Dear Editor,

We are pleased to submit our manuscript titled “**Trophic interaction models predict interactions across ecosystems, not food webs.**” by Dominique Caron, Ulrich Brose, Miguel Lurgi, Guillaume F. Blanchet, Dominique Gravel, and Laura J. Pollock for consideration for *Global Ecology and Biogeography* as a research article.

The ability to predict predator-prey interactions and food webs is essential given their importance to ecosystem stability, vulnerability, and function. New models are beginning to address this task, but there are, as yet, very few tests of how these models can be extrapolated to new ecosystems. This extrapolation is necessary as we are missing data for the majority of species in most ecosystems.

Here, we test how well a relatively new model of trophic interactions of terrestrial vertebrates can be used to extrapolate from one ecosystem to another using four of the most comprehensive food webs (Canadian tundra, Serengeti, alpine south-eastern Pyrenees, and all of Europe). We believe that the submitted manuscript will appeal to *Global Ecology and Biogeography* readers by its large spatial extent (food webs across three continents), findings, implications for food web biogeography, and novelty. Some key findings are:

* Trait-based models predict most interactions and their absence correctly, even across highly contrasting environments.
* The spatial variation in food webs is primarily driven by changes in trait distributions rather than changes in trait-matching relationships.
* While most interactions are correctly predicted, we identified systematic biases when models were used to estimate aggregate food web properties (e.g. connectance), indicating additional ecological constraints are likely important but not captured in trophic interaction models.

Novel aspects are:

* This study is the first specifically testing factors limiting the transferability of models of species interactions, and demonstrates the potential of these models to fill critical biodiversity shortfalls.
* This study is the first to identify the inability of trophic interaction models to predict the trophic position of species and network level properties.

Thank you for your consideration for this manuscript. This work is original and has not been published or under consideration elsewhere.

Sincerely,

Dominique Caron (on behalf of all authors)

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