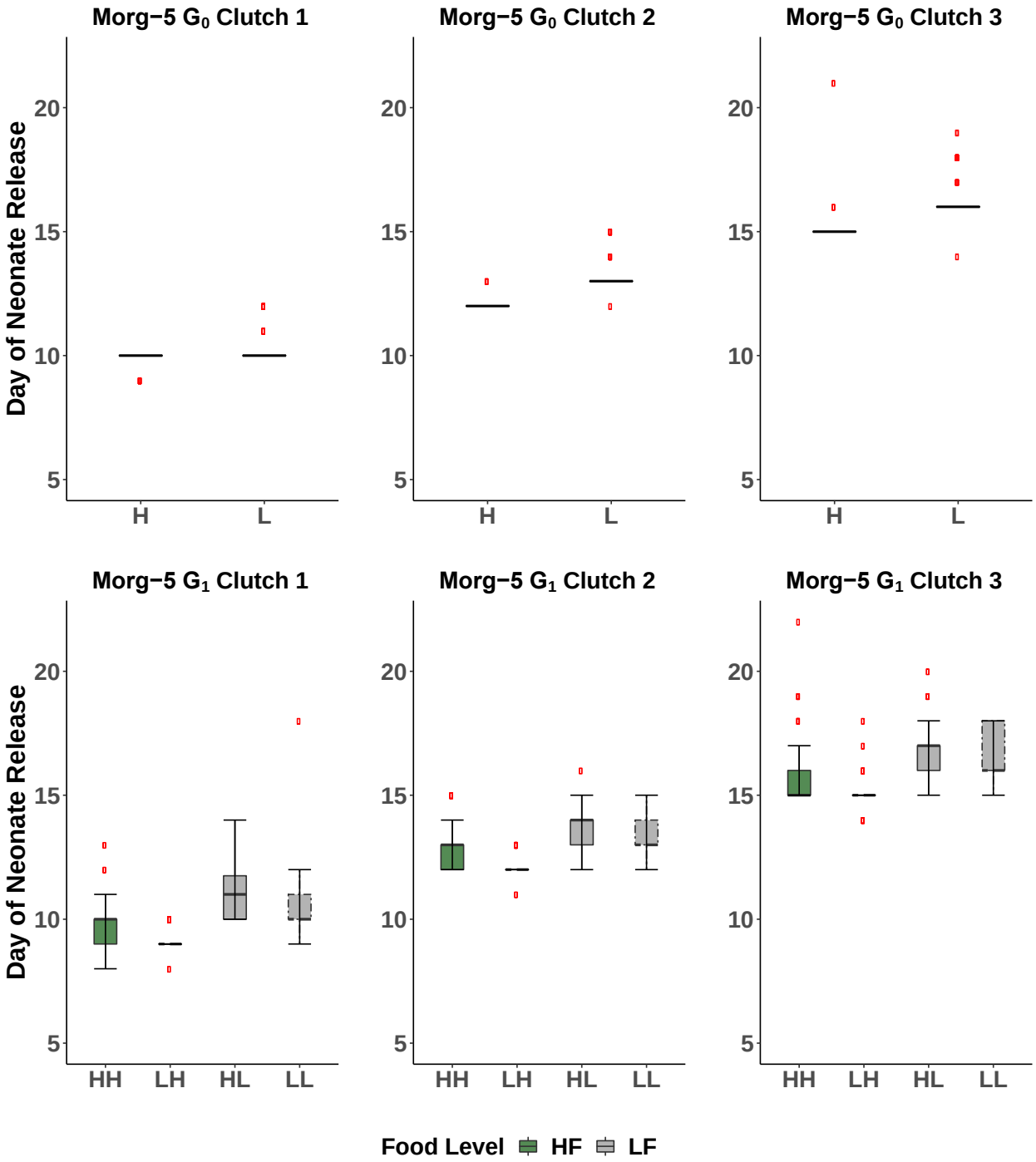
Dnmt3 qPCR Primer Set
F: CTTTGCCTTCCTGAACCAAATC
R: CGTGACGCATATACAGCTAGAG

B-actin Reference Gene
F: GATTGATGATGGGTTTTCCTTCTC
R: TGGCATGAAGATAGATTTGGGTATT

Supplemental Figure 1 Box plots of the effects of diet and maternal diet on the day of clutch release for the Tro-3 clone, both generations. Green boxes denote a high food diet, gray boxes a low food. Data were collected within an 8-12 hour window starting on day 5. For G_1, the first letter denotes the maternal food level, the second the offspring food level.



