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.** Within-individual correlations between morphological traits estimated from Bayesian multivariate models for morphology in *Lampropholis delicata and L. guichenoti*.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***L. delicata*** |  |  |  |  |  |  |  |
| *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*** |  |  |  |  |  |  |  |
| *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**. Posterior means and 95% credible intervals for the interaction between temperature (Temp) and maternal investment (Invest) along with the main effects of temperature and maternal investment on behavioural and performance traits for *Lampropholis delicata* and *Lampropholis guichenoti*. Main effects are pooled posterior means over each level of second predictor variable. Estimates are from a Bayesian multivariate (multi-response) model controlling for SVL (Z-transformed).

| **Species** | **Trait** | **Term** | **Estimate** | **Q2.5** | **Q97.5** | **pMCMC** |
| --- | --- | --- | --- | --- | --- | --- |
| *L. delicata* | Emergence Time (s) | **Interaction [(C23 - A23) - (C28 - A28)]** | **-1,003.752** | **-1,988.452** | **-33.590** | **0.044** |
|  |  | Temp (23-28) | -468.643 | -1,589.133 | 597.340 | 0.543 |
|  |  | Invest (C-A) | 122.220 | -1,014.488 | 1,158.751 | 0.873 |
|  | Time Snout Out (s) | *Interaction [(C23 - A23) - (C28 - A28)]* | *-896.713* | *-1,803.445* | *24.917* | *0.057* |
|  |  | Temp (23-28) | -423.236 | -1,444.311 | 558.994 | 0.544 |
|  |  | Invest (C-A) | 62.101 | -961.269 | 1,022.564 | 0.922 |
|  | Distance Moved (cm) | Interaction [(C23 - A23) - (C28 - A28)] | 54.939 | -174.283 | 295.328 | 0.642 |
|  |  | Temp (23-28) | 56.787 | -120.822 | 231.572 | 0.522 |
|  |  | Invest (C-A) | -35.953 | -206.360 | 140.925 | 0.668 |
|  | log 1m Speed (cm/s) | Interaction [(C23 - A23) - (C28 - A28)] | 0.312 | -0.071 | 0.692 | 0.109 |
|  |  | Temp (23-28) | -0.054 | -0.439 | 0.334 | 0.826 |
|  |  | Invest (C-A) | -0.267 | -0.646 | 0.109 | 0.198 |
|  | log Burst Speed (cm/s) | Interaction [(C23 - A23) - (C28 - A28)] | 0.184 | -0.206 | 0.577 | 0.352 |
|  |  | Temp (23-28) | -0.129 | -0.454 | 0.210 | 0.457 |
|  |  | Invest (C-A) | -0.098 | -0.423 | 0.223 | 0.566 |
| *L. guichenoti* | Emergence Time (s) | Interaction [(C23 - A23) - (C28 - A28)] | -105.815 | -1,301.414 | 1,101.039 | 0.863 |
|  |  | Temp (23-28) | 43.518 | -893.814 | 998.022 | 0.935 |
|  |  | Invest (C-A) | 108.002 | -750.916 | 976.971 | 0.809 |
|  | Time Snout Out (s) | Interaction [(C23 - A23) - (C28 - A28)] | 298.455 | -574.277 | 1,159.178 | 0.499 |
|  |  | Temp (23-28) | -65.151 | -808.196 | 660.997 | 0.867 |
|  |  | Invest (C-A) | 49.173 | -628.295 | 718.879 | 0.884 |
|  | Distance Moved (cm) | Interaction [(C23 - A23) - (C28 - A28)] | 130.568 | -198.951 | 467.296 | 0.440 |
|  |  | Temp (23-28) | 8.658 | -287.891 | 299.148 | 0.943 |
|  |  | Invest (C-A) | -53.818 | -323.685 | 212.532 | 0.697 |
|  | log 1m Speed (cm/s) | Interaction [(C23 - A23) - (C28 - A28)] | -0.135 | -0.528 | 0.265 | 0.493 |
|  |  | Temp (23-28) | 0.024 | -0.307 | 0.358 | 0.887 |
|  |  | Invest (C-A) | -0.008 | -0.318 | 0.301 | 0.962 |
|  | log Burst Speed (cm/s) | **Interaction [(C23 - A23) - (C28 - A28)]** | **-0.413** | **-0.810** | **-0.006** | **0.046** |
|  |  | Temp (23-28) | -0.015 | -0.483 | 0.452 | 0.956 |
|  |  | Invest (C-A) | 0.008 | -0.432 | 0.455 | 0.991 |

**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 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.**Posterior means and 95% credible intervals for the between and within-individual correlations among behavioural traits in *Lampropholis delicata* and *Lampropholis guichenoti*. Estimates are from a Bayesian multivariate (multi-response) model. Bold estimates indicate ones where the 95% credible interval does not overlap zero.

