



Water outcomes of soil health management practices in grazing lands

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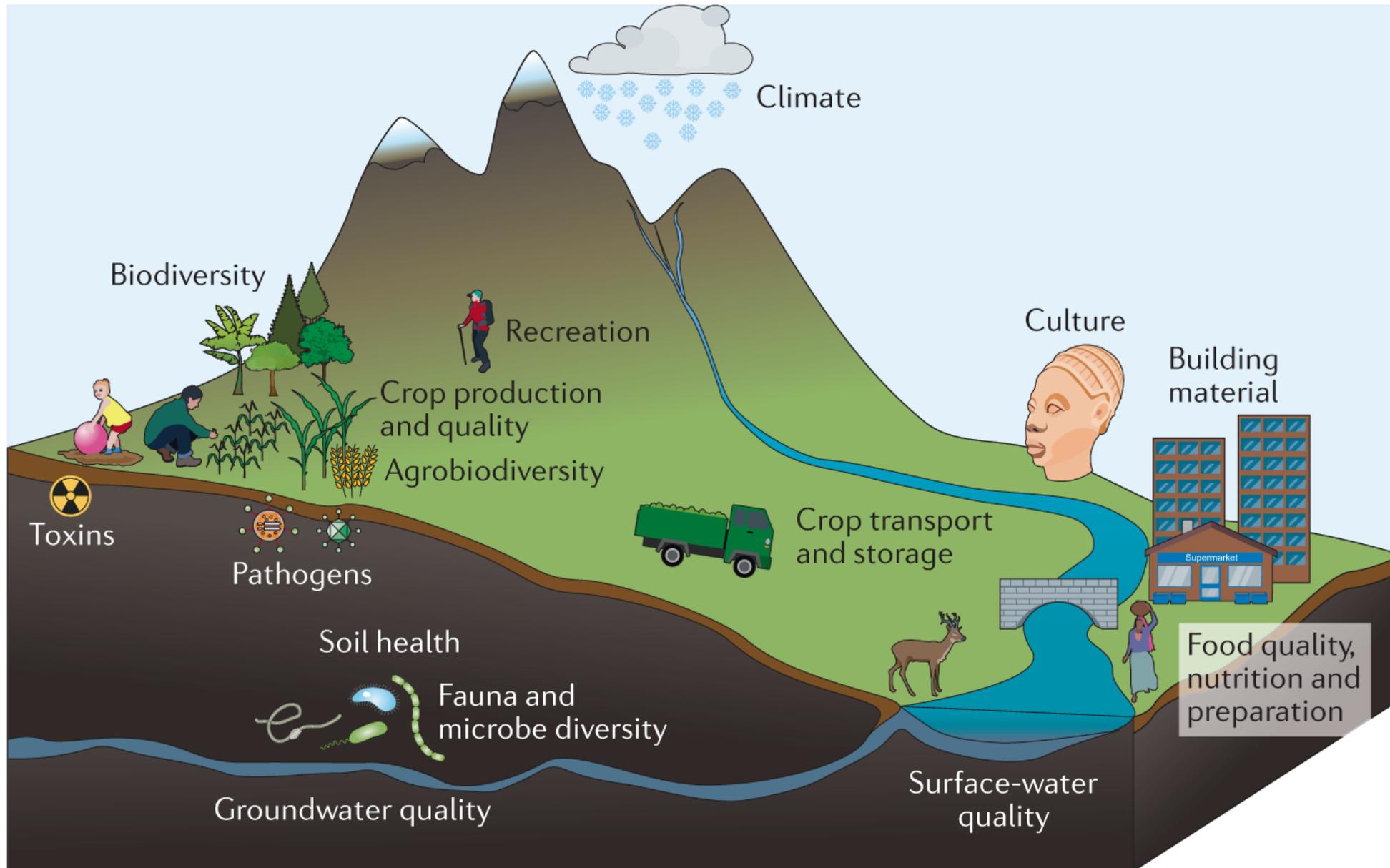
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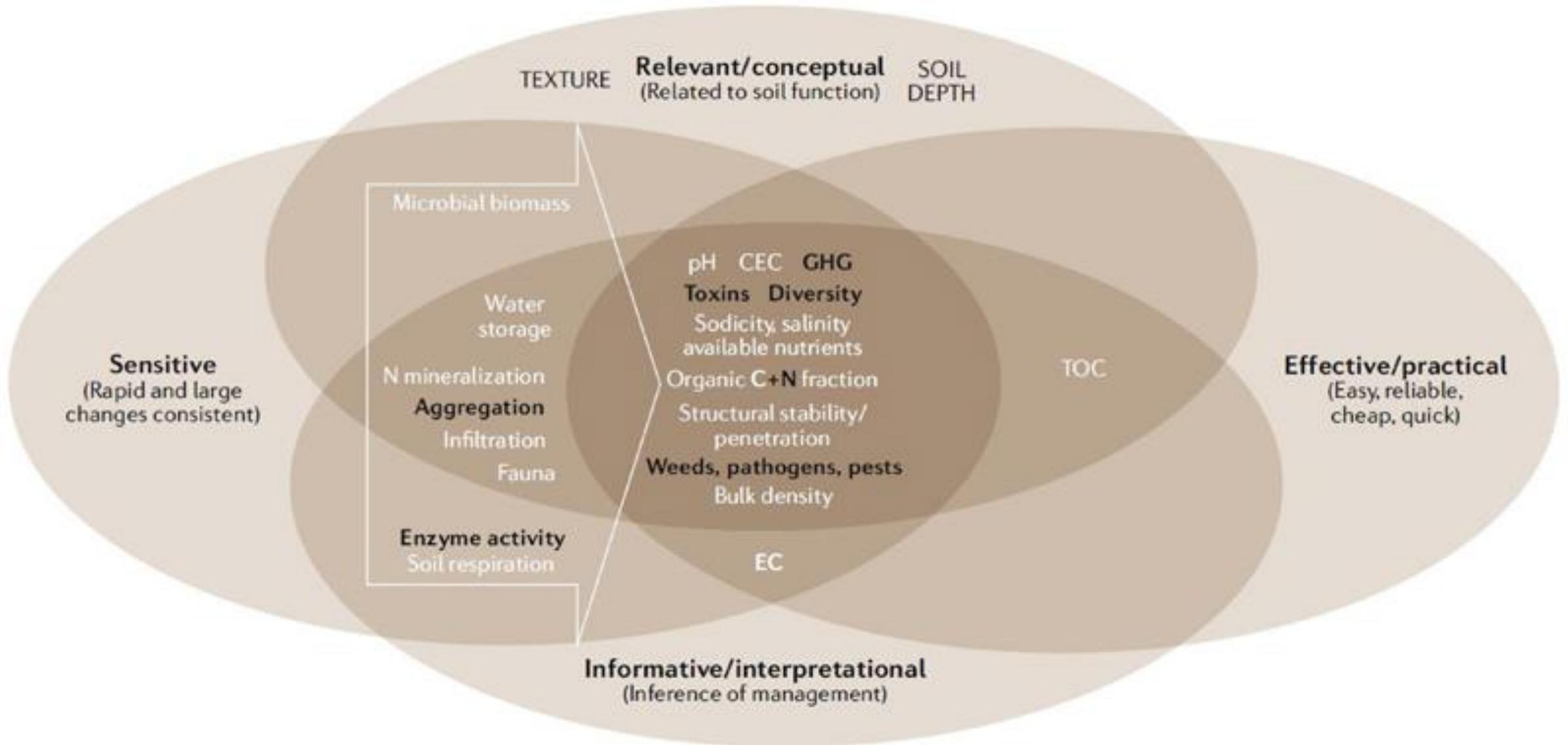