Supplemental Figure 2 Box plots of the effects of diet and maternal diet on the day of clutch release for the Morg-5 clone, both generations. Green boxes denote a high food diet, gray boxes a low food. Data were collected within an 8-12 hour window starting on day 5. For G_1, the first letter denotes the maternal food level, the second the offspring food level.

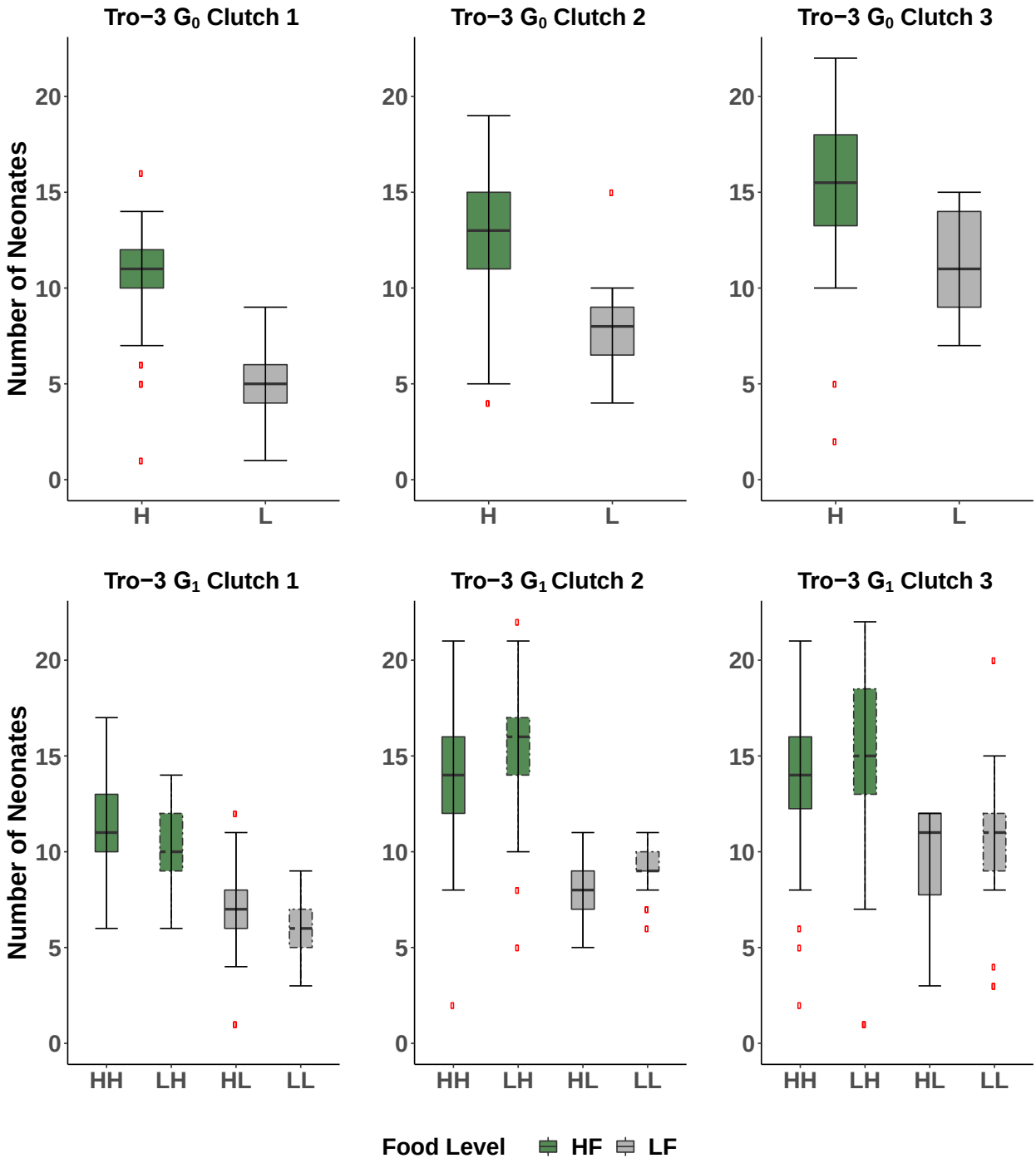


Supplemental Table 1: Effects of Diet on Day of Clutch Release

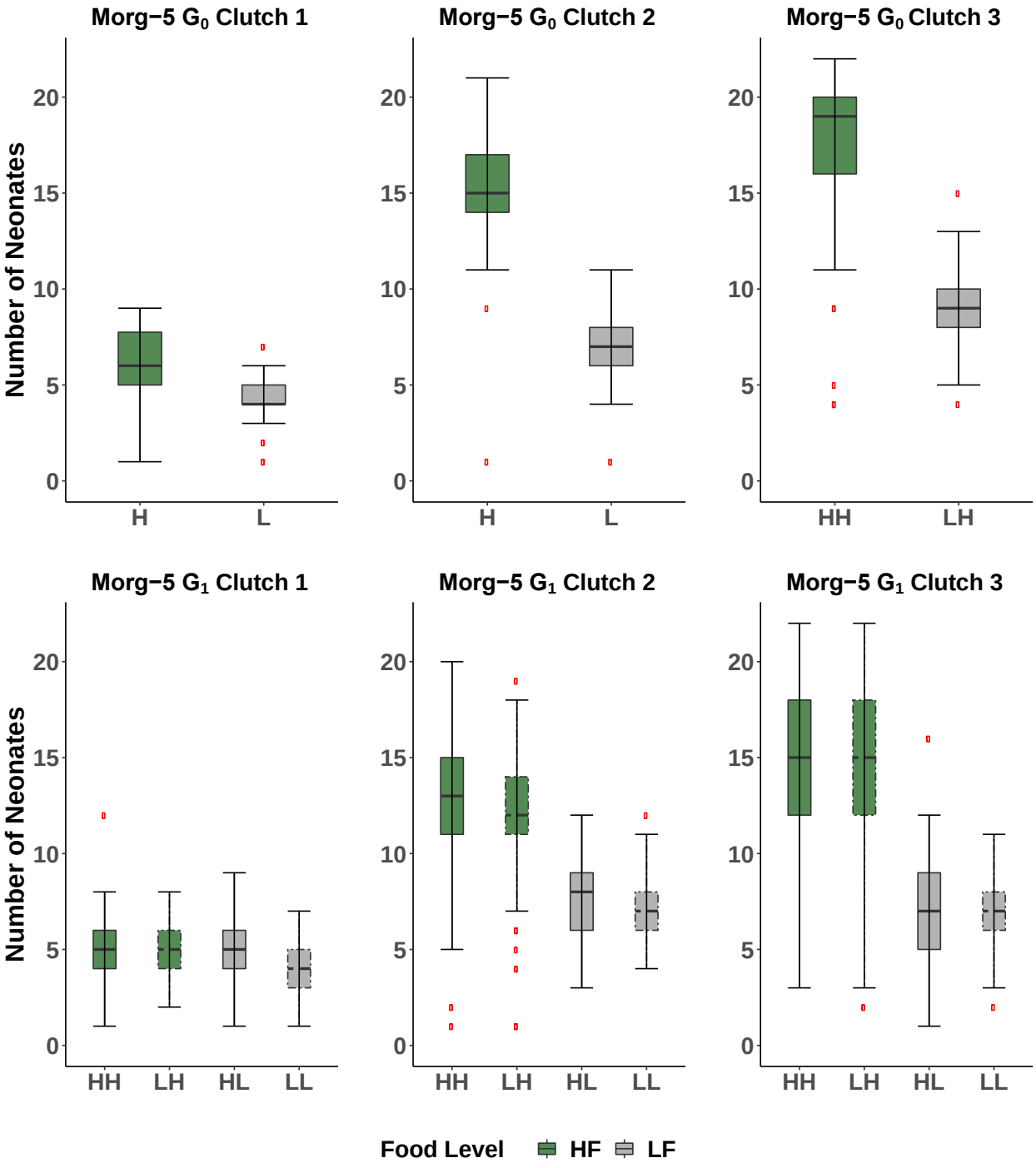
Clone	*Generation*	*Clutch*	*Variable*	χ^2	*HR*	*95% CI*	*p-value*
Tro-3	G_0	1	Diet	61.72	0.27	0.20-0.38	**0.0001**
		2	Diet	74.43	0.22	0.16-0.32	**0.0001**
		3	Diet	87.11	0.05	0.02-0.11	**0.0001**
	G_1	1	Offspring Diet	116.57	0.37	0.26-0.53	**0.0001**
			Maternal Diet	27.80	8.78	5.87-13.14	**0.0001**
			Interaction	34.31	0.19	0.11-0.33	**0.0001**
