Nest defence behavioural reaction norms: testing life-history and parental investment theory predictions

Bert Thys, Yorick Lambreghts, Rianne Pinxten and Marcel Eens

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Final acceptance: 12 March 2019

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

Note: This manuscript was transferred from another Royal Society journal with peer review.

Review History
RSOS-182180.R0 (Original submission)

Review form: Reviewer 1

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
No

Is the language acceptable?
No

Is it clear how to access all supporting data?
Yes

Do you have any ethical concerns with this paper?
No
Comments to the Author(s)
I reviewed this manuscript previously when it was submitted to Proceedings of the Royal Society B. Generally, I think the majority of the concerns raised in the initial review were adequately addressed with the revisions, with one important exception; the interpretation of the strength of support for the alternative path analysis models. Models 1-3 are effectively all equally well supported (within 3 AIC of best model), and they each provide very different interpretations of the effect of hissing behaviour on breeding parameters and nest success. I think the only conclusion that can be drawn from this is that the role of hissing behaviour in shaping these other parameters is totally unclear. Although the authors vaguely acknowledge this in the discussion, they go on to primarily interpret the results of model 3. Further, the abstract presents the results of model 1 without clarifying that there are two alternative interpretations that are equally well supported, including no relationship between hissing and any of the other parameters.

Review form: Reviewer 2

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Is it clear how to access all supporting data?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No

Recommendation?
Accept as is

Comments to the Author(s)
I am very happy with the changes - well done. I have no further concerns.
Dear Mr Thys,

The editors assigned to your paper ("Nest defence behavioural reaction norms: testing life history and parental investment theory predictions") have now received comments from reviewers. We would like you to revise your paper in accordance with the referee and Associate Editor suggestions which can be found below (not including confidential reports to the Editor). Please note this decision does not guarantee eventual acceptance.

Please submit a copy of your revised paper before 15-Mar-2019. Please note that the revision deadline will expire at 00.00am on this date. If we do not hear from you within this time then it will be assumed that the paper has been withdrawn. In exceptional circumstances, extensions may be possible if agreed with the Editorial Office in advance. 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 Editors, 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.

To revise your manuscript, log into http://mc.manuscriptcentral.com/rsos 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. Revise your manuscript and upload a new version through your Author Centre.

When submitting your revised manuscript, you must respond to the comments made by the referees and upload a file "Response to Referees" in "Section 6 - File Upload". Please use this to document how you have responded to the comments, and the adjustments you have made. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response.

In addition to addressing all of the reviewers' and editor's comments please also ensure that your revised manuscript contains the following sections as appropriate before the reference list:

- Ethics statement (if applicable)
  If your study uses humans or animals please include details of the ethical approval received, including the name of the committee that granted approval. For human studies please also detail whether informed consent was obtained. For field studies on animals please include details of all permissions, licences and/or approvals granted to carry out the fieldwork.

- Data accessibility
  It is a condition of publication that all supporting data are made available either as supplementary information or preferably in a suitable permanent repository. The data accessibility section should state where the article's supporting data can be accessed. This section should also include details, where possible of where to access other relevant research materials such as statistical tools, protocols, software etc can be accessed. If the data have been deposited in an external repository this section should list the database, accession number and link to the DOI for all data from the article that have been made publicly available. Data sets that have been deposited in an external repository and have a DOI should also be appropriately cited in the manuscript and included in the reference list.
If you wish to submit your supporting data or code to Dryad (http://datadryad.org/), or modify your current submission to dryad, please use the following link:
http://datadryad.org/submit?journalID=RSOS&manu=RSOS-182180

• Competing interests
Please declare any financial or non-financial competing interests, or state that you have no competing interests.

• Authors’ contributions
All submissions, other than those with a single author, must include an Authors’ Contributions section which individually lists the specific contribution of each author. The list of Authors should meet all of the following criteria; 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published.

All contributors who do not meet all of these criteria should be included in the acknowledgements.

We suggest the following format:
AB carried out the molecular lab work, participated in data analysis, carried out sequence alignments, participated in the design of the study and drafted the manuscript; CD carried out the statistical analyses; EF collected field data; GH conceived of the study, designed the study, coordinated the study and helped draft the manuscript. All authors gave final approval for publication.

• Acknowledgements
Please acknowledge anyone who contributed to the study but did not meet the authorship criteria.

• Funding statement
Please list the source of funding for each author.

Once again, thank you for submitting your manuscript to Royal Society Open Science and I look forward to receiving your revision. If you have any questions at all, please do not hesitate to get in touch.

