

Appendix B: Table 1. Analysis of the effects of environmental variability ( $CV_E$ ) and within-brood variability ( $CV_B$ ) on  $\Delta W$ , the relative fitness of mothers producing offspring of variable size within each brood (variable strategy).

| Source                                  | Df    | MS      | F        | P       |
|---|-------|---------|----------|---------|
| Intercept                               | 1     | 39.4426 | 10103.66 | <0.0001 |
| Egg Fitness Function Shape              | 2     | 0.3282  | 84.07    | <0.0001 |
| Environmental Variability<br>( $CV_E$ ) | 5     | 38.3871 | 9833.28  | <0.0001 |
| Within-Brood Variability<br>( $CV_B$ )  | 6     | 5.9295  | 1518.91  | <0.0001 |
| EFFS $\times$ $CV_E$                    | 10    | 0.8451  | 216.49   | <0.0001 |
| EFFS $\times$ $CV_B$                    | 12    | 0.0679  | 17.39    | <0.0001 |
| $CV_E \times CV_B$                      | 30    | 5.4435  | 1394.42  | <0.0001 |
| EFFS $\times$ $CV_E \times CV_B$        | 60    | 0.0950  | 24.33    | <0.0001 |
| Error                                   | 86374 | 0.0039  |          |         |

Appendix C: Table 2. Analysis of the effects of maternal strategy (variable *versus* invariant) and degree of environmental variability ( $CV_E$ ) on the coefficient of variation in mean maternal fitness across generations. Coefficients of variation in mean maternal fitness were calculated over 100 generations or reproductive bouts, and 35 coefficients of variation were calculated for each level of  $CV_E$  for each maternal strategy. Results shown are for an egg fitness function with  $m_{\min} = 30$  and  $m_{\max} = 70$  (function “b” in Fig. 2); other functions (see Fig. 2) yielded similar results (not shown).

| Source                               | Df  | MS      | F        | P       |
|--------------------------------------|-----|---------|----------|---------|
| Intercept                            | 1   | 1.58012 | 17666.25 | <0.0001 |
| Strategy                             | 1   | 0.02358 | 263.67   | <0.0001 |
| Environmental Variability ( $CV_E$ ) | 5   | 0.03640 | 406.94   | <0.0001 |
| Strategy $\times$ $CV_E$             | 5   | 0.00031 | 3.49     | 0.0043  |
| Error                                | 408 | 0.00009 |          |         |

Appendix C: Table 3. Analysis of the effects of egg fitness function width (see Fig. 2), environmental variability ( $CV_E$ ) and within-brood variability ( $CV_B$ ) on the proportion of variable strategy-females suffering complete reproductive failure.

| Source                               | Df    | MS       | F        | P       |
|--------------------------------------|-------|----------|----------|---------|
| Intercept                            | 1     | 9538.014 | 26662245 | <0.0001 |
| Egg Fitness Function Shape           | 2     | 405.833  | 1134453  | <0.0001 |
| Environmental Variability ( $CV_E$ ) | 5     | 383.349  | 1071601  | <0.0001 |
| Within-Brood Variability ( $CV_B$ )  | 6     | 246.209  | 688243   | <0.0001 |
| $EFFS \times CV_E$                   | 10    | 2.861    | 7998     | <0.0001 |
| $EFFS \times CV_B$                   | 12    | 12.963   | 36238    | <0.0001 |
| $CV_E \times CV_B$                   | 30    | 2.540    | 7102     | <0.0001 |
| $EFFS \times CV_E \times CV_B$       | 60    | 0.893    | 2496     | <0.0001 |
| Error                                | 86374 | 0.000    |          |         |