		2	Offspring Diet	60.02	0.39	0.27-0.55	**0.0001**
			Maternal Diet	9.93	1.55	1.09-2.20	**0.04**
			Interaction	1.16	0.76	0.46-1.25	0.28
		3	Offspring Diet	85.20	0.27	0.18-0.38	**0.0001**
			Maternal Diet	11.68	1.61	1.14-2.29	**0.007**
			Interaction	0.05	1.06	0.64-1.74	0.81
Morg-5	G_0	1	Diet	0.00	1.01	0.74-1.37	0.94
		2	Diet	131.10	0.09	0.06-0.13	**0.0001**
		3	Diet	94.96	0.15	0.11-0.22	**0.0001**
	G_1	1	Offspring Diet	68.56	2.24	1.56-3.20	**0.0001**
			Maternal Diet	13.38	0.49	0.35-0.68	**0.0001**
			Interaction	8.14	1.95	0.23-3.09	**0.004**
		2	Offspring Diet	79.23	0.45	0.33-0.63	**0.0001**
			Maternal Diet	11.50	2.91	1.98-3.92	**0.0001**
			Interaction	10.05	0.46	0.29-0.74	**0.0015**
		3	Offspring Diet	59.29	0.53	0.38-0.74	**0.0002**
			Maternal Diet	12.06	2.64	1.87-3.72	**0.0001**
			Interaction	9.59	0.47	0.29-0.76	**0.002**