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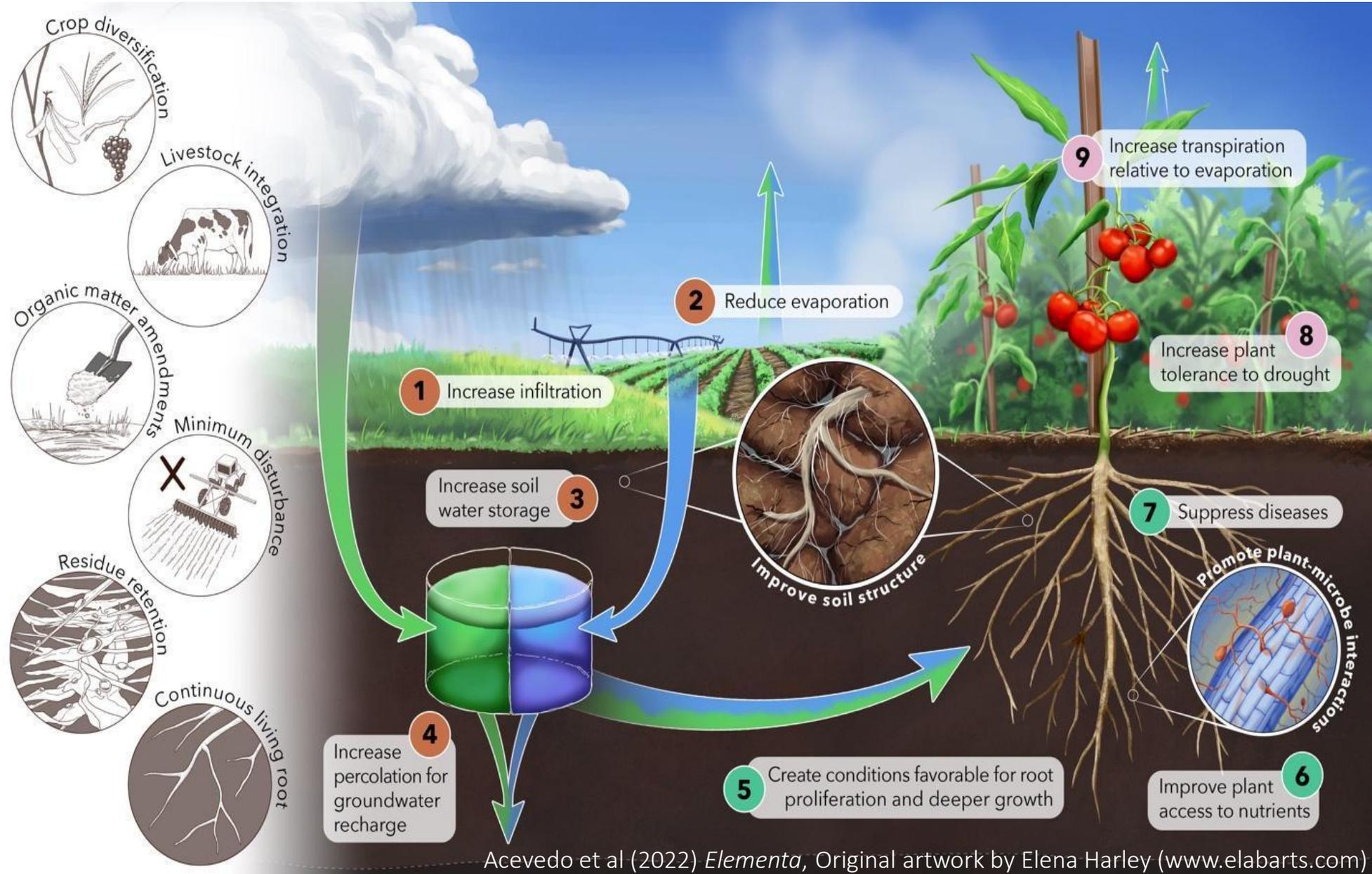


Soil health: the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans

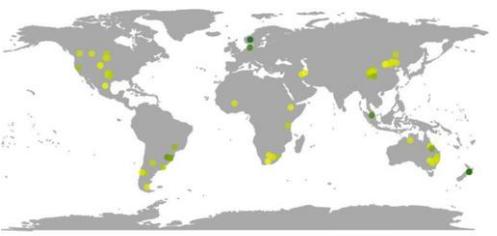
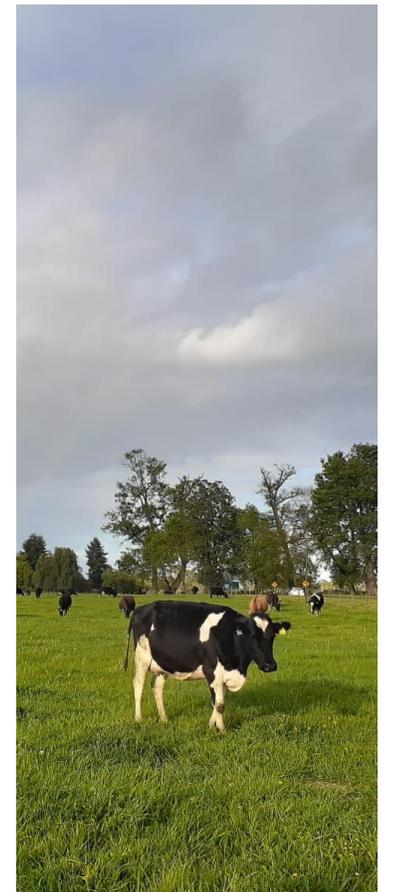
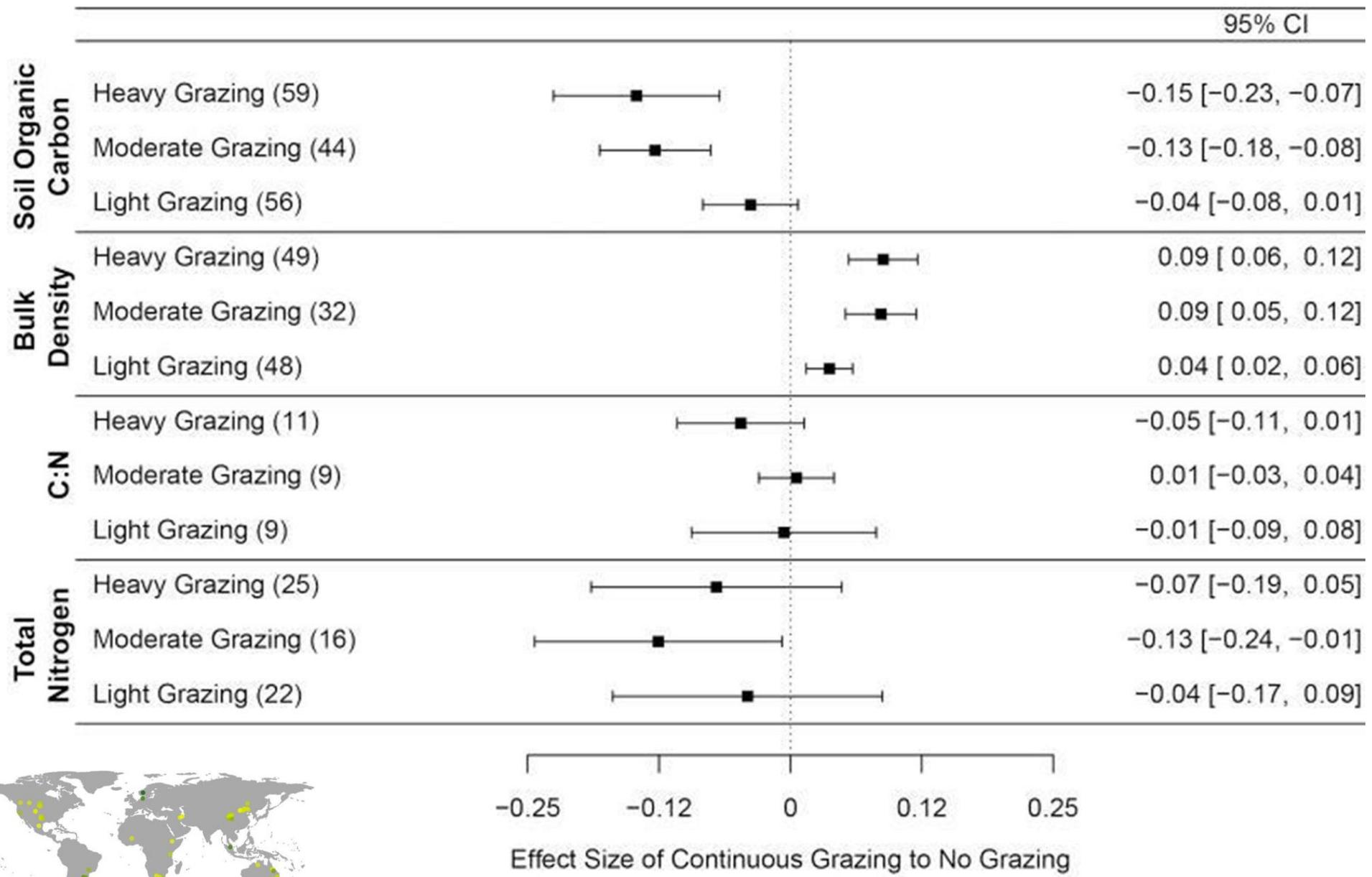
Soil health indicators

