Supplementary material for

**Maternal investment and early thermal environment interact to affect antipredator responses in two Australian lizard species**

**Supplementary results**

**Table S1.** Repeatability of the three performance and antipredatory behaviour measures.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ***L. delicata*** | | | ***L. guichenoti*** | | |
|  | R | l | U | R | l | u |
| Time hiding | 0.2807 | 0.0222 | 0.5025 | 0.2391 | 0.0612 | 0.4072 |
| Time to active | 0.0724 | 0.0001 | 0.2431 | 0.2315 | 0.0307 | 0.4093 |
| Distance moved | 0.2644 | 0.0406 | 0.4859 | 0.4824 | 0.3425 | 0.6092 |
| Running velocity 1m | 0.4580 | 0.3128 | 0.5893 | 0.5579 | 0.4339 | 0.6698 |
| Running velocity 25cm | 0.3440 | 0.2055 | 0.4812 | 0.6310 | 0.5223 | 0.7294 |

**Table S2.** Estimates from full (with the two-way interaction between temperature and maternal egg investment) Bayesian multivariate models for morphology in *Lampropholis delicata and L. guichenoti*.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***L. delicata*** |  |  |  |  |  |  |  |
| *Full models with interactions* | |  |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (SVL) | 23.77 | 0.38 | 23.03 | 24.52 | 1 | 7667 | 7963 |
| Intercept (Weight) | 0.32 | 0.01 | 0.29 | 0.34 | 1 | 7362 | 7882 |
| Intercept (Tail length) | 34.71 | 0.86 | 33.01 | 36.4 | 1 | 7649 | 9228 |
| SVL\_temperature (hot) | 0.31 | 0.57 | -0.82 | 1.42 | 1 | 6655 | 8645 |
| SVL\_Maternal (control) | 0.68 | 0.51 | -0.33 | 1.69 | 1 | 7162 | 9147 |
| SVL\_Age (scaled) | 1.22 | 0.21 | 0.8 | 1.62 | 1 | 11217 | 9610 |
| SVL\_Temperature (hot) \* Maternal (control) | -0.78 | 0.73 | -2.22 | 0.64 | 1 | 6379 | 8737 |
| Weight\_Temperature (hot) | -0.01 | 0.02 | -0.05 | 0.02 | 1 | 6562 | 8741 |
| Weight\_Maternal (control) | 0 | 0.02 | -0.03 | 0.03 | 1 | 7198 | 9024 |
| Weight\_Age (scaled) | 0.06 | 0.01 | 0.04 | 0.07 | 1 | 11526 | 8773 |
| Weight\_Temperature (hot) \* Maternal (control) | 0.01 | 0.02 | -0.04 | 0.05 | 1 | 6512 | 8721 |
| Tail length\_Temperature (hot) | 2.32 | 1.36 | -0.33 | 4.96 | 1 | 7013 | 8778 |
| Tail\_length\_ Maternal (control) | 0.88 | 1.12 | -1.31 | 3.13 | 1 | 8282 | 9929 |
| Tail\_Age (scaled) | 2.37 | 0.53 | 1.33 | 3.41 | 1 | 9248 | 9607 |
| Tail\_Temperature (hot) \* Maternal (control) | -3.14 | 1.71 | -6.51 | 0.2 | 1 | 6796 | 8373 |
|  |  |  |  |  |  |  |  |
| *Reduced main effect model* | |  |  |  |  |  |  |
| Intercept (SVL) | 23.98 | 0.32 | 23.35 | 24.61 | 1 | 14663 | 9506 |
| Intercept (Weight) | 0.31 | 0.01 | 0.29 | 0.33 | 1 | 14921 | 9221 |
| Intercept (Tail length) | 35.53 | 0.75 | 34.06 | 37.01 | 1 | 15005 | 10333 |
| SVL\_temperature (hot) | -0.11 | 0.4 | -0.91 | 0.67 | 1 | 13913 | 9655 |
| SVL\_Maternal (control) | 0.29 | 0.36 | -0.42 | 1.01 | 1 | 14385 | 10026 |
| SVL\_Age (scaled) | 1.25 | 0.21 | 0.84 | 1.66 | 1 | 15005 | 10115 |
| Weight\_Temperature (hot) | -0.01 | 0.01 | -0.03 | 0.02 | 1 | 14341 | 9226 |
| Weight\_Maternal (control) | 0.01 | 0.01 | -0.02 | 0.03 | 1 | 14557 | 9945 |
| Weight\_Age (scaled) | 0.06 | 0.01 | 0.04 | 0.07 | 1 | 15562 | 9608 |
| Tail length\_Temperature (hot) | 0.54 | 0.96 | -1.35 | 2.42 | 1 | 13594 | 10620 |
| Tail\_length\_ Maternal (control) | -0.46 | 0.84 | -2.13 | 1.22 | 1 | 14725 | 10165 |
| Tail\_Age (scaled) | 2.66 | 0.52 | 1.64 | 3.69 | 1 | 14486 | 10609 |