| **Species - level** | **Correlation** | **Estimate** | **2.5 % CI** | **97.5 % CI** |
| --- | --- | --- | --- | --- |
| *L. delicata* - Between Individual | cor(Emergence Time (s), Time Snout Out (s)) | 0.29159827 | -0.60960494 | 0.868097048 |
|  | cor(Emergence Time (s), Distance Moved (cm)) | -0.13655106 | -0.72829302 | 0.620152880 |
|  | cor(Time Snout Out (s), Distance Moved (cm)) | -0.13688198 | -0.70275908 | 0.579493448 |
|  | cor(Emergence Time (s), 1m Speed (cm/s)) | 0.27195884 | -0.38825792 | 0.776064363 |
|  | cor(Time Snout Out (s), 1m Speed (cm/s)) | 0.15041240 | -0.46974706 | 0.688090745 |
|  | cor(Distance Moved (cm), 1m Speed (cm/s)) | 0.24238409 | -0.13979502 | 0.628382729 |
|  | cor(Emergence Time (s), Burst Speed (cm/s)) | 0.22520672 | -0.46104064 | 0.762376365 |
|  | cor(Time Snout Out (s), Burst Speed (cm/s)) | 0.19915158 | -0.42866231 | 0.739702151 |
|  | cor(Distance Moved (cm), Burst Speed (cm/s)) | 0.26857069 | -0.12762202 | 0.664960881 |
|  | cor(1m Speed (cm/s), Burst Speed (cm/s)) | **0.82102166** | **0.62546459** | **0.952074963** |
| *L. delicata* - Within Individual | cor(Emergence Time (s), Time Snout Out (s)) | **0.81659503** | **0.73344677** | **0.880468668** |
|  | cor(Emergence Time (s), Distance Moved (cm)) | -0.15311562 | -0.33138147 | 0.034234536 |
|  | cor(Time Snout Out (s), Distance Moved (cm)) | -0.07303817 | -0.24215358 | 0.098905974 |
|  | cor(Emergence Time (s), 1m Speed (cm/s)) | 0.07619062 | -0.11077008 | 0.260270547 |
|  | cor(Time Snout Out (s), 1m Speed (cm/s)) | 0.01950419 | -0.15776967 | 0.196633984 |
|  | cor(Distance Moved (cm), 1m Speed (cm/s)) | 0.01958401 | -0.13491722 | 0.169922742 |
|  | cor(Emergence Time (s), Burst Speed (cm/s)) | 0.02807736 | -0.18700479 | 0.239544933 |
|  | cor(Time Snout Out (s), Burst Speed (cm/s)) | -0.04548645 | -0.24981026 | 0.159714536 |
|  | cor(Distance Moved (cm), Burst Speed (cm/s)) | 0.01922480 | -0.12981225 | 0.169160469 |
|  | cor(1m Speed (cm/s), Burst Speed (cm/s)) | **0.42413076** | **0.29703469** | **0.542793049** |
| *L. guichenoti* - Between Individual | cor(Emergence Time (s), Time Snout Out (s)) | **0.90369565** | **0.77529782** | **0.978227159** |
|  | cor(Emergence Time (s), Distance Moved (cm)) | -0.45171409 | -0.69358613 | -0.177708817 |
|  | cor(Time Snout Out (s), Distance Moved (cm)) | -0.29881986 | -0.57921282 | -0.002829739 |
|  | cor(Emergence Time (s), 1m Speed (cm/s)) | 0.24722197 | -0.03334559 | 0.511867690 |
|  | cor(Time Snout Out (s), 1m Speed (cm/s)) | 0.19628177 | -0.08423812 | 0.469426798 |
|  | cor(Distance Moved (cm), 1m Speed (cm/s)) | -0.03441905 | -0.33088469 | 0.271057143 |
|  | cor(Emergence Time (s), Burst Speed (cm/s)) | **0.31610099** | **0.03933083** | **0.571799305** |
|  | cor(Time Snout Out (s), Burst Speed (cm/s)) | 0.25109151 | -0.02586077 | 0.510175923 |
|  | cor(Distance Moved (cm), Burst Speed (cm/s)) | -0.15763758 | -0.43004251 | 0.126905402 |
|  | cor(1m Speed (cm/s), Burst Speed (cm/s)) | **0.95286559** | **0.89131640** | **0.989537957** |
| *L. guichenoti* - Within Individual | cor(Emergence Time (s), Time Snout Out (s)) | **0.68721300** | **0.58149348** | **0.771981041** |
|  | cor(Emergence Time (s), Distance Moved (cm)) | -0.03812672 | -0.20063612 | 0.121080431 |
|  | cor(Time Snout Out (s), Distance Moved (cm)) | 0.06659344 | -0.08967582 | 0.221268294 |
|  | cor(Emergence Time (s), 1m Speed (cm/s)) | -0.01538997 | -0.16973859 | 0.140063113 |
|  | cor(Time Snout Out (s), 1m Speed (cm/s)) | -0.04596171 | -0.19493574 | 0.108994499 |
|  | cor(Distance Moved (cm), 1m Speed (cm/s)) | -0.03168564 | -0.17659253 | 0.116113479 |
|  | cor(Emergence Time (s), Burst Speed (cm/s)) | -0.04886429 | -0.21126303 | 0.117981964 |
|  | cor(Time Snout Out (s), Burst Speed (cm/s)) | -0.02058361 | -0.17741319 | 0.138176209 |
|  | cor(Distance Moved (cm), Burst Speed (cm/s)) | 0.04028649 | -0.10947845 | 0.189531771 |
|  | cor(1m Speed (cm/s), Burst Speed (cm/s)) | **0.50825642** | **0.39813324** | **0.609206642** |