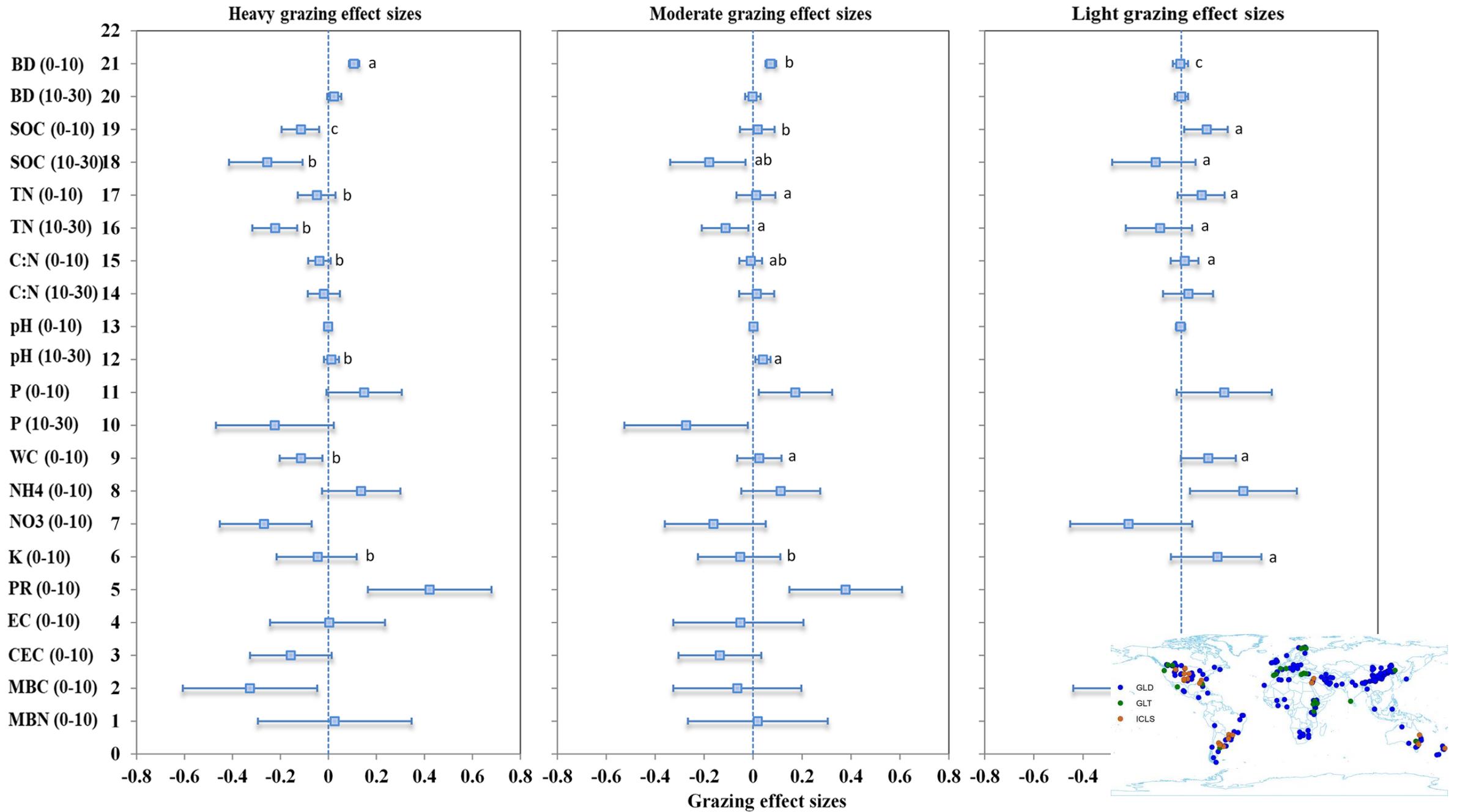


Water outcomes of soil health management practices in croplands