|  |  |  |  |  |  |  |  |
| *Within-individual correlations in morphological traits* | | | |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| **rescor(SVL, Weight)** | **0.8** | **0.04** | **0.7** | **0.87** | **1** | **12001** | **10099** |
| **rescor(SVL, Tail length)** | **0.53** | **0.09** | **0.33** | **0.7** | **1** | **11828** | **10260** |
| **rescor(Weight, Tail length)** | **0.56** | **0.09** | **0.36** | **0.72** | **1** | **12109** | **10709** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| ***L. guichenoti*** |  |  |  |  |  |  |  |
| *Full models with interactions* | |  |  |  |  |  |  |
|  | **Estimate** | **Est.Error** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (SVL) | 25.17 | 0.39 | 24.41 | 25.95 | 1 | 5665 | 8244 |
| Intercept (Weight) | 0.38 | 0.02 | 0.35 | 0.41 | 1 | 4840 | 7414 |
| Intercept (Tail length) | 36.48 | 0.79 | 34.94 | 38.06 | 1 | 4658 | 7084 |
| SVL\_temperature (hot) | 1.29 | 0.55 | 0.2 | 2.35 | 1 | 4819 | 7343 |
| SVL\_Maternal (control) | 0.39 | 0.53 | -0.65 | 1.44 | 1 | 4544 | 6767 |
| SVL\_Age (scaled) | 0.92 | 0.23 | 0.48 | 1.36 | 1 | 6707 | 8597 |
| SVL\_Temperature (hot) \* Maternal (control) | 0.16 | 0.76 | -1.34 | 1.69 | 1 | 4212 | 5995 |
| Weight\_Temperature (hot) | 0.02 | 0.02 | -0.02 | 0.06 | 1 | 4049 | 6735 |
| Weight\_Maternal (control) | -0.01 | 0.02 | -0.05 | 0.03 | 1 | 3874 | 6423 |
| Weight\_Age (scaled) | 0.05 | 0.01 | 0.04 | 0.07 | 1 | 6202 | 7543 |
| Weight\_Temperature (hot) \* Maternal (control) | 0.03 | 0.03 | -0.02 | 0.09 | 1 | 3559 | 5309 |
| Tail length\_Temperature (hot) | 3.65 | 1.11 | 1.45 | 5.84 | 1 | 3903 | 5829 |
| Tail\_length\_ Maternal (control) | 0.6 | 1.04 | -1.45 | 2.67 | 1 | 4026 | 6290 |
| Tail\_Age (scaled) | 1.87 | 0.45 | 0.99 | 2.76 | 1 | 5708 | 6611 |
| Tail\_Temperature (hot) \* Maternal (control) | 0.24 | 1.51 | -2.74 | 3.19 | 1 | 3512 | 6498 |
|  |  |  |  |  |  |  |  |
| *Reduced main effect model* | |  |  |  |  |  |  |
| Intercept (SVL) | 25.14 | 0.36 | 24.46 | 25.84 | 1 | 9668 | 9190 |
| Intercept (Weight) | 0.37 | 0.01 | 0.35 | 0.4 | 1 | 8817 | 8950 |
| Intercept (Tail length) | 36.44 | 0.7 | 35.05 | 37.8 | 1 | 7736 | 9077 |
| **SVL\_temperature (hot)** | **1.36** | **0.44** | **0.49** | **2.22** | **1** | **8802** | **9092** |
| SVL\_Maternal (control) | 0.46 | 0.37 | -0.26 | 1.19 | 1 | 10572 | 9380 |
| SVL\_Age (scaled) | 0.92 | 0.22 | 0.49 | 1.35 | 1 | 8771 | 8803 |
| **Weight\_Temperature (hot)** | **0.04** | **0.02** | **0** | **0.07** | **1** | **8616** | **8859** |
| Weight\_Maternal (control) | 0.01 | 0.01 | -0.02 | 0.04 | 1 | 8948 | 8353 |
| Weight\_Age (scaled) | 0.06 | 0.01 | 0.04 | 0.07 | 1 | 8556 | 8440 |
| **Tail length\_Temperature (hot)** | **3.76** | **0.91** | **1.98** | **5.53** | **1** | **7016** | **8434** |
| Tail\_length\_ Maternal (control) | 0.75 | 0.73 | -0.67 | 2.23 | 1 | 7895 | 7939 |
| Tail\_Age (scaled) | 1.84 | 0.44 | 0.98 | 2.72 | 1 | 8047 | 8238 |
|  |  |  |  |  |  |  |  |
| *Within-individual correlations in morphological traits* | | | |  |  |  |  |
|  | **Estimate** | **Est.Error** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| **rescor(SVL, Weight)** | **0.69** | **0.06** | **0.55** | **0.8** | **1** | **6372** | **7408** |
| **rescor(SVL, Tail length)** | **0.63** | **0.08** | **0.45** | **0.77** | **1** | **5176** | **6727** |
