Results

Kristoffer Wild

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*(a)Incubation temperature and resource allocation consequences on thermal preference and critical thermal maximum*

Hatchling *Lampropholis delicata* mean thermal preference (T) was 31C and ranged from 20.99–34.26C. Mean critical thermal maximum (CT) was 43.04C and ranged from 38.6–45.2C. We did not detect any effect of incubation temperature, yolk treatment, sex, or body mass on T or CT (Figure 1A|B; Table 1). The WAIC model comparisons further support these findings, where our null model ranked as the most parsimonious over other model combinations for both T or CT (Table S1)

*(b) Meta-analysis of early thermal effects on thermal physiology in reptiles*

Accounting for n = 69 measured effects measured across 13 reptile species, developmental temperatures did not influence thermal traits (T or CT) in reptiles overall (HPD: Fig. 2A). When investigating moderators, we found that thermal traits were not influenced across life stage or latitude (Fig. 2B|C). When analysing each reptilian taxonomic group separately, there was no variation in thermal traits for lizards, tortoise, tuataras, and turtles. However, there were a significant increase in thermal traits in snakes (Fig 2D). Heterogeneity in the data was high ( = 97.96%), with species effects ( = 86.74%) driving the majority of heterogeneity. Upon investigating species specific responses only *Chelydra serpentina* and *Nerodia sipedon* were the only species with significant thermal trait responses to incubation temperatures (Fig. S2). Under higher developmental temperatures, thermal traits in *C. serpentina* decline by 7% while thermal traits in *N. sipedon* increase by 20%. We found no evidence for publication bias (Fig S3; *for details see electronic supplementary materials*).

# Tables & Figures

Table 1. Model outputs coefficients for testing wither sex, body mass, incubation temperature, resource, or the interaction between resource and temperature had an effect on T or CT in hatchling *Lampropholis delicata*. Est. value describes the estimated coefficient value and 95% CI describes the lower and upper bound of the 95% credible interval for each coefficient value. Intercept is the estimated mean of each thermal trait from the null model.

| Thermal Index | Covariate | Estimate | l-95% CI | u-95% CI |
| --- | --- | --- | --- | --- |
| *Tpref* | **Intercept** | **31.04** | **30.12** | **31.98** |
| Sex | -0.32 | -2.28 | 1.62 |
| Body Mass | 0.44 | -0.91 | 1.84 |
| Incubation Temperature | -0.37 | -2.33 | 1.67 |
| Resource | 0.23 | -1.81 | 2.13 |
| Incubation Temperature\*Resource | -0.23 | -4.27 | 3.85 |
| *CTmax* | **Intercept** | **43.03** | **42.55** | **43.51** |
| Sex | 0.54 | -0.40 | 1.51 |
| Body Mass | -0.41 | -1.07 | 0.25 |
| Incubation Temperature | -0.18 | -1.13 | 0.77 |
| Resource | -0.25 | -1.16 | 0.71 |
| Incubation Temperature\*Resource | -0.51 | -2.43 | 1.38 |

![](data:application/pdf;base64,) Figure 1. Thermal indices across different incubation temperatures and resource treatments for hatchling *Lampropholis delicata* (n=10 per temperature and treatment). (A) Thermal preference (T) in lizards incubated at 23 & 28°C for each resource treatment (yolk ablation & control). (B) Critical thermal maximum (CT) in lizards incubated at 23 & 28°C for each resource treatment. Bars above plots indicate pairwise comparisons of thermal indices between treatment temperature and the interaction between treatment temperature and resource treatment.

![](data:application/pdf;base64,) Figure 2. Magnitude of the effect on developmental temperature on thermal indices (T & CT) in reptiles (A) with respect to age class (B), latitude (C), and taxon (D). Mean meta-analytic estimates (circles) with their 95% confidence intervals (thicker error bars) and prediction intervals (thinner error bars). Individual data points (colored circles) from each study from meta-analysis are scaled by precision (inverse of standard error) and k is the number of effect sizes with number of species in brackets. ARR is acclimation response ratio. Graphs were constructed using the orchaRd package (Nakagawa et al., 2021; version 2.0).

# Supplementary Tables

Table S1. S1. Loo criterion of BRMS model fit for each thermal metric (T or CT) when accounting m (mass), r (resource), t (temperature), and rxt interaction in hatchling *Lampropholis delicata*. The expected log-wise predictive density is elpd\_diff and se\_diff is the standard error associated with the elpd.

| Thermal Index | Model Expression | elpd\_diff | se\_diff |
| --- | --- | --- | --- |
| *Tpref* | Tpref~1 | 0.00 | 0.00 |
| Tpref~s | -1.09 | 0.49 |
| Tpref~m | -1.70 | 0.62 |
| Tpref~t | -2.88 | 0.72 |
| Tpref~r | -3.18 | 0.82 |
| Tpref~r\*t | -5.30 | 0.64 |
| *CTmax* | CTmax~1 | 0.00 | 0.00 |
| CTmax~s | -0.43 | 1.21 |
| CTmax~m | -0.51 | 1.67 |
| CTmax~t | -1.35 | 1.79 |
| CTmax~r | -1.53 | 1.55 |
| CTmax~r\*t | -3.49 | 1.59 |

![](data:application/pdf;base64,) Figure S1.XXXXXXXXXXXXXXXXXX

![](data:application/pdf;base64,) Figure S2. Magnitude of the effect on developmental temperature on thermal indices (T & CT) in species. ARR is acclimation response ratio. Mean meta-analytic estimates (circles) with their 95% confidence intervals (thicker error bars) and prediction intervals (thinner error bars). Individual data points (colored circles) from each study from meta-analysis are scaled by precision (inverse of standard error) and k is the number of effect sizes with number of species in brackets. Graphs were constructed using the orchaRd package (Nakagawa et al., 2021; version 2.0).

![](data:application/pdf;base64,) Figure S3. Funnel plot of the meta-analytic residuals against precision (1/SE). Each point represents a pair-wise temperature comparison. There is no visually detectable asymmetry.