

Interactive comment on “Cascading climate effects and related ecological consequences during past centuries” by B. Naef-Daenzer et al.

Anonymous Referee #1

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This study uses 100-year time series to relate the breeding phenology of great tits to environmental phenology and large scale weather. It finds that weather drives the populations of these birds in important ways and shows how the reconstructed population trends might have looked like for the last half millennium. I think this study addresses a really important question and finds interesting results. As far as I can tell, the methods are appropriate. My only concerns are that the validation appeared to have worked less well than the authors want to have it. And I found some of the methods not well enough described to judge them critically. Other than that, I only have minor comments.

Specific comments:

P 2043, line 26: change “the the” to “the”

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P2045, line 11: up to what year did you include? 2012 or 1999 or something different?

P 2047, line 25: what exactly do you mean by residual? Did you subtract the mean? Or are these residuals after accounting for more explanatory variables?

P 2048, line 15: were the results sensitive to whether or not you excluded these outliers? If so it would be good to give a bit more justification. A few observations being more than 2.6 sd from the mean doesn't seem too alarming with 77 data points.

Table 1: do the NCP reconstructions you used go back to 1500 (bar) or 1750 (text next to bar)

Table 3: I would have liked a bit more detail on the models, and their presentation here. I'm not very familiar with SEM models but I suspect many readers would be so, too. What does the 'Independence model' stand for? No relationships between variables? I assume that the arrows mean there is a relationship and no arrows means unrelated? What are the d.f. for model 10?

P 2049: retrospective model: I would appreciate a bit more detail on this model. How should we interpret the population index? Is it an index for population size? If so, you probably have to make assumptions about the other demographic rates, i.e. age-specific survival?

P 2050, line 27: “null model” sounds a bit strange here. Would “starting model” be a better term?

Fig 3. Validation does not seem to be particularly successful, to me. Perhaps I'm misunderstanding something but you are comparing predictions to residual values. Shouldn't both be close to zero on average? If so, it is not telling much that the model can predict the mean well. The interesting thing would be to see whether the model captures the pattern in the data with any reliability. And judging from the figures, it doesn't seem to do that very well. If I'm wrong in thinking so, please provide more explanation for why you judged the validation to be successful.

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Fig. 6: "Grey line": in my version of the pdf, there is a blue and a black line. Should grey be blue?

Interactive comment on Clim. Past Discuss., 8, 2041, 2012.

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