| **rescor(Weight, Tail length)** | **0.88** | **0.04** | **0.79** | **0.93** | **1** | **3383** | **6556** |

**Table S3.** Estimates from full (with the two-way interaction between temperature and maternal egg investment) and simplified (main effects only) Bayesian multivariate models for performance and antipredatory behaviour in *Lampropholis delicata*, after controlling for body size (SVL). Numbers in bold represent significant results. Numbers in light grey represent those main effects that we did not interpret due to the existence of a significant 2-way interaction.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***L. delicata*** |  |  |  |  |  |  |  |
| Full models with interactions |  |  |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (time to active) | 2691.18 | 245.68 | 2221.59 | 3180.19 | 1 | 4690 | 5977 |
| Intercept (time hiding) | 1665.48 | 224.08 | 1235.13 | 2112.36 | 1 | 5533 | 8143 |
| Intercept (distance travelled) | 733.24 | 60.22 | 616.27 | 852.17 | 1 | 6846 | 8462 |
| Intercept (running velocity, 1m) | 1.61 | 0.1 | 1.42 | 1.8 | 1 | 5235 | 7740 |
| Intercept (running velocity, 25 cm) | -0.33 | 0.1 | -0.52 | -0.13 | 1 | 5561 | 8281 |
| Time to active\_Temperature (hot) | 971.47 | 377.71 | 234.38 | 1719.32 | 1 | 4058 | 5913 |
| Time to active\_Maternal (c0ntrol) | 620.45 | 331.04 | -27.38 | 1274.15 | 1 | 4859 | 7084 |
| Time to active\_SVL (scaled) | 282.9 | 144.41 | 5.46 | 572.34 | 1 | 4433 | 7017 |
| **Time to active\_Temperature (hot) \* Maternal (control)** | **-1008.81** | **503.67** | **-2023.9** | **-22.82** | **1** | **4075** | **5944** |
| Time hiding\_Temperature (hot) | 872.73 | 349.48 | 188.7 | 1554.96 | 1 | 4360 | 6100 |
| Time hiding\_Maternal (control) | 505.93 | 307.47 | -104.11 | 1107.32 | 1 | 5298 | 7039 |
| Time hiding\_SVL (scaled) | 14.72 | 129.94 | -238.11 | 271.11 | 1 | 5864 | 7396 |
| Time hiding\_Temperature (hot) \* Maternal (control) | -896.71 | 467.14 | -1817.42 | 31.42 | 1 | 4410 | 6009 |
| Distance moved\_Temperature (hot) | -85.71 | 85.83 | -255.34 | 82.77 | 1 | 5712 | 7494 |
| Distance moved\_Maternal (control) | -63.03 | 81.03 | -223.62 | 95.14 | 1 | 5872 | 8124 |
| Distance moved\_SVL (scaled) | 21.43 | 31.85 | -40.8 | 84.26 | 1 | 7552 | 8414 |
| Distance moved\_Temperature (hot) \* Maternal (control) | 57.66 | 117.71 | -170.65 | 293.99 | 1 | 3570 | 6531 |
| Running velocity (1m)\_Temperature (hot) | -0.1 | 0.14 | -0.37 | 0.18 | 1 | 4558 | 6641 |
| Running velocity (1m)\_Maternal (control) | -0.42 | 0.13 | -0.68 | -0.16 | 1 | 4578 | 6688 |
| Running velocity (1m)\_SVL (scaled) | -0.05 | 0.05 | -0.15 | 0.05 | 1 | 6325 | 8102 |
| Running velocity (1m)\_Temperature (hot) \* Maternal (control) | 0.31 | 0.19 | -0.07 | 0.67 | 1 | 4133 | 6362 |
| Running velocity (25cm)\_Temperature (hot) | 0.04 | 0.15 | -0.25 | 0.33 | 1 | 4996 | 7188 |
| Running velocity (25cm)\_Maternal (control) | -0.19 | 0.14 | -0.46 | 0.09 | 1 | 4632 | 7044 |
| Running velocity (25cm)\_SVL (scaled) | -0.1 | 0.05 | -0.2 | 0 | 1 | 7187 | 8763 |
| Running velocity (25cm)\_Temperature (hot) \* Maternal (control) | 0.18 | 0.2 | -0.22 | 0.56 | 1 | 4140 | 6375 |
|  |  |  |  |  |  |  |  |
| *Reduced-main effect models* |  |  |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (time to active) | 2910.88 | 219.52 | 2481.73 | 3352.73 | 1 | 5878 | 8565 |
