

Covariation in population trends and demography reveals targets for conservation action

Catriona A. Morrison, Simon J. Butler, Robert A. Robinson, Jacquie A. Clark, Juan Arizaga, Ainars Aunins, Oriol Baltà, Jaroslav Cepák, Tomasz Chodkiewicz, Virginia Escandell, Ruud P. B. Foppen, Richard D. Gregory, Magne Husby, Frédéric Jiguet, John Atle Kålås, Aleksi Lehtikoinen, Åke Lindström, Charlotte M. Moshøj, Károly Nagy, Arantza Leal Nebot, Markus Piha, Jirí Reif, Thomas Sattler, Jana Škorpilová, Tibor Szép, Norbert Teufelbauer, Kasper Thorup, Chris van Turnhout, Thomas Wenninger and Jennifer A. Gill

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Review timeline

Original submission: 26 November 2020
Revised submission: 19 January 2021
Final acceptance: 5 February 2021

Note: Reports are unedited and appear as submitted by the referee. The review history appears in chronological order.

Review History

RSPB-2020-2955.R0 (Original submission)

Review form: Reviewer 1

Recommendation

Accept with minor revision (please list in comments)

Scientific importance: Is the manuscript an original and important contribution to its field?

Excellent

General interest: Is the paper of sufficient general interest?

Excellent

Quality of the paper: Is the overall quality of the paper suitable?

Excellent

Is the length of the paper justified?

Yes

Should the paper be seen by a specialist statistical reviewer?

No

Do you have any concerns about statistical analyses in this paper? If so, please specify them explicitly in your report.

No

It is a condition of publication that authors make their supporting data, code and materials available - either as supplementary material or hosted in an external repository. Please rate, if applicable, the supporting data on the following criteria.

Is it accessible?

Yes

Is it clear?

Yes

Is it adequate?

Yes

Do you have any ethical concerns with this paper?

No

Comments to the Author

The authors examine large-scale patterns of population trends, productivity and survival across breeding birds in Europe and test the hypothesis that co-occurring species with different migration behaviour share similar population trends and demographic rates. The results show significant covariation in local population trends and productivity, but not survival, of migrants and residents.

The original version of the manuscript was examined by two reviewers, who all saw great potential in the paper but also had concerns, particularly in relation to the methodology and the clarity of some parts of the introduction and methods sections.

In my opinion, the authors have properly addressed all of the concerns raised by the editor and previous reviewers. I have found the revised version of the manuscript well written and clear to follow.

I only have few minor comments:

Lines 309-314: The beginning of the discussion section contains information that is already partially provided in the introduction section. I understand that this introductory paragraph may be useful to remind the reader of the background to this study but, given the page constraints, I suggest that the authors check whether this is really needed or if some space could be made, for example to explicitly acknowledge the limitations of the study or to incorporate some of the information that is currently shown in the supplementary materials.

Lines 316 and 320: 'strong' covariation: I think this is a bit overstated here. I am aware that we cannot expect very high correlation coefficients in such complex systems, however $r=0.12$ or $r=0.18$ mean that only a small proportion of the variance is shared. I wonder if a more 'neutral' wording ('significant' covariation) would be more appropriate?

Line 507: 'circles' is misspelled as 'cicles'

Supplementary information: the first paragraph ("European population trends and migratory strategy") contains a fairly important result. Could this be integrated into the main text? I understand that there are page constraints, so it may not be possible, but perhaps some space could be made by condensing the beginning of the discussion section?

Supplementary information, lines 74-76: Does this not make 1200 parameter estimates rather than 1000?

Decision letter (RSPB-2020-2955.R0)

15-Jan-2021

Dear Dr Morrison:

Your manuscript has now been peer reviewed and the reviews have been assessed by an Associate Editor. The reviewers' comments (not including confidential comments to the Editor) and the comments from the Associate Editor are included at the end of this email for your reference. As you will see, the reviewers and the Editors have raised some concerns with your manuscript and we would like to invite you to revise your manuscript to address them.

We do not allow multiple rounds of revision so we urge you to make every effort to fully address all of the comments at this stage. If deemed necessary by the Associate Editor, your manuscript will be sent back to one or more of the original reviewers for assessment. If the original reviewers are not available we may invite new reviewers. Please note that we cannot guarantee eventual acceptance of your manuscript at this stage.

To submit your revision please log into <http://mc.manuscriptcentral.com/prsb> and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions", click on "Create a Revision". Your manuscript number has been appended to denote a revision.

When submitting your revision please upload a file under "Response to Referees" - in the "File Upload" section. This should document, point by point, how you have responded to the reviewers' and Editors' comments, and the adjustments you have made to the manuscript. We require a copy of the manuscript with revisions made since the previous version marked as 'tracked changes' to be included in the 'response to referees' document.

Your main manuscript should be submitted as a text file (doc, txt, rtf or tex), not a PDF. Your figures should be submitted as separate files and not included within the main manuscript file.

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If your study uses animals please include details in the methods section of any approval and licences given to carry out the study and include full details of how animal welfare standards were ensured. Field studies should be conducted in accordance with local legislation; please include details of the appropriate permission and licences that you obtained to carry out the field work.

Data accessibility and data citation:

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In order to ensure effective and robust dissemination and appropriate credit to authors the dataset(s) used should also be fully cited and listed in the references.

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[http://datadryad.org/submit?journalID=RSPB&manu=\(Document not available\)](http://datadryad.org/submit?journalID=RSPB&manu=(Document%20not%20available)), which will take you to your unique entry in the Dryad repository.

If you have already submitted your data to dryad you can make any necessary revisions to your dataset by following the above link.

