The changing functional composition of the North American species pool

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Foundational assertion of conservation paleobiology

By studying the past,
we can better predict the future.

What are we predicting?

Extinction is hard to predict,
but is extremely important to conservation.

Predicting extinction

- A taxon with a greater than average global geographic range is likely to survive for longer than a taxon with less than average global geographic range.
- A taxon's global geographic range can change over time.
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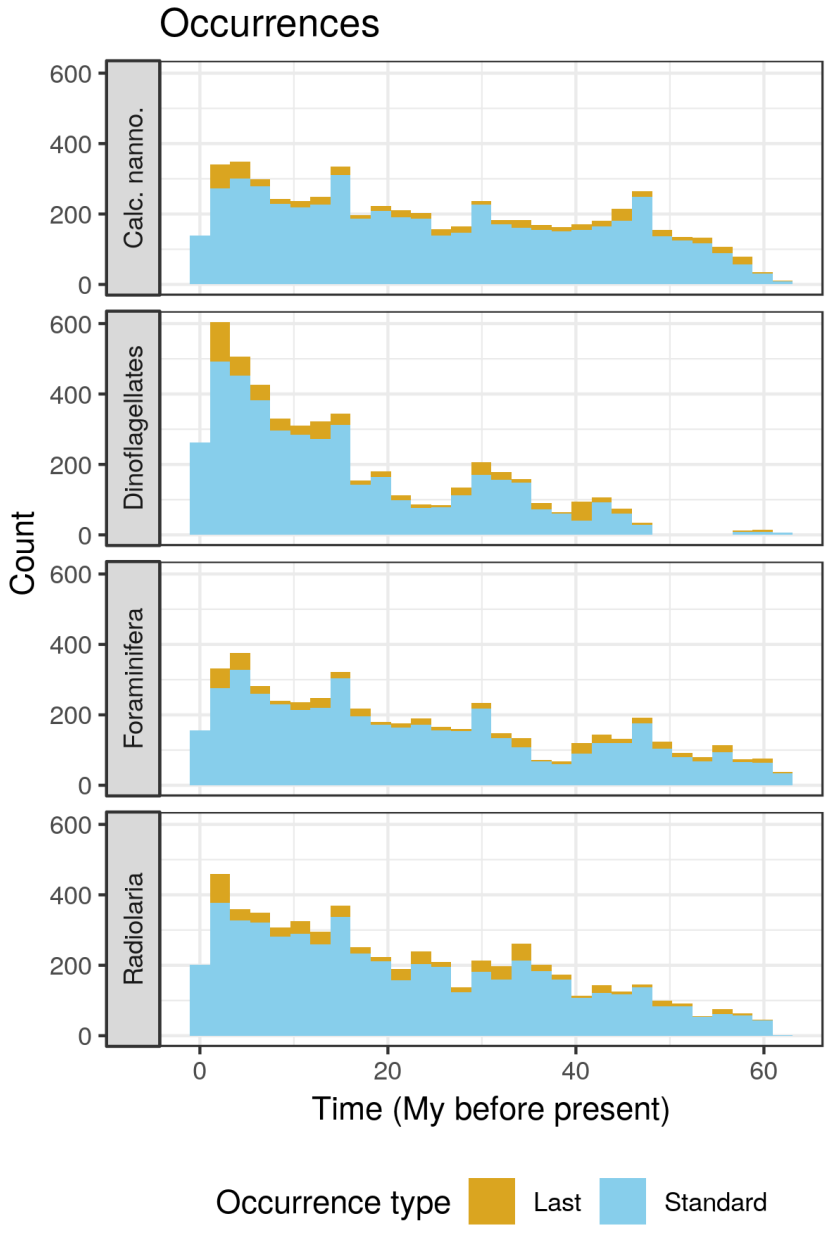
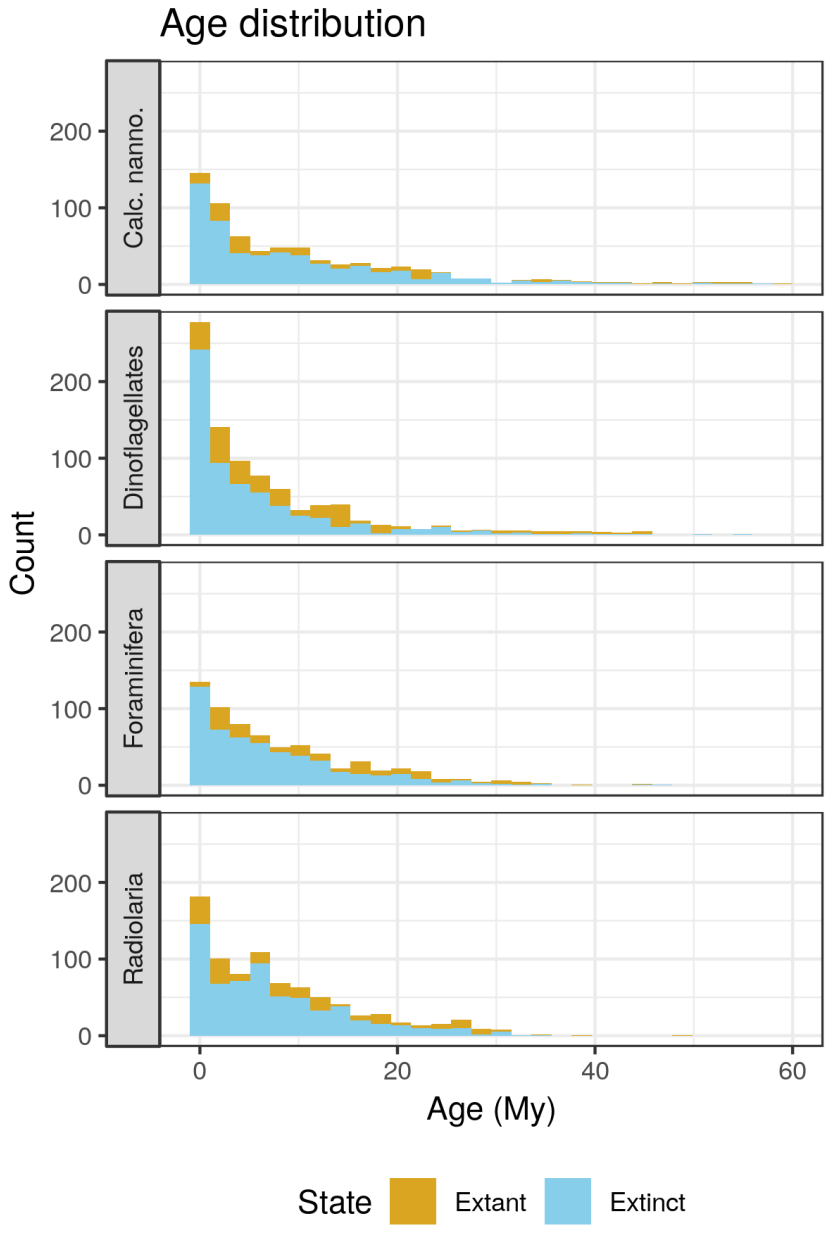
Encoding the past

- Change in geographic range between current observation and previous observation.
- Average global temperature at time of previous observation (Mg/Ca isotope).
- Age in millions of years at time of observation.

Data being analyzed





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- Estimate predictive performance using k-fold cross-validation.

A conceptual model for predicting extinction

A statistical model for predicting extinction

Comparing our models

Cross-validation results

Tracking extinction risk over time

Overall covariate effects

Covariate effects over time

Effects of age on extinction risk

Summary

Conclusions

Acknowledgements