| Intercept (time hiding) | 1862.39 | 193.51 | 1484.1 | 2243.48 | 1 | 8183 | 9137 |
| Intercept (distance travelled) | 719.81 | 54.1 | 614.51 | 826.19 | 1 | 6660 | 8311 |
| Intercept (running velocity, 1m) | 1.53 | 0.09 | 1.37 | 1.7 | 1 | 6435 | 8426 |
| Intercept (running velocity, 25 cm) | -0.37 | 0.09 | -0.54 | -0.2 | 1 | 6566 | 8894 |
| Time to active\_Temperature (hot) | 432.23 | 267.31 | -81.43 | 958.83 | 1 | 5469 | 6074 |
| Time to active\_Maternal (control) | 202.18 | 257.5 | -301.43 | 701.06 | 1 | 5395 | 7371 |
| Time to active\_SVL (scaled) | 329.3 | 142.13 | 50.11 | 602.38 | 1 | 4853 | 6501 |
| Time hiding\_Temperature (hot) | 396.5 | 248.27 | -82.47 | 887.48 | 1 | 5698 | 7358 |
| Time hiding\_Maternal (control) | 124.64 | 229.15 | -324.47 | 583.19 | 1 | 6794 | 8237 |
| Time hiding\_SVL (scaled) | 55.59 | 128.33 | -197.55 | 303.07 | 1 | 5847 | 7835 |
| Distance moved\_Temperature (hot) | -55.83 | 60.62 | -174.19 | 64.26 | 1 | 6573 | 8357 |
| Distance moved\_Maternal (control) | -36.21 | 58.59 | -149.5 | 81.92 | 1 | 6553 | 8219 |
| Distance moved\_SVL (scaled) | 19.82 | 30.26 | -38.98 | 79.28 | 1 | 7571 | 8625 |
| Running velocity (1m)\_Temperature (hot) | 0.06 | 0.1 | -0.14 | 0.26 | 1 | 5633 | 7564 |
| **Running velocity (1m)\_Maternal (control)** | **-0.27** | **0.1** | **-0.46** | **-0.08** | **1** | **6581** | **8595** |
| Running velocity (1m)\_SVL (scaled) | -0.06 | 0.05 | -0.16 | 0.04 | 1 | 6075 | 8129 |
| Running velocity (25cm)\_Temperature (hot) | 0.13 | 0.1 | -0.07 | 0.34 | 1 | 6295 | 8545 |
| Running velocity (25cm)\_Maternal (control) | -0.1 | 0.1 | -0.29 | 0.1 | 1 | 6965 | 8651 |
| Running velocity (25cm)\_SVL (scaled) | -0.11 | 0.05 | -0.21 | -0.01 | 1 | 6306 | 8651 |
|  |  |  |  |  |  |  |  |
| *Within-individual correlations in performance and antipredatory traits* | | |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| rescor(Time to active, Time hiding) | 0.83 | 0.04 | 0.75 | 0.89 | 1 | 2747 | 4768 |
| **rescor(Time to active, Distance travelled)** | **-0.2** | **0.09** | **-0.37** | **-0.01** | **1** | **5299** | **9180** |
| rescor(Time hiding, Distance travelled) | -0.09 | 0.09 | -0.26 | 0.08 | 1 | 5925 | 8246 |
| rescor(Time to active, Running velocity 1m) | 0.07 | 0.1 | -0.12 | 0.25 | 1 | 4237 | 7504 |
| rescor(Time hiding, Running velocity 1m) | 0.01 | 0.09 | -0.17 | 0.19 | 1 | 4650 | 8250 |
| rescor(Distance travelled, Running velocity 1m) | 0.03 | 0.08 | -0.12 | 0.19 | 1 | 9798 | 9290 |
| rescor(Time to active, Running velocity 25cm) | 0.05 | 0.11 | -0.16 | 0.26 | 1 | 3397 | 6204 |
| rescor(Time hiding, Running velocity 25cm) | -0.03 | 0.11 | -0.23 | 0.18 | 1 | 3245 | 6258 |
| rescor(Distance travelled, Running velocity 25cm) | 0.03 | 0.08 | -0.11 | 0.18 | 1 | 11400 | 10383 |
| **rescor(Running velocity 1m,**  **Running velocity 25cm)** | **0.42** | **0.06** | **0.29** | **0.54** | **1** | **9081** | **9329** |

**Table S4**. Estimates from full (with the two-way interaction between temperature and maternal egg investment) and simplified (main effects only) Bayesian multivariate models for performance and antipredatory behaviour in *Lampropholis guichenoti* after controlling for body size (SVL).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***L. guichenoti*** |  |  |  |  |  |  |  |
| Full models with interactions |  |  |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (time to active) | 7.19 | 0.19 | 6.82 | 7.57 | 1 | 7155 | 8263 |