For more information please see our open data policy <http://royalsocietypublishing.org/data-sharing>.

Electronic supplementary material:

All supplementary materials accompanying an accepted article will be treated as in their final form. They will be published alongside the paper on the journal website and posted on the online figshare repository. Files on figshare will be made available approximately one week before the accompanying article so that the supplementary material can be attributed a unique DOI. Please try to submit all supplementary material as a single file.

Online supplementary material will also carry the title and description provided during submission, so please ensure these are accurate and informative. Note that the Royal Society will not edit or typeset supplementary material and it will be hosted as provided. Please ensure that the supplementary material includes the paper details (authors, title, journal name, article DOI). Your article DOI will be 10.1098/rspb.[paper ID in form xxxx.xxxx e.g. 10.1098/rspb.2016.0049].

Please submit a copy of your revised paper within three weeks. If we do not hear from you within this time your manuscript will be rejected. If you are unable to meet this deadline please let us know as soon as possible, as we may be able to grant a short extension.

Thank you for submitting your manuscript to Proceedings B; we look forward to receiving your revision. If you have any questions at all, please do not hesitate to get in touch.

Best wishes,
Dr Sasha Dall
mailto: proceedingsb@royalsociety.org

Associate Editor
Board Member: 1
Comments to Author:

I thank the authors for their extensive revisions to the manuscript. I believe this has much improved in clarity and appeal to a general! The introduction is now much easier to follow and clearly sets out the ideas in the paper. The methods and results are succinct in the main text, and the new analyses test for spatial heterogeneity and propagate the uncertainty in abundance, productivity, and survival estimates as was suggested in the last round of peer review. The new figures are really interesting and convey the main results very well. The supplement gives vital supporting analyses that convinced me of the validity of conclusions drawn in the main text. Finally, the discussion puts these results nicely into a bigger context.

The review we obtained is also very positive (unfortunately, we were unable to get reviews by the two original reviewers at this time). The new reviewer has some small final suggestions that I

agree would improve the study further, as most of these were points I was also wondering about; in particular including that one sentence about population trends and migratory strategy (currently start of supplementary information) in the main text. In addition, one tiny comment from me: Supplementary table 10 is missing the species numbers.

Reviewer(s)' Comments to Author:

Referee: 1

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Supplementary information, lines 74-76: Does this not make 1200 parameter estimates rather than 1000?

Author's Response to Decision Letter for (RSPB-2020-2955.R0)

See Appendix A.

Decision letter (RSPB-2020-2955.R1)

05-Feb-2021

Dear Dr Morrison

I am pleased to inform you that your manuscript entitled "Covariation in population trends and demography reveals targets for conservation action." has been accepted for publication in Proceedings B.

You can expect to receive a proof of your article from our Production office in due course, please check your spam filter if you do not receive it. PLEASE NOTE: you will be given the exact page length of your paper which may be different from the estimation from Editorial and you may be asked to reduce your paper if it goes over the 10 page limit.

If you are likely to be away from e-mail contact please let us know. Due to rapid publication and an extremely tight schedule, if comments are not received, we may publish the paper as it stands.

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All supplementary materials accompanying an accepted article will be treated as in their final form. They will be published alongside the paper on the journal website and posted on the online figshare repository. Files on figshare will be made available approximately one week before the accompanying article so that the supplementary material can be attributed a unique DOI.

Thank you for your fine contribution. On behalf of the Editors of the Proceedings B, we look forward to your continued contributions to the Journal.

Sincerely,

Dr Sasha Dall

Editor, Proceedings B

<mailto:proceedingsb@royalsociety.org>

Appendix A

Dear Dr Dall,

Many thanks for your supportive comments and for our manuscript ID RSPB 2019 2465. We have addressed all of the remaining comments, and below we describe our responses to each point (in bold).

Yours sincerely,
Catriona Morrison & co-authors

Associate Editor
Board Member: 1
Comments to Author:

I thank the authors for their extensive revisions to the manuscript. I believe this has much improved in clarity and appeal to a general! The introduction is now much easier to follow and clearly sets out the ideas in the paper. The methods and results are succinct in the main text, and the new analyses test for spatial heterogeneity and propagate the uncertainty in abundance, productivity, and survival estimates as was suggested in the last round of peer review. The new figures are really interesting and convey the main results very well. The supplement gives vital supporting analyses that convinced me of the validity of conclusions drawn in the main text. Finally, the discussion puts these results nicely into a bigger context.

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As suggested we have moved this section from the SOM to the main results section.

In addition, one tiny comment from me: Supplementary table 10 is missing the species numbers.

These numbers are the number of sites and have been added to Supplementary table 10.

Reviewer(s)' Comments to Author:

Referee: 1

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We have now edited this paragraph to make it shorter, giving space to add the information from the supplementary material as suggested.

Lines 316 and 320: 'strong' covariation: I think this is a bit overstated here. I am aware that we cannot expect very high correlation coefficients in such complex systems, however $r=0.12$ or $r=0.18$ mean that only a small proportion of the variance is shared. I wonder if a more 'neutral' wording ('significant' covariation) would be more appropriate?

We have removed the word 'strong' in both instances.

Line 507: 'circles' is misspelled as 'cicles'

This has been corrected.

Supplementary information: the first paragraph ("European population trends and migratory strategy") contains a fairly important result. Could this be integrated into the main text? I understand that there are page constraints, so it may not be possible, but perhaps some space could be made by condensing the beginning of the discussion section?

As suggested we have moved this section from the SOM to the main results section and condensed the start of the discussion to allow room.

Supplementary information, lines 74-76: Does this not make 1200 parameter estimates rather than 1000?

This was a mistake, we have change it to 1000.