Note: Cox Proportional Hazard Ratio using an Efron approximation. HR = Hazard Ratio.

Supplemental Figure 3 Box plots on the effects of diet and maternal diet on the number of offspring produced in each of the first three clutches for Tro-3. Green boxes denote a high food diet, gray boxes a low food. Data collected within an 8–12-hour window starting on day 5. For G_1, the first letter denotes the maternal food level, the second the offspring food level.



Supplemental Figure 4 Box plots on the effects of diet and maternal diet on the number of offspring produced in each of the first three clutches for Morg-5. Green boxes denote a high food diet, gray boxes a low food. Data collected within an 8–12-hour window starting on day 5. For G_1, the first letter denotes the maternal food level, the second the offspring food level.



Supplemental Table 2: Effects of Diet on Clutch Size

Clone	*Generation*	*Clutch*	*Variable*	*DF*	*NumObs*	*F*	*p-value*	η^2
Tro-3	G_0	1	Diet	1	182	249.69	**0.0001**	0.58
		2	Diet	1	99	64.04	**0.0001**	0.39
		3	Diet	1	88	17.00	**0.0001**	0.17
Tro-3	G_1	1	Offspring Diet	1	248	102.77	**0.0001**	0.29
			Maternal Diet	1	248	1.44	0.23	0.004
			Interaction	1	248	2.22	0.14	0.006
		2	Offspring Diet	1	172	51.76	**0.0001**	0.23
			Maternal Diet	1	172	11.48	**0.001**	0.05
			Interaction	1	172	0.002	0.97	0
		3	Offspring Diet	1	162	5.56	**0.02**	0.03
			Maternal Diet	1	162	0.45	0.5	0.003
			Interaction	1	162	0.02	0.9	0
Morg-5	G_0	1	Diet	1	172	55.37	**0.0001**	0.24
		2	Diet	1	164	223.86	**0.0001**	0.58
		3	Diet	1	173	230.48	**0.0001**	0.57
Morg-5	G_1	1	Offspring Diet	1	283	5.67	**0.01**	0.02
			Maternal Diet	1	283	1.29	0.256	0.004
			Interaction	1	283	0.79	0.374	0.003
		2	Offspring Diet	1	285	53.79	**0.0001**	0.16
			Maternal Diet	1	285	0.74	0.39	0.002
			Interaction	1	285	0.6	0.44	0.002
		3	Offspring Diet	1	271	109.47	**0.0001**	0.29
			Maternal Diet	1	271	0.29	0.258	0.003
			Interaction	1	271	1.22	0.271	0.003

Note: *Type III ANOVA using Log Transformed Data. Alpha value 0.05*

Supplemental Table 3: Morg-5 G_0 Clutch Type GLM Binomial Results

	Clutch Type: Egg or Resting Egg		
	Clutch 1	Clutch 2	Clutch 3
Intercept	4.304	2.876	3.597
	(2.331, 6.277)	(1.869, 3.884)	(2.193, 5.002)
	t = 4.275	t = 5.597	t = 5.019
	p = 0.00002	**p = 0.00000**	**p = 0.00000**
Diet	-1.308	-0.625	-0.071
	(-3.476, 0.860)	(-1.825, 0.574)	(-1.885, 1.743)
	t = -1.183	t = -1.021	t = -0.077
	p = 0.237	p = 0.308	p = 0.939
Observations	180	180	180
Log Likelihood	-25.412	-48.638	-22.845
Akaike Inf. Crit.	54.825	101.276	49.689
Note:	95% CI shown. Test statistic (t) reported is Wald z-statistic.		

