Dear Professor Johar and Editorial Team,

We would like to thank you and the reviewers for providing extremely constructive feedback on our manuscript entitled: “**Developmental environments do not affect thermal physiological traits in reptiles: An experimental test and meta-analysis”.** We are glad the Editor and Reviewers found the paper to be well written suitable for publication in *Biology Letters*.

We have now carefully considered all the final comments, and revised our main manuscript to deal with the additional Reviewer and editor comments. Below we provide a line-by-line response (in ‘blue’) to each of the comments raised by the Editor, two reviewers (in ‘black’), and Editorial office comments. Where relevant, we have pasted the section of our manuscript we have edited to provide clarity to what we have done to address comments. We believe that our revised manuscript is significantly improved and are thrilled that our manuscript has been accepted in *Biology Letters.*

Finally, all figures used in the manuscript are our own and not obtained elsewhere.

Sincerely,

Daniel Noble (on behalf of all authors)

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**Editor**

The authors addressed the reviewers' comments appropriately and revised the Ms accordingly. The newly assigned reviewer 2 has concerns about sample sizes, both in the experiment and in the meta-analysis. This criticism has been voiced before and also addressed to a certain point. I would ask the authors to look again at whether they can adapt the Ms even more to respond to these criticisms. In any case, the board member and I agree that the title of the paper is too strong: (1) "do not affect thermal physiology" is a bit too broad, as only some thermal properties are considered, and (2) "in reptiles" is a bit too broad, as the meta-analysis includes 1-14 species per treatment. We therefore agree that the title should be changed to a more nuanced and honest representation of the data.

**Response**:

Thank you for the comments. We agree. Regarding point (1), we have now changed “thermal physiology” to “thermal physiological traits” in our title. We also subsequently revised our abstract to clarify the exact traits that we measure.

With respect to point (2), while we agree, it’s unclear exactly what we should change this to without making the title verbose. Our study does in fact cover nearly all major reptile clades (snakes, lizards, turtles, tuatara), and we feel that it is appropriate to say “reptiles. Having said that, we agree clarification is needed. As such, we have now revised the abstract to clarify what we mean when we say “reptiles”. We have also added in important limitations to the abstract, as suggested here and by R3. Our revised abstract now reads as follows with bold text the changes made:

“*On a global scale, organisms face significant challenges due to climate change and anthropogenic disturbance. In many ectotherms, developmental and physiological processes are sensitive to changes in temperature and resources. Developmental plasticity in thermal physiology may provide adaptive advantages to environmental extremes if early environmental conditions are predictive of late-life environments. Here, we conducted a laboratory experiment to test how developmental temperature and maternal resource investment influence* ***thermal physiological traits*** *(critical thermal maximum: CTmax & thermal preference: Tpref) in a common skink (Lampropholis delicata). We then compared our experimental findings more broadly across* ***reptiles (snakes, lizards, turtles)*** *using meta-analysis. In both our experimental study and meta-analysis, we did not find evidence that developmental environments* ***influence CTmax or Tpref*** *. Furthermore, the effects of developmental environments on thermal physiology did not vary by age, taxon, or climate zone (temperate/tropical).* ***Overall, the magnitude of developmental plasticity on thermal physiology appears to be limited across reptile taxa suggesting that behavioural or evolutionary processes may be more important. However, there is a paucity of information across most reptile taxa, and a broader focus on thermal performance curves themselves will be critical in understanding the impacts of changing thermal conditions on reptiles in the future***.”

**Reviewers' Comments to Author**:

**Referee: 2**

Comments to the Author(s)  
The authors have done a fantastic job addressing my comments, and those of Reviewer 1, and I have no additional comments on the revised MS. Well done!

**Response**: Thanks! We’re we appreciate Reviewer 2 for their valuable suggestions that greatly improved the overall quality of the manuscript.

**Referee: 3**

 think the implied strength of the evidence from the title and abstract are a little too conclusive. While the study may suggest an underlying pattern, the small sample sizes and the thermal parameters measured make me question whether this is a biological or statistical phenomenon. While there was no evidence of developmental plasticity in the experimental study, it is possible this is the result of the small number of individuals in each group (n=10) and a relatively small effect rather than a lack of developmental plasticity. Similarly, the low number of papers that met the authors’ criteria for inclusion spread across a number of taxa suggest a pattern, but in my opinion reveal a lack of evidence across the board to make any strong conclusions. The authors note this point in the discussion (lns 202-206), but the title and abstract imply the authors have strong evidence that thermal physiology is not developmentally plastic. This issue is exacerbated by the use of only two parameters that for different reasons we may not predict to be especially labile. CTmax is known to be highly conserved across squamate reptiles (e.g., Muñoz, 2022; Evolution), and Tpref is highly confounded by behavioral modulation. While these metrics are clearly ecologically important, they may not necessarily be indicative of thermal physiology as a whole. Revising the title and abstract to acknowledge the limitations of the conclusions more clearly may help alleviate this issue, but ultimately, I think power may be an overarching problem here.

**Response**: Great points. We have revised both the title and abstract to be more specific that we are measuring thermal physiological traits, what those traits are, and to acknowledge the limitations of our results.

Specifically, we have changed the title to indicate thermal traits were being tested “**Developmental environments do not affect thermal physiological traits in reptiles: An experimental test and meta-analysis”** and provided in the abstract what specific thermal traits (CT max and Tpref) were being tested. (see above)

In the abstract, we have provided a sentence that highlights the limitation of information on other physiological traits and the small sample of reptile species (see above for full context).

“*However, there is a paucity of information across most reptile taxa, and a broader focus on thermal performance curves themselves will be critical in understanding the impacts of changing thermal conditions on reptiles in the future*.”

Minor comments

1. Ln 183: Should it be “correlate” instead of “corroborate”?

**Response**: We feel the word “corroborate” is the most appropriate and so have kept this word here. Correlate would indicate that a formal statistical analysis had been conducted to test this relationship and we are rather implying that future work should be done to test for this relationship.

2. Ln 186: The sentence discussing nest site selection could use some citations.

**Response**: In the following sentence, we have provided three references [45-48] to show how nest depth, location, clutch density, and maternal conditions could select for developmental plasticity.

Editorial office comments to authors:

Please ensure that you include;

\*Due to its lack of permanence, we do ask that datasets of soon to be accepted articles are uploaded to other repositories other than GitHub, such as Dryad or figshare. Please upload your data into another repository and amend your data section accordingly to reflect this.

**Response**: Thanks. We followed the Data Accessibility description described on your website and have loaded all of our data and code to Zenodo (<https://doi.org/10.5281/zenodo.7700383>).

\*Please also confirm in your cover letter whether all the figures are your own or whether permission has been obtained for their use

**Response**: This has been provided in the cover letter.

\*Please do ensure that your supplementary files themselves include the title and authors of your main manuscript, and that you also provide an appropriate title and description for each of these on ScholarOne

**Response**: This has been done in the supplementary document.

\*Please confirm whether your manuscript should be available via open access, as we note that this may be a requirement of your funder. Please also check if your institution has a Read & Publish deal by visiting our website here: https://royalsociety.org/journals/authors/read-and-publish/read-publish-agreements/

**Response**: Thanks. We will not be paying open access fees