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| Dr Peter H. Thrall  Editor-in-Chief  *Ecology Letters* |  |
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| Zurich, XX INSERT DATE BEFORE SUBMITTING XX | |
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Dear Dr Peter H. Thrall,

We have enclosed our manuscript, ‘Ecosystem size mediates the effects of resource flows on biodiversity and ecosystem function at different scales’, to be considered for review as a Letter Article in *Ecology Letters*.

Ecosystem size and non-living resource movement are crucial factors affecting biodiversity and ecosystem function. However, their interaction has been largely ignored due to the difficulty in controlling them in natural settings. Ignoring this interaction could mean disregarding a ubiquitous mechanism that drives biodiversity and ecosystem function, as natural ecosystems come in different sizes and are connected to other ecosystems through the movement of non-living resources (Gounand et al., 2018, Nat. Commun.)

Here, we conducted a microcosm experiment to examine how ecosystem size asymmetry affects the biodiversity and function of two-patch meta-ecosystems whose patches were connected through flows of non-living resources. To do this, we mimicked resource flows between ecosystems of different sizes yet otherwise identical and between ecosystems of the same sizes that were also identical. **We found that meta-ecosystems with asymmetric patch sizes had higher levels of α-diversity but lower levels of β-diversity and ecosystem function (total biomass) compared to their unconnected counterparts. The effects of resource flows were mediated by patch size asymmetry, as these effects were not observed in meta-ecosystems with identical patch sizes.**

**Our study is a significant contribution to Ecology, as it enhances our understanding of a ubiquitous driver of biodiversity and ecosystem function, namely the interaction between ecosystem size and flows of non-living resources.** Our manuscript addresses the critical need to understand what drives ecosystem function (Gonzalez et al. 2020, *Ecol. Lett.*) and biodiversity (Riva & Fahrig 2023, *Ecol. Lett.*) when multiple ecosystems and not a single one are considered. We believe *Ecology Letters* is the perfect platform to share our work, as it has been at the forefront of research on how diversity and function are driven by non-living resource flows (e.g., Leroux & Loreau, 2008; Cole et al., 2006; Murakami & Nakano, 2002, *Ecol. Lett.*) and ecosystem size (e.g., Rybicki & Hanski 2013, Drakare et al., 2006, Crist & Veech, 2006, *Ecol. Lett.*).

We thank you for considering our manuscript for publication in *Ecology Letters*.

Best regards,

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Emanuele Giacomuzzo, Dr Tianna Peller, Dr Isabelle Gounand, and Dr Florian Altermatt