| Intercept (time hiding) | 6.07 | 0.27 | 5.53 | 6.61 | 1 | 7601 | 8971 |
| Intercept (distance travelled) | 884.35 | 94.43 | 697.44 | 1068.52 | 1 | 8082 | 8793 |
| Intercept (running velocity, 1m) | 1.53 | 0.11 | 1.31 | 1.75 | 1 | 6164 | 7717 |
| Intercept (running velocity, 25 cm) | -0.39 | 0.12 | -0.62 | -0.17 | 1 | 6177 | 7787 |
| Time to active\_Temperature (hot) | -0.06 | 0.25 | -0.55 | 0.45 | 1 | 6386 | 8210 |
| Time to active\_Maternal (c0ntrol) | 0.05 | 0.25 | -0.42 | 0.54 | 1 | 6275 | 8398 |
| Time to active\_SVL (scaled) | 0.15 | 0.1 | -0.05 | 0.36 | 1 | 9841 | 9710 |
| Time to active\_Temperature (hot) \* Maternal (control) | -0.06 | 0.34 | -0.73 | 0.61 | 1 | 5765 | 7757 |
| Time hiding\_Temperature (hot) | 0.13 | 0.36 | -0.58 | 0.85 | 1 | 6759 | 8418 |
| Time hiding\_Maternal (control) | -0.11 | 0.35 | -0.78 | 0.59 | 1 | 6910 | 8615 |
| Time hiding\_SVL (scaled) | -0.02 | 0.15 | -0.31 | 0.28 | 1 | 10369 | 9985 |
| Time hiding\_Temperature (hot) \* Maternal (control) | 0.14 | 0.48 | -0.81 | 1.09 | 1 | 6817 | 8446 |
| Distance moved\_Temperature (hot) | -76.05 | 131.63 | -334.39 | 180.69 | 1 | 7236 | 8435 |
| Distance moved\_Maternal (control) | -118.55 | 121.23 | -356.69 | 120.27 | 1 | 7631 | 8796 |
| Distance moved\_SVL (scaled) | -22.84 | 52.89 | -125.4 | 81.73 | 1 | 9143 | 8908 |
| Distance moved\_Temperature (hot) \* Maternal (control) | 130.65 | 169.61 | -198.97 | 464.88 | 1 | 7189 | 8101 |
| Running velocity (1m)\_Temperature (hot) | 0.04 | 0.15 | -0.26 | 0.34 | 1 | 5351 | 7124 |
| Running velocity (1m)\_Maternal (control) | 0.06 | 0.14 | -0.22 | 0.34 | 1 | 5742 | 7354 |
| Running velocity (1m)\_SVL (scaled) | -0.12 | 0.06 | -0.24 | 0.01 | 1 | 7643 | 8757 |
| Running velocity (1m)\_Temperature (hot) \* Maternal (control) | -0.13 | 0.2 | -0.54 | 0.26 | 1 | 5323 | 7554 |
| Running velocity (25cm)\_Temperature (hot) | 0.22 | 0.16 | -0.1 | 0.53 | 1 | 5388 | 6922 |
| Running velocity (25cm)\_Maternal (control) | 0.21 | 0.15 | -0.08 | 0.51 | 1 | 5734 | 7465 |
| Running velocity (25cm)\_SVL (scaled) | -0.15 | 0.06 | -0.27 | -0.02 | 1 | 7737 | 8528 |
| **Running velocity (25cm)\_Temperature (hot) \* Maternal (control)** | **-0.41** | **0.2** | **-0.81** | **-0.01** | **1** | **5247** | **7090** |
|  |  |  |  |  |  |  |  |
| *Reduced-main effect models* |  |  |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (time to active) | 1907.52 | 295.38 | 1328.59 | 2494.43 | 1 | 6228 | 8332 |
| Intercept (time hiding) | 933.21 | 216.46 | 509.97 | 1351.52 | 1 | 6415 | 8291 |
| Intercept (distance travelled) | 851.26 | 83.7 | 689.93 | 1016.8 | 1 | 8421 | 9060 |
| Intercept (running velocity, 1m) | 1.56 | 0.1 | 1.36 | 1.76 | 1 | 6896 | 8127 |
| Intercept (running velocity, 25 cm) | -0.29 | 0.1 | -0.5 | -0.08 | 1 | 6699 | 7892 |
| Time to active\_Temperature (hot) | -39.8 | 359.53 | -757.68 | 662.1 | 1 | 4901 | 6995 |
| Time to active\_Maternal (control) | 96.92 | 307.25 | -508.55 | 715.45 | 1 | 6770 | 8242 |
| Time to active\_SVL (scaled) | 176.91 | 177.12 | -168.02 | 524.89 | 1 | 5786 | 8405 |
| Time hiding\_Temperature (hot) | 56.79 | 263.33 | -470.82 | 565.7 | 1 | 5759 | 8371 |
