

Juan Corley, Ph.D.
Editor-in-Chief
Ecological Applications
April 19, 2021

Dear Dr. Corley,

Please find attached our manuscript entitled, “Near-term ecological forecasts increasingly follow best practices, allowing comparisons of forecastability among studies” for consideration as an *Ecological Applications* research article. We analyze the current state of near-term ecological forecasting and use data from 29 studies to compare the relative forecastability of multiple ecological variables. To the best of our knowledge, our study is the first to quantify and compare the rates at which the predictability of multiple ecological variables decrease over increasing forecast horizons (the amount of time into the future for which predictions are made).

We anticipate this manuscript will be of broad interest to the readers of *Ecological Applications* by providing an overview of current techniques in ecological forecasting and recommendations for prioritizing future developments in the field. Our analysis reveals that near-term ecological forecasting is a widespread practice within ecology: forecasts have been produced for sites on all seven continents and the rate of forecast publication has increased dramatically over the past four decades. As forecast publication has accelerated, the use of many forecasting best practices (e.g., archiving forecasts, publishing driver data) has also increased over time. However, several areas in need of development remain: for example, despite the fact that uncertainty is often considered essential to the definition of an ecological forecast, uncertainty is reported in less than half of published forecasts. The most commonly used best practice in this analysis was “assess and report forecast skill,” which enabled us to compare forecast skill across papers. We found that forecast skill decreased in consistent patterns over 1–7 day forecast horizons, but the magnitude of decline varied by forecast variable. This analysis makes an important contribution to our understanding of ecological predictability, providing support for previous theoretical predictions. We specifically targeted *Ecological Applications* for this manuscript because our analysis shows that it is the premier journal within ecology for publishing near-term ecological forecasts and thus will have a broad audience among its readership.

We recommend the following reviewers, with whom we do not have any conflicts of interest:

- Dr. Christine Rollinson, Morton Arboretum, Lisle, Illinois, USA, crollinson@mortonarb.org
- Dr. Peter Adler, Utah State University, Logan, Utah, USA, peter.adler@usu.edu
- Dr. Andrew Tredennick, Western EcoSystems Technology, Laramie, Wyoming, USA, atredenn@gmail.com
- Dr. David Harris, Chewy, Dania Beach, FL dave@harris-research.me

This manuscript has not been accepted for publication before, nor is it under consideration for another journal or book. The research met U.S. legal requirements for responsible research. Each named author has substantially contributed to conducting the underlying research and

drafting this manuscript, and all co-authors have approved this submission. No co-authors hold any conflict of interest. As mentioned in the text, all datasets analyzed in this manuscript have been published to the staging environment of the Ecological Data Initiative (EDI) data portal and included as a supplemental file for manuscript review. If accepted for publication, we will archive the datasets to the full data portal where they will be assigned a DOI.

We hope you find this manuscript suitable for publication in *Ecological Applications* and look forward to hearing from you.

Sincerely,

A handwritten signature in black ink that reads "Abigail Lewis". The signature is written in a cursive, flowing style.

Abigail Lewis, on behalf of the coauthors

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