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Dear Editor,

We are excited to submit our manuscript entitled “Intraspecific genetic variation increases network complexity: empirical evidence from a plant-insect food web” for consideration to be published in Proceedings of the National Academy of Sciences.

In this manuscript, we provide a novel approach to the genetic basis to species interactions networks. Specifically, we test theoretical predictions that intraspecific genetic variation will lead to increased complexity of ecological networks, which here-to-for has remained untested. We used a large common garden experiment to illustrate how heritable trait variation in a host plant (willows) directly and indirectly shapes the assembly of an insect food web (network of trophic interactions between galling insects and parasitoids) We found that difference willow clones supported unique compositions of trophic interactions. Moreover, we demonstrate how this genetic specificity in trophic interactions resulted in a 50% increase in food web complexity for the overall host plant population.

We feel that this manuscript provides a novel and general contribution to science for several reasons. Our study is one of the first to empirically identify the extent to which intraspecific genetic variation structures communities in a network context. In doing so, our study provides clear directives for future empirical and theoretical research on how ecological and evolutionary processes interact to shape food webs. Finally, our work is multidisciplinary, integrating research on diverse topics such as network theory, ecological genetics, and food webs, andshould be of interest to the broad readership of Proceedings of the National Academy of Sciences.

Given that our study lies at the interface of ecology and evolution, we think that either Dr. Daniel Simberloff or Dr. Douglas Futuyma would be an appropriate editor for this submission and suitable reviewers for this manuscript include: Dr. Anurag Agrawal (Cornell University), Dr. Daniel Bolnick (University of Texas), Dr. Jordi Moya-Laraño (EEZA-CSIC), Dr. Jonathan Levine (ETH Zürich), Dr. Kevin McCann (University of Guelph), and Dr. Kailen Mooney (UC Irvine).

Thank you for your assistance with this manuscript. I look forward to hearing from you regarding the reviews.

Sincerely and on behalf of my co-authors,

Matthew Barbour