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Editor
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Dear Editor,

Please find enclosed our revised manuscript entitled "How predictable is extinction? Forecasting species survival at million-year timescales" by myself (Peter D. Smits) and Seth Finnegan. We would like to thank the editor and the three reviewers for their thoughtful comments which greatly improved our manuscript.

In this study we asked a relatively simple yet fundamental question for the emerging field of conservation paleobiology: how well do models conditioned on past observations predict future extinction events? To answer this question we analyzed the well-sampled fossil record of Cenozoic planktonic microfossil taxa. We examined how extinction probability varies over time as a function of species age, time of observation, current geographic range, change in geographic range, climate state, and change in climate state. Our models were found to have a 70-80% probability of correctly forecasting the rank order of extinction risk for a random out-of-sample species pair, implying that determinants of extinction risk have varied only modestly through time.

The relative consistency of our models out-of-sample forecasting performance is encouraging given that these estimates are based on limited biological and environmental information. The results of this simple exercise bolster the case that fossil data can meaningfully inform present and future conservation decisions. We therefore believe that our study will be of general interest to paleontologists, conservation biologists, ecologists, and evolutionary biologists. We look forward to your decision. Please send all correspondence regarding this manuscript to me via my email address (psmits@berkeley.edu) or that of my co-author, Seth

Finnegan (sethf@berkeley.edu).

Sincerely,

Peter D. Smits

encl: Article, supplementary text, response to reviewers

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