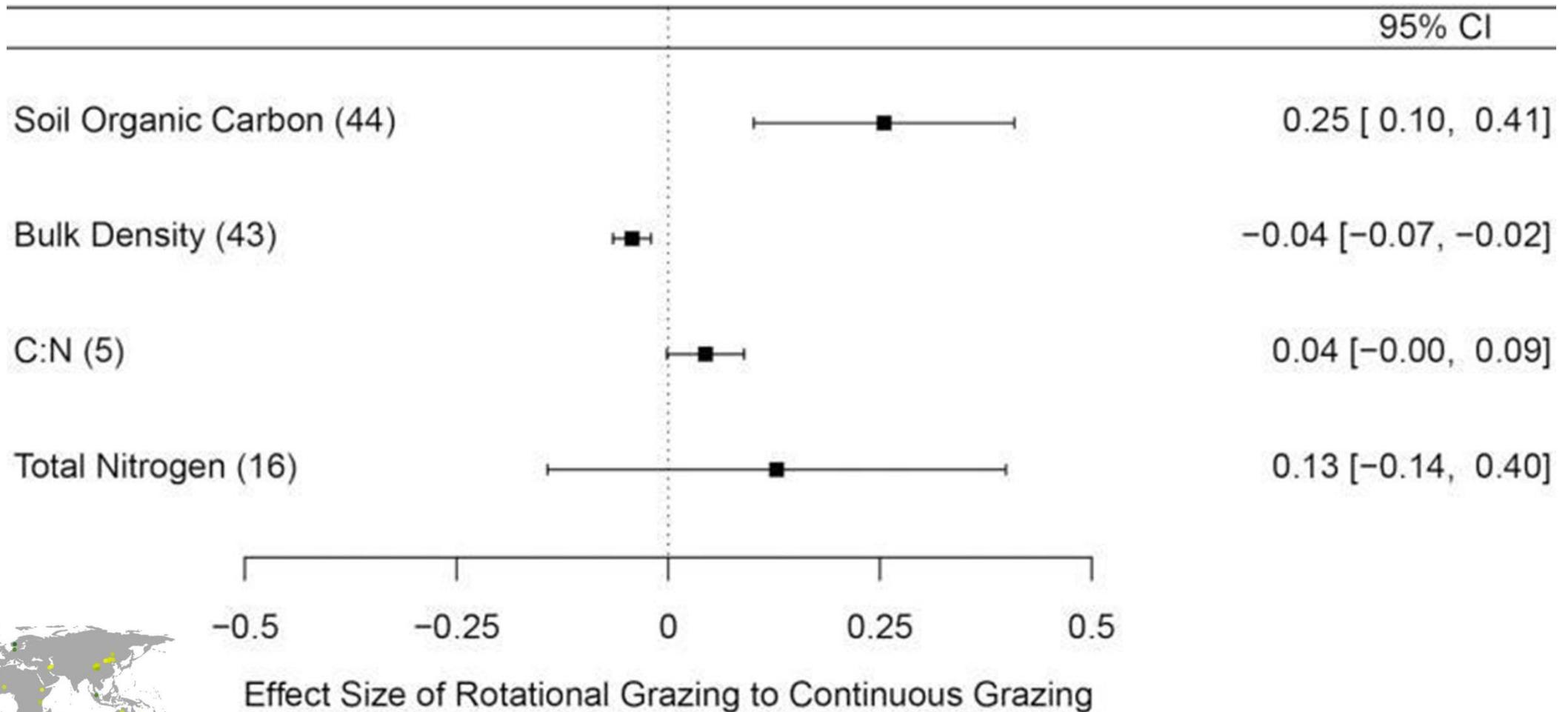


Grazing intensity

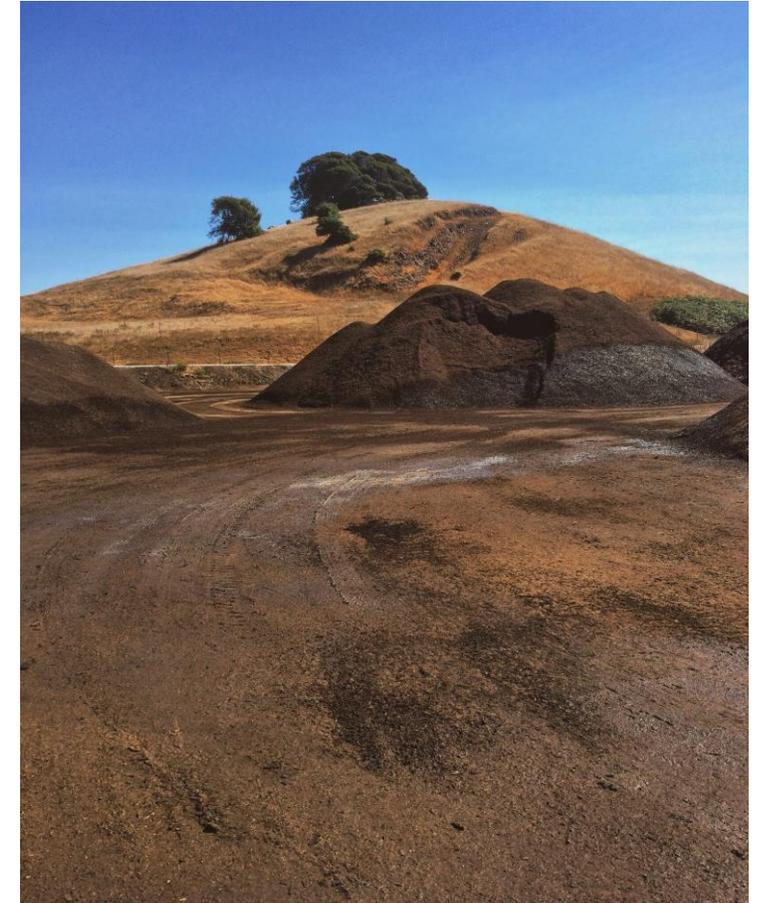
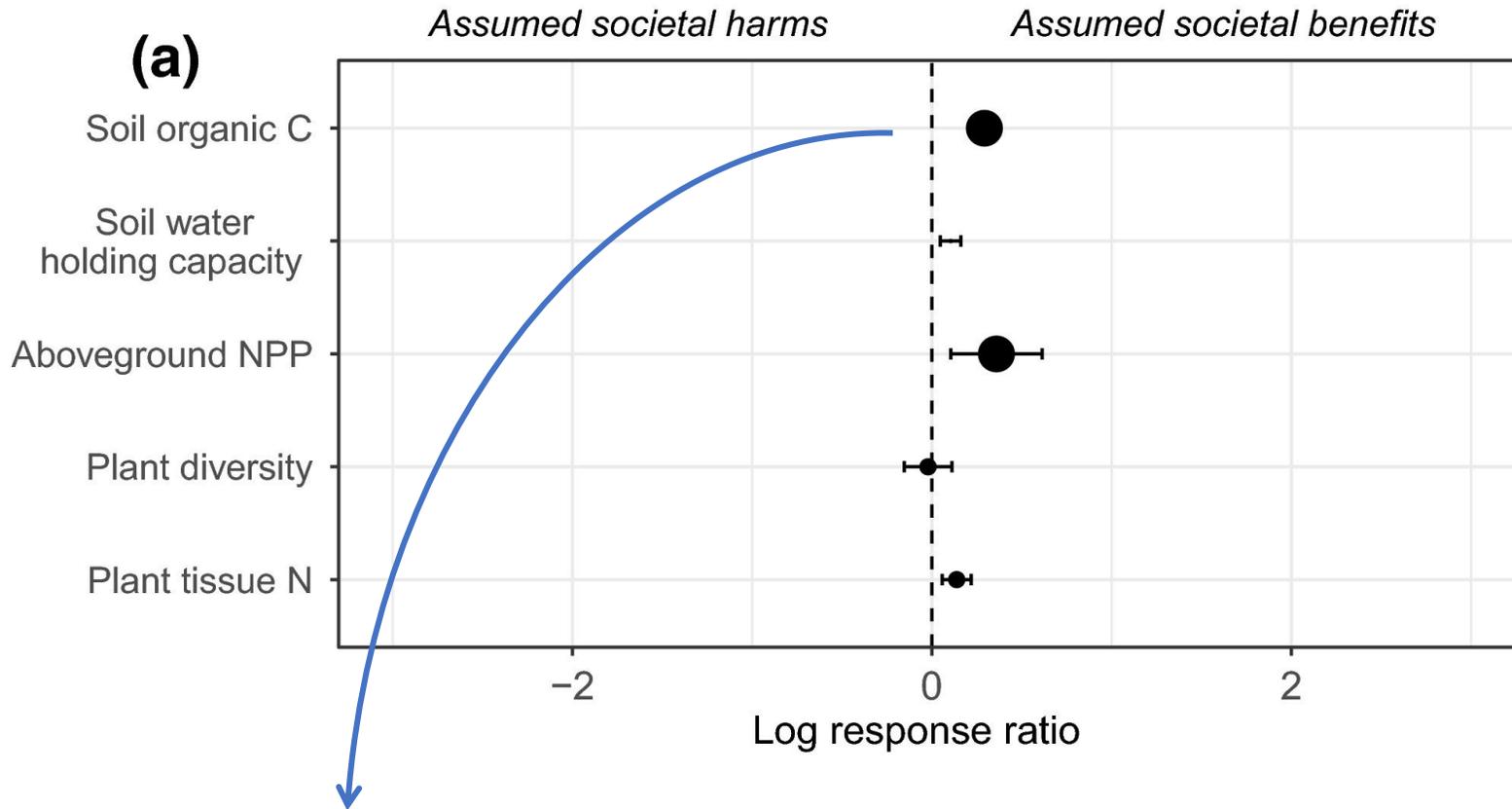




