Ps. Maximum 50 words per question

1. What is the scientific question you are addressing?

Whether the inclusion of trait variability in a vegetation model affects Amazon carbon sink responses to reduced precipitation and what is the role of the different components of functional diversity (richness, evenness, divergence and composition) in determining these responses.

1. What is/are the key finding(s) that answers this question?

Trait variability improves representation of vegetation carbon storage by models.

Trait variability promotes resilience due to higher capacity of communities to functionally reorganize owing to the diversity of responses they hold.

Functional diversity and the way that communities occupy functional trait space affects ecosystem functioning under future scenarios.

1. Why is this work important and timely?

This work shows that including trait variability in models is fundamental to reveal all diversity of responses of an ecosystem under climate change and to detect the role of functional diversity in determining ecosystem functioning. This is pivotal to achieve more accurate predictions of climate change impacts on hyperdiverse ecosystems.

1. Does your paper fall within the scope of GCB; what biological AND global change aspects does it address?

Biologically, our work helps in advancing the comprehension of the still uncertain effects of climate change on biodiversity (focusing on functional diversity) and how these effects impact ecosystem functioning and resilience.

Regarding global change aspects, we focused on the consequences of projected reduced precipitation in the vegetation of Amazon basin.

1. What are the three most recently published papers that are relevant to this question? This information will assist the Editors in selecting reviewers.

Carmona, C. P., de Bello, F., Mason, N. W. H., & Lepš, J. (2019). Trait probability density (TPD): measuring functional diversity across scales based on TPD with R. *Ecology*, *100*(12), 1–8. https://doi.org/10.1002/ecy.2876

de Bello, F., Lavorel, S., Hallett, L. M., Valencia, E., Garnier, E., Roscher, C., … Lepš, J. (2021). Functional trait effects on ecosystem stability: assembling the jigsaw puzzle. *Trends in Ecology and Evolution*, *36*(9), 822–836. https://doi.org/10.1016/j.tree.2021.05.001

Schmitt, S., Maréchaux, I., Chave, J., Fischer, F., Piponiot, C., Traissac, S., & Hérault, B. (2019). Functional diversity improves tropical forest resilience: insights from a long-term virtual experiment. *Journal of Ecology*. https://doi.org/10.1111/1365-2745.13320

Wieczynski, D. J., Boyle, B., Buzzard, V., Duran, S. M., Henderson, A. N., Hulshof, C. M., … Savage, V. M. (2019). Climate shapes and shifts functional biodiversity in forests worldwide. *Proceedings of the National Academy of Sciences*, *116*(15), 7591–7591. <https://doi.org/10.1073/> pnas.1904390116

6. You are required to suggest at least six reviewers which the Editor may consider. These suggestions must be without a conflict of interest with the authors including former or current coauthors (within the past 4 years), students, mentors and members of the same academic institution.

Isabelle Maréchaux: https://www.researchgate.net/profile/Isabelle-Marechaux

Carlos Carmona : <https://www.researchgate.net/profile/Carlos-P-Carmona>

Francesco de Bello : <https://orcid.org/0000-0001-9202-8198>

Benjamin Blonder: https://www.researchgate.net/profile/Benjamin-Blonder

Ceres Barros: <https://www.researchgate.net/profile/Ceres-Barros>

Sophie Fauset: https://www.researchgate.net/profile/Sophie-Fauset

Christine Lamana: <https://www.researchgate.net/profile/Christine-Lamanna>

Martin De Kawue: https://www.researchgate.net/profile/Martin-De-Kauwe

Cyrille Violle : <https://www.researchgate.net/profile/Cyrille-Violle>

Nathan Kraft: <https://www.researchgate.net/profile/Nathan-Kraft>

# Jan Leps: https://www.researchgate.net/profile/Jan-Leps

Lourens Poorter: https://www.researchgate.net/profile/Lourens-Poorter

Brian Enquist: https://www.researchgate.net/profile/Brian-Enquist

## Jesus Aguirre Gutierrez: https://www.researchgate.net/profile/Jesus-Aguirre-Gutierrez

**7. You may indicate up to three non-preferred referees**. Please indicate the nature of the potential conflict of interest in the next section, Step 5 "Details and Comments." While these selections may be taken into account, the final selection is subject to the Editor’s discretion.