Climate
of the Past
Discussions

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Interactive
comment

Interactive comment on "Analysing the sensitivity of pollen based land-cover maps to different auxiliary variables" *by* Behnaz Pirzamanbein et al.

Anonymous Referee #2

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This is a well-constructed paper which clearly compares different methods of generating past land cover maps from partial data derived from pollen records, and merits publication somewhere. The paper uses auxiliary data from other landcover reconstructions (e.g. Dynamic Vegetation models or population-based land cover models) to inform extrapolation, which apparently improves performance but also introduces new assumptions, which are not clearly addressed. To this non-expert reader, an element of circularity seemed to be present in some of the data combinations – this is quite possibly my misunderstanding, but given the journal's audience could usefully be refined.

My principal comment is that, like the first referee, I'm not sure that Climate of the Past is the right place for this article. The content focuses on model choices and assump-

tions, and although the relevance to palaeoclimate is clearly stated, it's not well brought out and there is no clear take-home message of interest or use to a palaeoclimate scientist. As is, I don't see this paper being of much relevance/appeal to most readers of the journal, and therefore it might get lost to some extent.

The paper lacks a clear conclusion relevant to the wider community – of the different combinations tested, which is recommended for use by future researchers? What is the best strategy for multiple time periods, and is the recommendation likely to extrapolate beyond Europe or is this something that needs to be carried out in each area and for each time period? How significant are the improvements in model output from adding the auxiliary data? I can see the numbers in tables 3 and 4, but I find it hard to judge what they mean in terms of actual improvement gained, and whether that is actually worthwhile given that including the auxiliary data generally also involves adding more assumptions to the reconstruction, thereby increasing other kinds of uncertainty.

A couple of minor points: 1) I was not convinced by the testing method of comparing vegetation reconstructed for 1900CE with modern EFI data, since a great deal has happened to land cover and forestry in Europe in the last 100 or so years, yet the authors treat the comparison as if it is like for like. That may be a valid assumption, but I'd expect to see that considered overtly rather than assumed in a paper like this. 2) A table of the algebraic symbols used would be useful – at the moment, terms are not always defined at time of first introduction, or easy to retain, especially as many single symbols refer to matrices rather than individual values.