Rotational grazing



Organic matter amendments to arid, semiarid, and Mediterranean rangelands

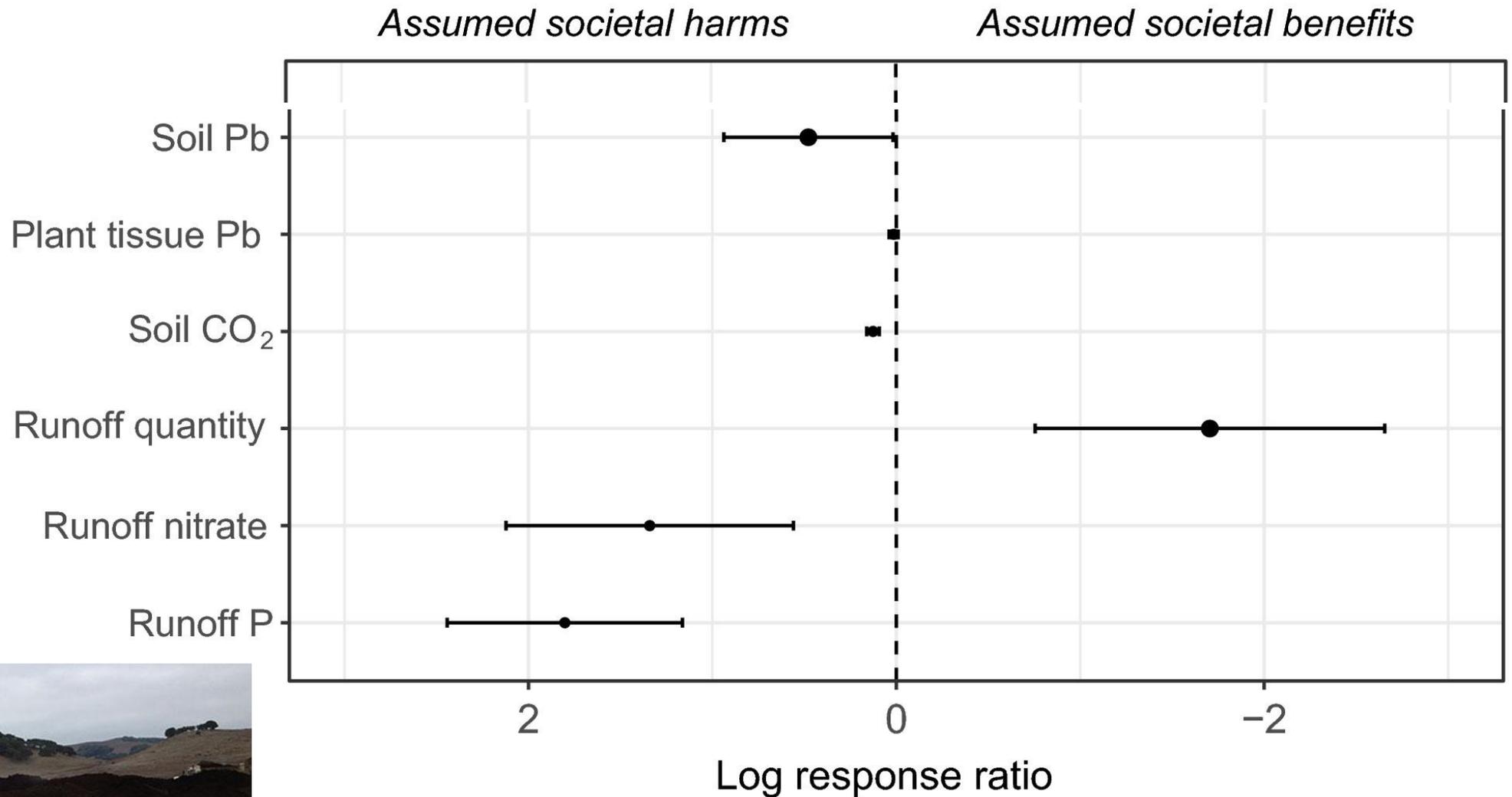


Also with manure applications in annual/perennial systems including pastures

Grauver et al (2019) *Glob Change Biol* <https://doi.org/10.1111/gcb.14535>,
<https://nature.berkeley.edu/silverlab/wp-content/uploads/2022/08/Compost-1639x2048.jpg>

Maillard and Angers (2014) *Global Change Bio* 20, 666–679, doi: 10.1111/gcb.12438