Supplemental Table 4: Tro-3 G_0 Clutch Type GLM Binomial Results

	Clutch Type: Egg or Resting Egg		
	Clutch 1	Clutch 2	Clutch 3
Intercept	20.566	1.061	0.825
	(-3,370.773, 3,411.905)	(0.623, 1.499)	(0.409, 1.240)
	t = 0.012	t = 4.751	t = 3.890
	p = 0.991	**p = 0.00001**	**p = 0.001**
Diet	-19.030	-2.216	-2.361
	(-3,410.369, 3,372.309)	(-2.857, -1.575)	(-3.030, -1.692)
	t = -0.011	t = -6.773	t = -6.919
	p = 0.992	**p = 0.000**	**p = 0.000**
Observations	201	201	201
Log Likelihood	-44.826	-112.712	-109.385
Akaike Inf. Crit.	93.653	229.425	222.770

Note: 95% CI shown. Test statistic (t) reported is Wald z-statistic.

Supplemental Table 5: Morg-5 G_1 Clutch Type GLM Binomial Results

	Clutch Type: Egg or Resting Egg		
	Clutch 1	Clutch 2	Clutch 3
Intercept	2.442	3.178	3.178
	(1.608, 3.277)	(2.023, 4.333)	(2.023, 4.333)
	t = 5.738	t = 5.393	t = 5.395
	p = 0.000	**p = 0.00000**	**p = 0.00000**
G0 Diet	1.155	1.126	-0.302
	(-0.479, 2.789)	(-1.160, 3.412)	(-1.834, 1.231)
	t = 1.386	t = 0.965	t = -0.386
	p = 0.166	p = 0.335	p = 0.700
G1 Diet	1.155	0.000	-0.736
	(-0.479, 2.789)	(-1.633, 1.633)	(-2.160, 0.689)
	t = 1.386	t = 0.000	t = -1.012
	p = 0.166	p = 1.000	p = 0.312
Interaction	-1.574	-1.428	-0.482
	(-4.019, 0.870)	(-4.180, 1.325)	(-2.333, 1.368)
	t = -1.262	t = -1.017	t = -0.511
	p = 0.207	p = 0.310	p = 0.610
Observations	300	300	300
Log Likelihood	-51.947	-46.119	-82.095
Akaike Inf. Crit.	111.894	100.237	172.190
Note:	95% CI shown. Test statistic (t) reported is Wald z-statistic.		

Supplemental Table 6: Tro-3 G_1 Clutch Type GLM Binomial Results

	Clutch Type: Egg or Resting Egg		
	Clutch 1	Clutch 2	Clutch 3
Intercept	20.566	1.642	1.210
	(-4,019.142, 4060.275)	(1.024, 2.260)	(0.668, 1.751)
	t = 0.010	t = 5.207	t = 4.378
	p = 0.993	**p = 0.00000**	**p = 0.00002**
G_0 Diet	0.964	2.469	2.191
	(-0.194, 2.122)	(0.399, 4.539)	(0.682, 3.701)
	t = 1.631	t = 2.338	t = 2.846
	p = 0.103	**p = 0.020**	**p = 0.005**
G_1 Diet	-18.940	-2.995	-2.836
	(-4,058.649, 4,020.768)	(-3.834, -2.155)	(-3.658, -2.013)
	t = -0.009	t = -6.993	t = -6.758
	p = 0.993	**p = 0.000**	**p = 0.000**
Interaction	1.013	-0.570	-0.090
	(-5,982.051, 5,984.077)	(-2.779, 1.640)	(-1.802, 1.622)
	t = 0.0003	t = -0.505	t = -0.103
	p = 1.000	p = 0.614	p = 0.918
Observations	269	269	269
Log Likelihood	-47.317	-114.425	-121.279
Akaike Inf. Crit.	102.634	236.850	250.559

Note: 95% CI shown. Test statistic (t) reported is Wald z-statistic.