| Time hiding\_Maternal (control) | 44.99 | 223.21 | -396.81 | 490.06 | 1 | 7254 | 8455 |
| Time hiding\_SVL (scaled) | 12.08 | 130.74 | -244.53 | 269.05 | 1 | 6770 | 8182 |
| Distance moved\_Temperature (hot) | -11.08 | 103.43 | -217.17 | 189.6 | 1 | 7395 | 8024 |
| Distance moved\_Maternal (control) | -52.37 | 85.48 | -219.94 | 114.91 | 1 | 9282 | 9446 |
| Distance moved\_SVL (scaled) | -20.48 | 51.92 | -122.11 | 83.31 | 1 | 8654 | 7787 |
| Running velocity (1m)\_Temperature (hot) | -0.02 | 0.12 | -0.26 | 0.21 | 1 | 5985 | 7933 |
| Running velocity (1m)\_Maternal (control) | -0.01 | 0.1 | -0.21 | 0.19 | 1 | 7875 | 8687 |
| Running velocity (1m)\_SVL (scaled) | -0.12 | 0.06 | -0.24 | 0 | 1 | 6432 | 7455 |
| Running velocity (25cm)\_Temperature (hot) | 0.02 | 0.13 | -0.22 | 0.27 | 1 | 5935 | 7481 |
| Running velocity (25cm)\_Maternal (control) | 0 | 0.11 | -0.2 | 0.21 | 1 | 7693 | 8738 |
| Running velocity (25cm)\_SVL (scaled) | -0.16 | 0.06 | -0.29 | -0.03 | 1 | 6434 | 7470 |
|  |  |  |  |  |  |  |  |
| *Within-individual correlations in performance and antipredatory traits* | | |  |  |  |  |  |
|  | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| rescor(Time to active, Time hiding) | 0.64 | 0.05 | 0.53 | 0.74 | 1 | 4119 | 5964 |
| rescor(Time to active, Distance travelled) | -0.13 | 0.08 | -0.29 | 0.03 | 1 | 9560 | 9631 |
| rescor(Time hiding, Distance travelled) | -0.01 | 0.08 | -0.17 | 0.15 | 1 | 8900 | 8679 |
| rescor(Time to active, Running velocity 1m) | -0.05 | 0.08 | -0.21 | 0.11 | 1 | 9061 | 9672 |
| rescor(Time hiding, Running velocity 1m) | -0.03 | 0.08 | -0.19 | 0.12 | 1 | 9797 | 8797 |
| rescor(Distance travelled, Running velocity 1m) | -0.04 | 0.08 | -0.19 | 0.11 | 1 | 12208 | 10143 |
| rescor(Time to active, Running velocity 25cm) | -0.09 | 0.09 | -0.25 | 0.08 | 1 | 7950 | 9565 |
| rescor(Time hiding, Running velocity 25cm) | -0.04 | 0.08 | -0.2 | 0.12 | 1 | 10752 | 9473 |
| rescor(Distance travelled, Running velocity 25cm) | 0.04 | 0.08 | -0.11 | 0.19 | 1 | 11246 | 9491 |
| **rescor(Running velocity 1m, Running velocity 25cm)** | **0.51** | **0.06** | **0.4** | **0.62** | **1** | **10729** | **10347** |

**Table S5.** Estimates from full (with the two-way interaction between temperature and maternal egg investment) and simplified (main effects only) Bayesian multivariate models for performance and antipredatory behaviour in both *Lampropholis delicata* and *L. guichenoti*, without adding body size (SVL) as covariate. Numbers in bold represent significant results. Numbers in light grey represent those main effects that we did not interpret due to the existence of a significant 2-way interaction.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***L. delicata*** | |  |  |  |  |  |  |  |
| *Full models with interactions* | | |  |  |  |  |  |  |
|  | **Estimate** | | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (time to active) | 2548.12 | | 250.78 | 2059.8 | 3044.62 | 1 | 4821 | 6639 |
| Intercept (time hiding) | 1662.29 | | 220.95 | 1230.2 | 2099.71 | 1 | 6766 | 8348 |
| Intercept (distance travelled) | 720.45 | | 57.91 | 604.98 | 835.4 | 1 | 8404 | 8962 |
| Intercept (running velocity, 1m) | 1.63 | | 0.09 | 1.45 | 1.82 | 1 | 6487 | 7855 |
| Intercept (running velocity, 25 cm) | -0.27 | | 0.1 | -0.47 | -0.08 | 1 | 6965 | 8510 |