Kind regards,
Andrew Dunn
Royal Society Open Science Editorial Office
Royal Society Open Science
openscience@royalsociety.org

on behalf of Dr Alexander Ophir (Associate Editor) and Kevin Padian (Subject Editor)
openscience@royalsociety.org

Associate Editor's comments (Dr Alexander Ophir):

Dear Dr. Thys,

I have received the comments from two expert reviewers and as you can find they were both pleased by the degree to which you addressed issues raised in the past. However one reviewer continues to emphasize the importance of more equitably discussing the three possible models
that received relatively equal support. The reviewer acknowledges that you have now mentioned this point, but they indicate that you have not done this sufficiently, such that you appear to favor one interpretation over others that statistically are equally good. I think you should more directly address this issue. There are several ways in which I think you could accomplish this, for example, you could walk back your interpretation and/or provide deeper discussion of the other ways to interpret the results based on the other models, or you can provide justification for why your preferred model deserves more prominence. Whatever you decide, I think that it is an important enough issue that it merits some more thought. This point notwithstanding, you have produced a nice study that clearly has generated some positive interest and I look forward to receiving your responses.

Editor comments:
It appears that the reviewers are generally satisfied with the revisions, with one exception detailed by the AE. Please address this in your next version, and thanks for submitting.

Comments to Author:

Reviewers' Comments to Author:
Reviewer: 1

Comments to the Author(s)
I reviewed this manuscript previously when it was submitted to Proceedings of the Royal Society B. Generally, I think the majority of the concerns raised in the initial review were adequately addressed with the revisions, with one important exception; the interpretation of the strength of support for the alternative path analysis models. Models 1-3 are effectively all equally well supported (within 3 AIC of best model), and they each provide very different interpretations of the effect of hissing behaviour on breeding parameters and nest success. I think the only conclusion that can be drawn from this is that the role of hissing behaviour in shaping these other parameters is totally unclear. Although the authors vaguely acknowledge this in the discussion, they go on to primarily interpret the results of model 3. Further, the abstract presents the results of model 1 without clarifying that there are two alternative interpretations that are equally well supported, including no relationship between hissing and any of the other parameters.

Reviewer: 2

Comments to the Author(s)
I am very happy with the changes - well done.
I have no further concerns.

Author's Response to Decision Letter for (RSOS-182180.R0)
See Appendix A.
RSOS-182180.R1 (Revision)

Review form: Reviewer 1

Is the manuscript scientifically sound in its present form?
Yes

Are the interpretations and conclusions justified by the results?
Yes

Is the language acceptable?
Yes

Is it clear how to access all supporting data?
Yes

Do you have any ethical concerns with this paper?
No

Have you any concerns about statistical analyses in this paper?
No

Recommendation?
Accept as is

Comments to the Author(s)
The authors are now explicit about their criteria (delta AIC >2) for considering a significant difference between models, but clarify that two models were only marginally worse that this. These revisions to the MS have addressed my earlier comment.

Decision letter (RSOS-182180.R1)

12-Mar-2019

Dear Mr Thys,

I am pleased to inform you that your manuscript entitled "Nest defence behavioural reaction norms: testing life history and parental investment theory predictions" is now accepted for publication in Royal Society Open Science.

Please provide as soon as possible in a zip file:
1) individual figure files for each figure
2) individual table files for each table
3) a caption file containing captions for the tables and figures
4) an editable version of the manuscript (Word or Latex preferred).

Once we have the above, you can expect to receive a proof of your article in the near future. Please contact the editorial office (openscience_proofs@royalsociety.org and
openscience@royalsociety.org) to let us know if you are likely to be away from e-mail contact. Due to rapid publication and an extremely tight schedule, if comments are not received, your paper may experience a delay in publication.

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On behalf of the Editors of Royal Society Open Science, we look forward to your continued contributions to the Journal.

Kind regards,
Andrew Dunn
Royal Society Open Science Editorial Office
Royal Society Open Science
openscience@royalsociety.org

on behalf of Dr Alexander Ophir (Associate Editor) and Kevin Padian (Subject Editor)
openscience@royalsociety.org

Reviewer comments to Author:
Reviewer: 1

Comments to the Author(s)
The authors are now explicit about their criteria (delta AIC >2) for considering a significant difference between models, but clarify that two models were only marginally worse that this. These revisions to the MS have addressed my earlier comment.