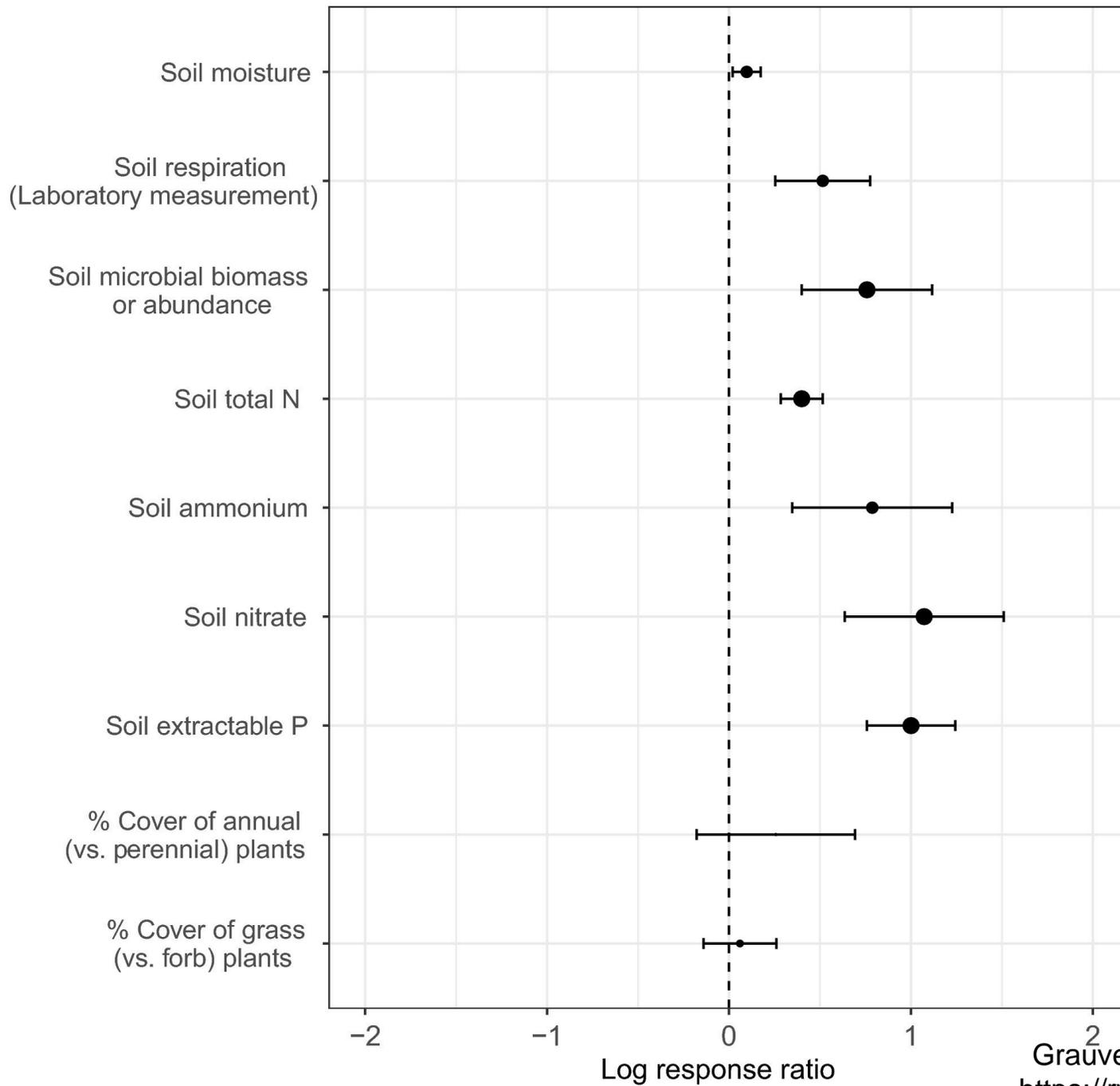
Organic matter amendments to rangelands



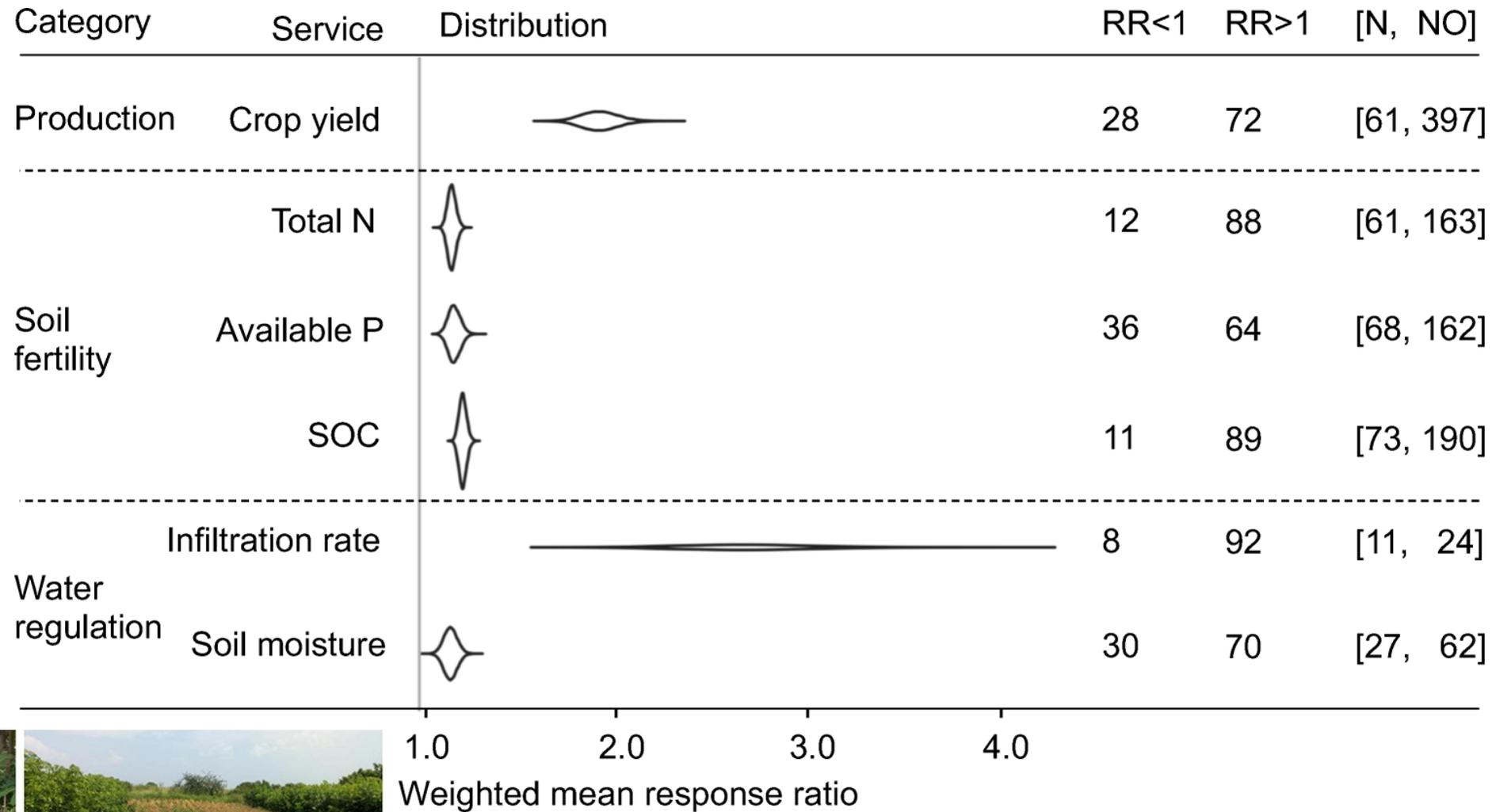
Grauer et al (2019) Glob Change Biol <https://doi.org/10.1111/gcb.14535>,

<https://toolkit.climate.gov/sites/default/files/styles/large/public/Marin%20Carbon%20Project%20compost.jpg?itok=vT6wMzwn>

