Estimating Animal Abundance with N-Mixture Models Using the R-INLA Package for R

T. Meehan, N. Michel, H. Rue

Letter of the editor

January 13, 2018

Abstract

Keywords: .

Dear authors,

please revise your article and resubmit it again.

You find attached two reviews, review 1 made by an external reviewer, review 2 made by me.

Take the issues raised by the reviewers carefully into account in your revision and provide a list of point to point answers.

Editor

Affiliation:

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Reviewer 1

Abstract

Keywords: .

This is well-written manuscript that accomplishes its objective of demonstrating how to fit N-mixture models with R-INLA. The benefits of R-INLA relative to other software programs is made clear: R-INLA is very fast, especially for doing Bayesian inference, and it accommodates random effects in the detection component of the model, which isn't so easy when doing likelihood-based inference. The downsides of R-INLA are also stated clearly: it can't handle survey-specific covariates and it doesn't allow nearly as much flexibility as in terms of model variations as does existing software like JAGS and **unmarked**.

1. Comments asking for author reaction

1. Another limitation that isn't directly addressed is that **R-INLA** doesn't appear to produce posterior distributions for the latent N variables. It appears as though they are integrated out of the likelihood as is done in the classical analysis. I think most practitioners will find this odd because people often adopt the Bayesian approach in order to obtain posteriors for the latent variables and random effects. Something about this should be stated in the manuscript.

1.1. Minor comments

1. page 1: J Stat Soft does not request that 'et al' should be avoided in the in-line citations. Seems strange to write out each author's name.
2. page 2 It isn't really "the ratio of detections to non-detections" that is used.

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E-mail: name@address
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Reviewer 2 (editor)

Abstract

Keywords: .

0.1. Comments

1. The package must be called R-INLA. Not doing this makes is too confusing to call it R-INLA throughout the article.
2. Make already on page 4 - before section 2 - clear that R-INLA is not on CRAN but can be installed from your site. The line

   ```
   install.packages("R-INLA", repos="https://inla.r-inla-download.org/R/stable")
   ```

   appears on page 5 before the `sim.nmix` code too late and too concealed.
3. *page 4, 2.1* Please describe the structural part of the model via a formula.
4. `sim.mix()` generates example data. Placing its code in the article gives meaning if you think that the reader has advantage of seeing the code. For this end, you must add structuring comments to the code.
5. *page 7, 3.2.* Where is `x.p.3`? I see only `x.p.3.mean` (compare to page 4 bottom).

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