

Dear Managing Board of PCIEcology,

We are grateful for the feedback received from Editor Dieter Lukas on our revised article entitled **Identifying drivers of spatio-temporal variation in survival in four blue tit populations**. We have revised our manuscript by carefully considering all the comments received, and you will find below a detailed record (in blue) of all the changes made accordingly. We also submit a Trach Change version of the ms on your website.

We hereby resubmit our revised version of our study, and look forward to your final decision regarding a recommendation.

Please note that all data files and models used in this manuscript are shared online in the bioRxiv submission. We have also added a Conflict of Interest Disclosure section in the manuscript.

All authors know and agree of this submission to PCI Ecology.

On behalf of all authors of this manuscript,

Best regards,

Dr Anne Charmantier



#### Round #2// Authors' responses

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by Dieter Lukas, 2021-05-18 10:12

Manuscript: <https://doi.org/10.1101/2021.01.28.428563> version

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#### Minor edits for clarity

Dear authors,

Thank you for addressing all the comments of the reviewers and me in such detail. The manuscript now contains additional details helpful to fully appreciate the inferences your study provides. I only have a few, very minor suggestions for changes that should be easy to address so I can recommend this study.

// Thank you for these appreciative comments and the minor edits, which we hope we have all addressed as detailed below.

Comparison with previous study by Grosbois and colleagues:

In the introduction, there is a bit of a jump from the pace-of-life arguments (paragraph 105-132) to the study by Grosbois (lines 133-143) back to your framing around the pace-of-life (paragraph 144-150). I think it would help to see more clearly how the study by Grosbois et al fits within the frame of your study. Did Grosbois and colleagues also look at factors related to the pace-of-life arguments

(e.g. habitat type) or is this framing one of the aspects where your study advances beyond those previous analyses, but not find any differences? If they only focused on climatic variables, I think you could move the description of this study to the earlier part of the introduction where you discuss climate (integrate lines 133-143 with/after the text in the paragraph starting in line 88).

// As reflected in the title and abstract of the Grosbois paper, these authors were focusing on exploring climate impacts on blue tit survival, and the paper does not allude at all to the difference in pace-of-life between the two habitats. We have followed the editors advice and have moved the presentation of the main results from Grosbois et al before the introduction on our study species and system. This was a bit of a struggle because it means presenting results related to our study system before it has been fully presented, hence it might not be as obvious to the reader what our study has in common or how it differs, from Grosbois et al, but we have attempted to circumvent this problem. The predictions on differences in survival based on the pace-of-life context now flow nicely after the POL paragraph, although note that this prediction paragraph was also about predicting how survival would be affected by climate.

Framing:

In the final paragraph of the introduction, you state that the main aim of this study is to determine "a difference in adult survival between habitat types". Accordingly, I think it would be helpful to already mention the relevant result in the first paragraph of the discussion. When you discuss these results (line 660ff), you could also link to the broader literature again to show how your set of findings (including your earlier studies) provide insights beyond these populations (see e.g. Galipaud, M., & Kokko, H. (2020). Adaptation and plasticity in life-history theory: How to derive predictions. *Evolution and Human Behavior*, 41(6), 493-501.)

// Thank you for spotting the fact that in the first discussion paragraph, we had omitted to highlight the results linking survival to habitat-type, in relation to the pace-of-life discussion. We have now added a sentence on this L410-412. Similarly, we are glad you suggest to emphasise this pace-of-life context and the link with recent theoretical work in the discussion. We have added a comment on this along with three references in L465-468.

Minor typos:

There are some minor typos you might want to fix for the final version. I focused on the new and revised parts of the manuscript, so you might want go through the whole manuscript for another check:

Line 103: first letter not capitalised: if large scale climatic factors

Line 114: missing word: such [as] pair fidelity

Line 117: missing reference: Nord & Nilsson 2016 *Bio Let.*

Table 4: final R2 value still has additional values after the decimal point

Line 380: I don't think you need the reference for U-CARE here in the results because you are already provide it in the methods

Line 431: missing space: quadratic effect

Line 518: change phrase: stronger dataset instead of strongest dataset

Line 641: change word: I think you mean provisioning rather than provisional

// Thank you for these suggestions, we have changed them all according to your advise apart from the comment on R2 in table 4: table 4 does not provide R2 values and we could not spot any issue with values after decimal points.. We have also re-read the whole ms entirely which has allowed to correct a few extra typos. We hope that this revision will satisfy the Editor.