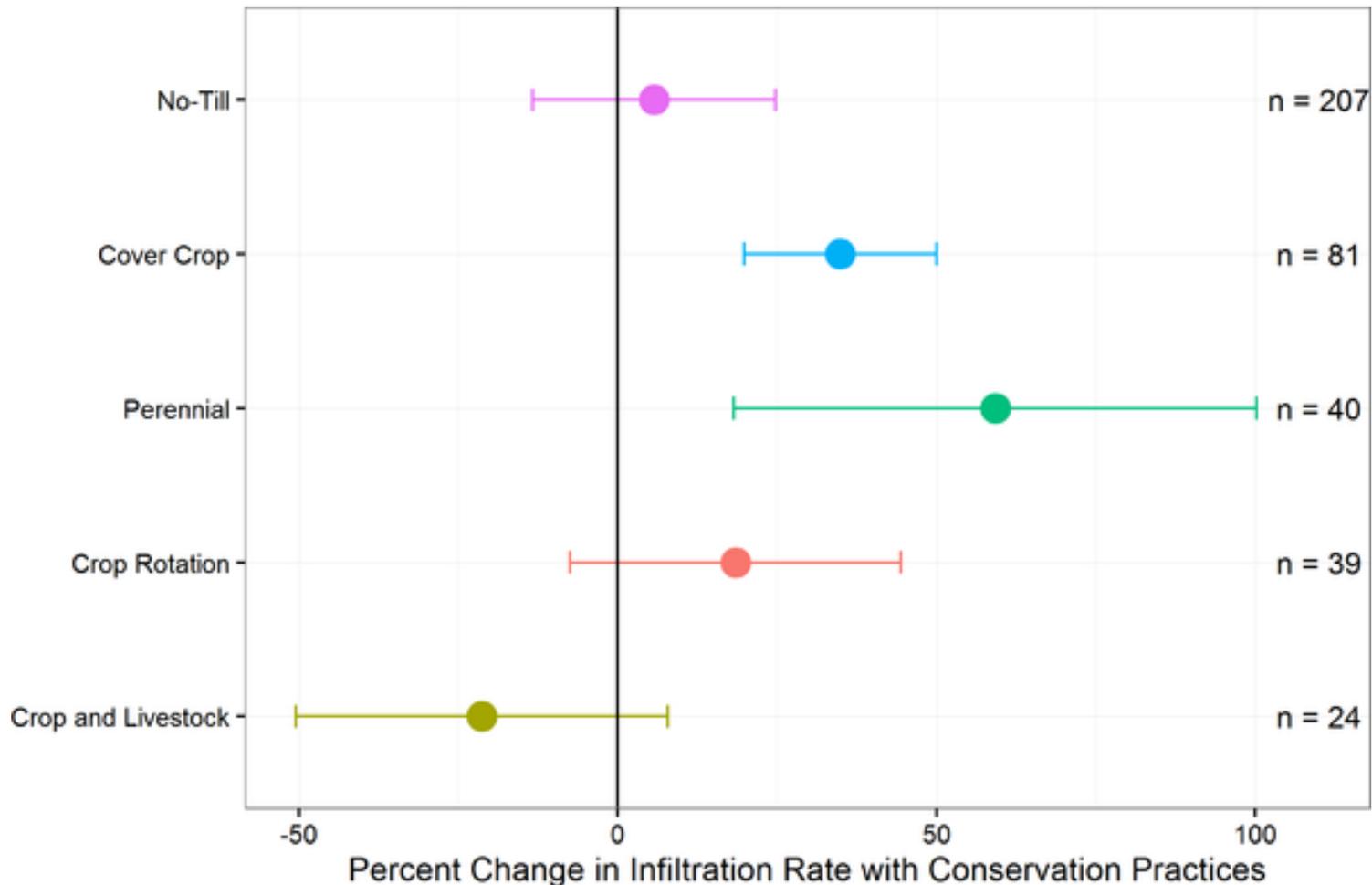
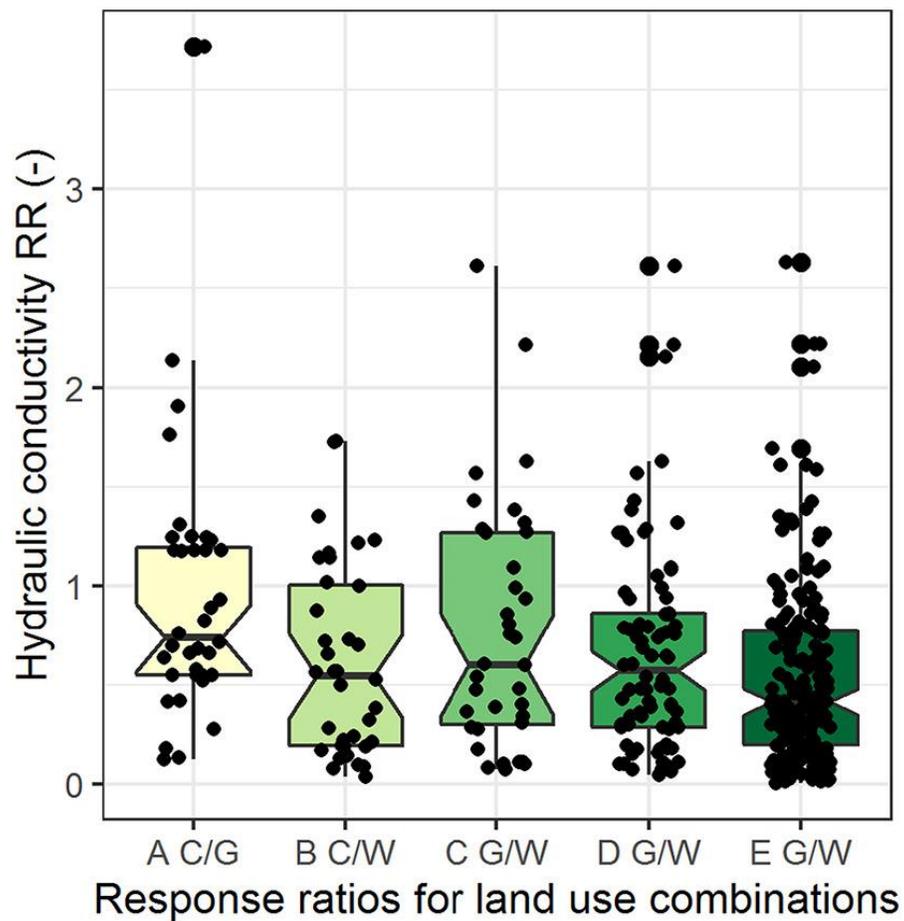
Organic matter amendments to rangelands