| Time to active\_Temperature (hot) | 1099.85 | | 353.01 | 413.41 | 1795.53 | 1 | 5408 | 7810 |
| Time to active\_Maternal (control) | 668.71 | | 333.41 | 6.98 | 1320.4 | 1 | 5534 | 7581 |
| Time to active\_Temperature (hot) \* Maternal (control) | -858.32 | | 490.46 | -1817.26 | 106.31 | 1 | 5203 | 7233 |
| Time hiding\_Temperature (hot) | 848.78 | | 324 | 208.84 | 1478.82 | 1 | 6525 | 8230 |
| Time hiding\_Maternal (control) | 470.27 | | 304.27 | -132.87 | 1066.52 | 1 | 6850 | 8440 |
| Time hiding\_Temperature (hot) \* Maternal (control) | -705.53 | | 453.33 | -1579.58 | 197.7 | 1 | 5815 | 8477 |
| Distance moved\_Temperature (hot) | -49.92 | | 75.89 | -201.79 | 98.05 | 1 | 6972 | 8196 |
| Distance moved\_Maternal (control) | -67.55 | | 77.85 | -221.53 | 86.27 | 1 | 7752 | 7673 |
| Distance moved\_Temperature (hot) \* Maternal (control) | 33.41 | | 109.8 | -176.81 | 257.84 | 1 | 4993 | 6839 |
| Running velocity (1m)\_Temperature (hot) | -0.14 | | 0.13 | -0.4 | 0.11 | 1 | 5652 | 7983 |
| Running velocity (1m)\_Maternal (control) | -0.43 | | 0.13 | -0.69 | -0.18 | 1 | 5799 | 7883 |
| Running velocity (1m)\_Temperature (hot) \* Maternal (control) | 0.34 | | 0.18 | -0.03 | 0.7 | 1 | 5052 | 7438 |
| Running velocity (25cm)\_Temperature (hot) | -0.05 | | 0.14 | -0.32 | 0.22 | 1 | 6036 | 8274 |
| Running velocity (25cm)\_Maternal (control) | -0.2 | | 0.14 | -0.47 | 0.07 | 1 | 5853 | 7853 |
| Running velocity (25cm)\_Temperature (hot) \* Maternal (control) | 0.21 | | 0.19 | -0.16 | 0.59 | 1 | 5215 | 7722 |
|  |  | |  |  |  |  |  |  |
| *Reduced main effect models* | | |  |  |  |  |  |  |
| Intercept (time to active) | | 2747.66 | 224.57 | 2314.46 | 3198.62 | 1 | 6108 | 7524 |
| Intercept (time hiding) | | 1822.15 | 198.93 | 1439.92 | 2218.02 | 1 | 8761 | 8110 |
| Intercept (distance travelled) | | 710.86 | 51.38 | 610.54 | 812.47 | 1 | 9344 | 8751 |
| Intercept (running velocity, 1m) | | 1.55 | 0.08 | 1.39 | 1.71 | 1 | 7617 | 8565 |
| Intercept (running velocity, 25 cm) | | -0.33 | 0.08 | -0.5 | -0.16 | 1 | 8771 | 9201 |
| **Time to active\_Temperature (hot)** | | **656.5** | **250.09** | **173.99** | **1150.97** | **1** | **6892** | **8189** |
| Time to active\_Maternal (control) | | 299.65 | 254.03 | -202.3 | 795.37 | 1 | 6844 | 8557 |
| **Time hiding\_Temperature (hot)** | | **486.62** | **229.06** | **39.17** | **940.23** | **1** | **9114** | **8533** |
| Time hiding\_Maternal (control) | | 162.52 | 230.74 | -288.33 | 610.5 | 1 | 8309 | 8315 |
| Distance moved\_Temperature (hot) | | -31.75 | 53.39 | -134.23 | 74.24 | 1 | 10160 | 8932 |
| Distance moved\_Maternal (control) | | -51.19 | 56.58 | -160.84 | 61.19 | 1 | 8441 | 8214 |
| Running velocity (1m)\_Temperature (hot) | | 0.03 | 0.09 | -0.15 | 0.21 | 1 | 7842 | 8931 |
| **Running velocity (1m)\_Maternal (control)** | | **-0.26** | **0.09** | **-0.44** | **-0.08** | **1** | **7193** | **8995** |
| Running velocity (25cm)\_Temperature (hot) | | 0.06 | 0.1 | -0.13 | 0.25 | 1 | 8823 | 9656 |
| Running velocity (25cm)\_Maternal (control) | | -0.1 | 0.1 | -0.29 | 0.1 | 1 | 8528 | 8714 |
|  | |  |  |  |  |  |  |  |
| ***L. guichenoti*** | |  |  |  |  |  |  |  |
| *Full models with interactions* | | |  |  |  |  |  |  |
|  | | **Estimate** | **SE** | **l-95% CI** | **U-95% CI** | **Rhat** | **Bulk\_ESS** | **Tail\_ESS** |
