

To the Editor:

Please consider the enclosed manuscript for publication as a Statistical Report in *Ecology*. This manuscript addresses a long-standing difficulty in community ecology: drawing inferences about non-consumptive interactions between species (e.g. competition) from observational data. This issue played an important role in community ecology's history, and remains important in both basic research (as ecologists seek to understand the processes driving community assembly) and in applied contexts (where ecologists are interested in the effects of particular species on one another's occurrence probabilities). In this Report, I demonstrate the effectiveness of probabilistic network models for estimating species interactions directly, as opposed to the current approach of rejecting null models. While the methods I propose are not new (analogues have existed in the physics literature for many decades and ecologists have occasionally used similar approaches), this is the first paper that evaluates their performance on data with known ecological characteristics and compares them with existing approaches.

This work touches on a broad range of fields, and I have suggested editors with expertise in each of them.

Professor Harte and Professor O'Dwyer each have significant expertise in the application of statistical physics to ecological data, and would both be eminently qualified to evaluate the methods for statistical rigor and appropriateness. If these professors are unavailable for review, then Professor Timothée Poisot of Université de Montréal or one of his students such as Philippe Desjardins-Proulx could provide substantial expertise with probabilistic network models as well.

Professor McGill is a highly-respected ecologist with broad knowledge of ecological theory and methods, especially statistical techniques, which makes him a good example of a quantitatively-savvy ecologist that does not have the same kind of physics background as the previous two suggestions.

Professor Blois is one of the leaders of an international, NSF-backed project on species interactions and community ecology under climate change. She is very knowledgeable about a variety of techniques for inferring species interactions from observational data, including the null models that this paper criticizes. Finally, I have suggested Professor Heard, who has extensive knowledge of the literature on species interactions, including the historical controversies that this paper addresses.

Thank you for your consideration and for your hard work at *Ecology*,

David J. Harris