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Appendix A

Detailed response to the editor and referees

Reference number: RSOS-182180

Manuscript title: Nest defence behavioural reaction norms: testing life history and parental investment theory predictions

Authors: Bert Thys, Yorick Lambreghts, Rianne Pinxten, and Marcel Eens

Associate Editor’s comments (Dr Alexander Ophir):

Dear Dr. Thys,

I have received the comments from two expert reviewers and as you can find they were both pleased by the degree to which you addressed issues raised int he past. However one reviewer continues to emphasize the importance of more equitably discussing the three possible models that received relatively equal support. The reviewer acknowledges that you have now mentioned this point, but they indicate that you have not done this sufficiently, such that you appear to favor one interpretation over others that statistically are equally good. I think you should more directly address this issue. There are several way sin which I think you could accomplish this, for example, you could walk back your interpretation and/or provide deeper discussion of the other ways to interpret the results based on the other models, or you can provide justification for why your preferred model deserves more prominence. Whatever you decide, I think that it is an important enough issue that it merits some more thought. This point notwithstanding, you have produced a nice study that clearly has generated some positive interest and I look forward to receiving your responses.

Editor comments:
It appears that the reviewers are generally satisfied with the revisions, with one exception detailed by the AE. Please address this in your next version, and thanks for submitting.
Response:
We like to kindly thank the Editor and Associate Editor for the time and effort in assessing our manuscript. Moreover, we thank the Associate Editor for his suggestions on how to directly address the remaining issue raised by Reviewer 1. Below we outline how we have dealt with this outstanding comment.

Kind regards,

Bert Thys (on behalf of all authors)

Comments to Author:

Reviewers' Comments to Author:
Reviewer: 1

Comments to the Author(s)
I reviewed this manuscript previously when it was submitted to Proceedings of the Royal Society B. Generally, I think the majority of the concerns raised in the initial review were adequately addressed with the revisions, with one important exception; the interpretation of the strength of support for the alternative path analysis models. Models 1-3 are effectively all equally well supported (within 3 AIC of best model), and they each provide very different interpretations of the effect of hissing behaviour on breeding parameters and nest success. I think the only conclusion that can be drawn from this is that the role of hissing behaviour in shaping these other parameters is totally unclear. Although the authors vaguely acknowledge this in the discussion, they go on to primarily interpret the results of model 3. Further, the abstract presents the results of model 1 without clarifying that there are two alternative interpretations that are equally well supported, including no relationship between hissing and any of the other parameters.

Response:
First of all, we like to thank the reviewer for the time and effort in re-assessing our manuscript, as well as the valuable comments during the initial review which vastly improved our manuscript. We are also pleased to hear that the reviewer thinks we adequately addressed the concerns raised in the initial review, notwithstanding the exception outlined above.

Regarding the comment outlined above, we acknowledge that a solid description of the interpretation of (Δ)AIC was lacking in the previous version of the manuscript. In general (see e.g. [1-3]), models that have an AIC value within two of the model with the lowest AIC value are considered to be equally supported and can hence be considered equivalent. However, models with ΔAIC values greater than two relative to the model with the lowest AIC value suggest decreased support. Of course this does not mean that these models do not find any support, or the falsification of these models, but simply indicates that they find less (decreased) support, relative
to the model with the lowest AIC value. We now explicitly clarify this in the statistics section (L186-191). Moreover, throughout the manuscript (including the abstract, L22-23) we now explicitly mention that it is our best supported path-model (i.e. model 3) that suggests that hissing behavior most likely relates to clutch size (see also L248-250; L343-346). We believe this to be not overstating the results, given we can effectively differentiate between model 3 and models 1-2 based on ΔAIC (>2), and model 3 therefore does present to best supported (hence most likely) scenario. However, given models 1-2 are within 3 AIC of the best supported model, there is indeed some caution needed for the interpretation of our results. We do agree with the reviewer that in our previous version this was done too vaguely. Therefore, we now more explicitly mention in our discussion that the model in which hissing behaviour is independent of reproductive decisions (i.e. model 1) or only related to lay date (i.e. model 2) cannot be dismissed, and that further research is therefore necessary to validate our results (please see L312-321).

Reviewer: 2

Comments to the Author(s)
I am very happy with the changes - well done.
I have no further concerns.

Response:
We are very pleased to hear this and like to sincerely thank the reviewer again for the previous constructive comments and feedback. This vastly improved our manuscript.

References used in this response letter

[1] Burnham KP, Anderson DR. 2002 Model Selection and Multimodel Inferences: a Practical Information-Theoretic Approach. New York, NY: Springer.

[2] Burnham KP, Anderson DR, Huyvaert KP. 2011 AIC model selection and multimodel inference in behavioral ecology: some background, observations, and comparisons. Behav Ecol Sociobiol. 65:23-35.

[3] Symonds MRE, Moussalli A. 2011 A brief guide to model selection, multimodel inference and model averaging in behavioural ecology using Akaike’s information criterion. Behav Ecol Sociobiol. 65:13-21.