| Intercept (time to active) | | 7.15 | 0.17 | 6.83 | 7.48 | 1 | 8142 | 8849 |
| Intercept (time hiding) | | 6.06 | 0.24 | 5.59 | 6.54 | 1 | 8975 | 9497 |
| Intercept (distance travelled) | | 873.17 | 81.99 | 711.66 | 1034.09 | 1 | 8995 | 9453 |
| Intercept (running velocity, 1m) | | 1.56 | 0.1 | 1.36 | 1.75 | 1 | 6370 | 7286 |
| Intercept (running velocity, 25 cm) | | -0.33 | 0.1 | -0.53 | -0.12 | 1 | 6422 | 7994 |
| Time to active\_Temperature (hot) | | 0.02 | 0.23 | -0.43 | 0.48 | 1 | 7004 | 8574 |
| Time to active\_Maternal (control) | | 0.04 | 0.23 | -0.41 | 0.5 | 1 | 7284 | 8657 |
| Time to active\_Temperature (hot) \* Maternal (control) | | 0 | 0.33 | -0.66 | 0.65 | 1 | 5842 | 7829 |
| Time hiding\_Temperature (hot) | | 0.14 | 0.34 | -0.53 | 0.79 | 1 | 7585 | 8847 |
| Time hiding\_Maternal (control) | | 0.01 | 0.33 | -0.65 | 0.66 | 1 | 8099 | 9297 |
| Time hiding\_Temperature (hot) \* Maternal (control) | | 0.02 | 0.47 | -0.92 | 0.96 | 1 | 6989 | 8910 |
| Distance moved\_Temperature (hot) | | -74.43 | 115.09 | -302.23 | 146.56 | 1 | 7579 | 8814 |
| Distance moved\_Maternal (control) | | -89.85 | 113.3 | -316.04 | 130.8 | 1 | 8830 | 9259 |
| Distance moved\_Temperature (hot) \* Maternal (control) | | 132.66 | 162.14 | -186.75 | 456.04 | 1 | 7256 | 9051 |
| Running velocity (1m)\_Temperature (hot) | | -0.02 | 0.14 | -0.29 | 0.25 | 1 | 5180 | 7526 |
| Running velocity (1m)\_Maternal (control) | | 0.07 | 0.14 | -0.2 | 0.34 | 1 | 5686 | 7372 |
| Running velocity (1m)\_Temperature (hot) \* Maternal (control) | | -0.19 | 0.19 | -0.56 | 0.2 | 1 | 4734 | 6751 |
| Running velocity (25cm)\_Temperature (hot) | | 0.1 | 0.14 | -0.17 | 0.37 | 1 | 5276 | 7483 |
| Running velocity (25cm)\_Maternal (control) | | 0.2 | 0.14 | -0.08 | 0.47 | 1 | 5567 | 7982 |
| **Running velocity (25cm)\_Temperature (hot) \* Maternal (control)** | | **-0.47** | **0.2** | **-0.86** | **-0.08** | **1** | **4742** | **7295** |
|  | |  |  |  |  |  |  |  |
| *Reduced main effect models* | | |  |  |  |  |  |  |
| Intercept (time to active) | | 7.15 | 0.14 | 6.87 | 7.43 | 1 | 10466 | 9707 |
| Intercept (time hiding) | | 6.05 | 0.21 | 5.65 | 6.46 | 1 | 11005 | 9236 |
| Intercept (distance travelled) | | 839.07 | 70.26 | 697.78 | 977.75 | 1 | 11223 | 9543 |
| Intercept (running velocity, 1m) | | 1.6 | 0.08 | 1.44 | 1.77 | 1 | 8034 | 8306 |
| Intercept (running velocity, 25 cm) | | -0.2 | 0.09 | -0.38 | -0.03 | 1 | 8004 | 8961 |
| Time to active\_Temperature (hot) | | 0.02 | 0.16 | -0.31 | 0.34 | 1 | 9526 | 9517 |
| Time to active\_Maternal (control) | | 0.04 | 0.16 | -0.29 | 0.36 | 1 | 10371 | 9501 |
| Time hiding\_Temperature (hot) | | 0.15 | 0.24 | -0.32 | 0.61 | 1 | 11430 | 9806 |
| Time hiding\_Maternal (control) | | 0.02 | 0.23 | -0.44 | 0.48 | 1 | 11369 | 10106 |
| Distance moved\_Temperature (hot) | | -6.63 | 81.7 | -166.91 | 153.93 | 1 | 11911 | 9747 |
| Distance moved\_Maternal (control) | | -24.58 | 80.41 | -182.87 | 135.79 | 1 | 10167 | 9772 |
| Running velocity (1m)\_Temperature (hot) | | -0.11 | 0.1 | -0.3 | 0.08 | 1 | 8216 | 8529 |
| Running velocity (1m)\_Maternal (control) | | -0.02 | 0.1 | -0.21 | 0.17 | 1 | 7301 | 7662 |
| Running velocity (25cm)\_Temperature (hot) | | -0.13 | 0.1 | -0.33 | 0.07 | 1 | 8254 | 8816 |
| Running velocity (25cm)\_Maternal (control) | | -0.03 | 0.1 | -0.23 | 0.17 | 1 | 7191 | 8138 |