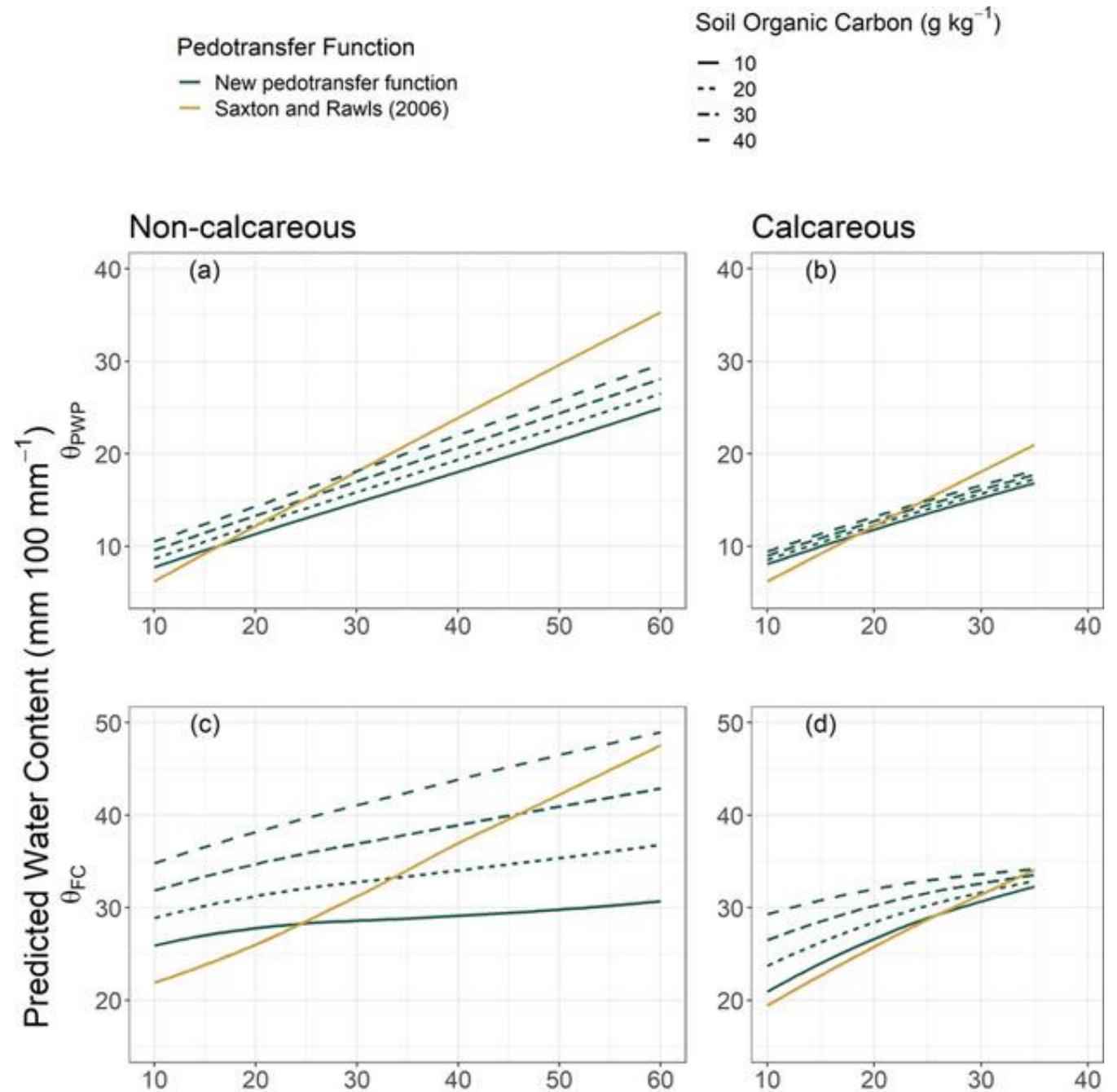
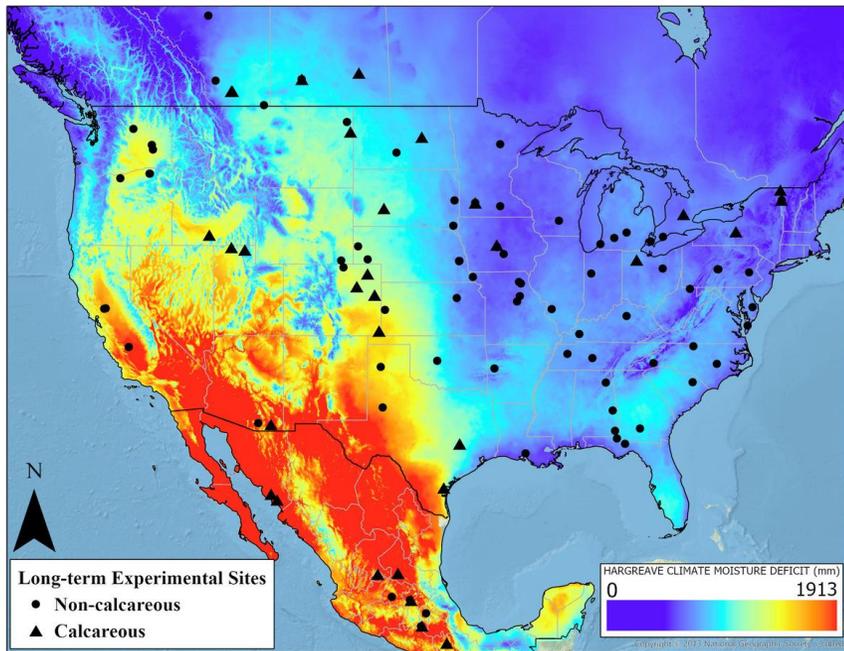
Agroforestry in sub-Saharan Africa



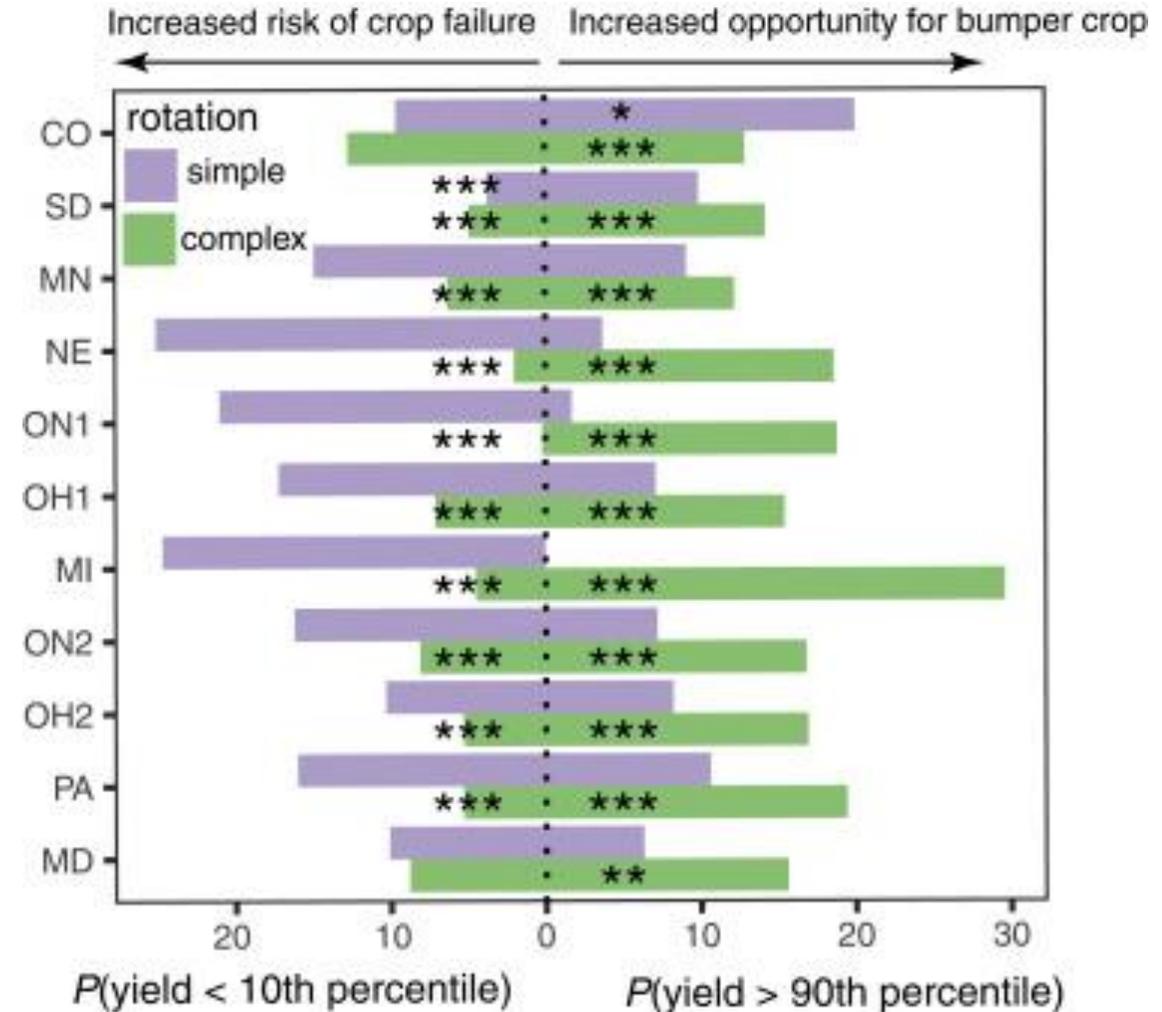
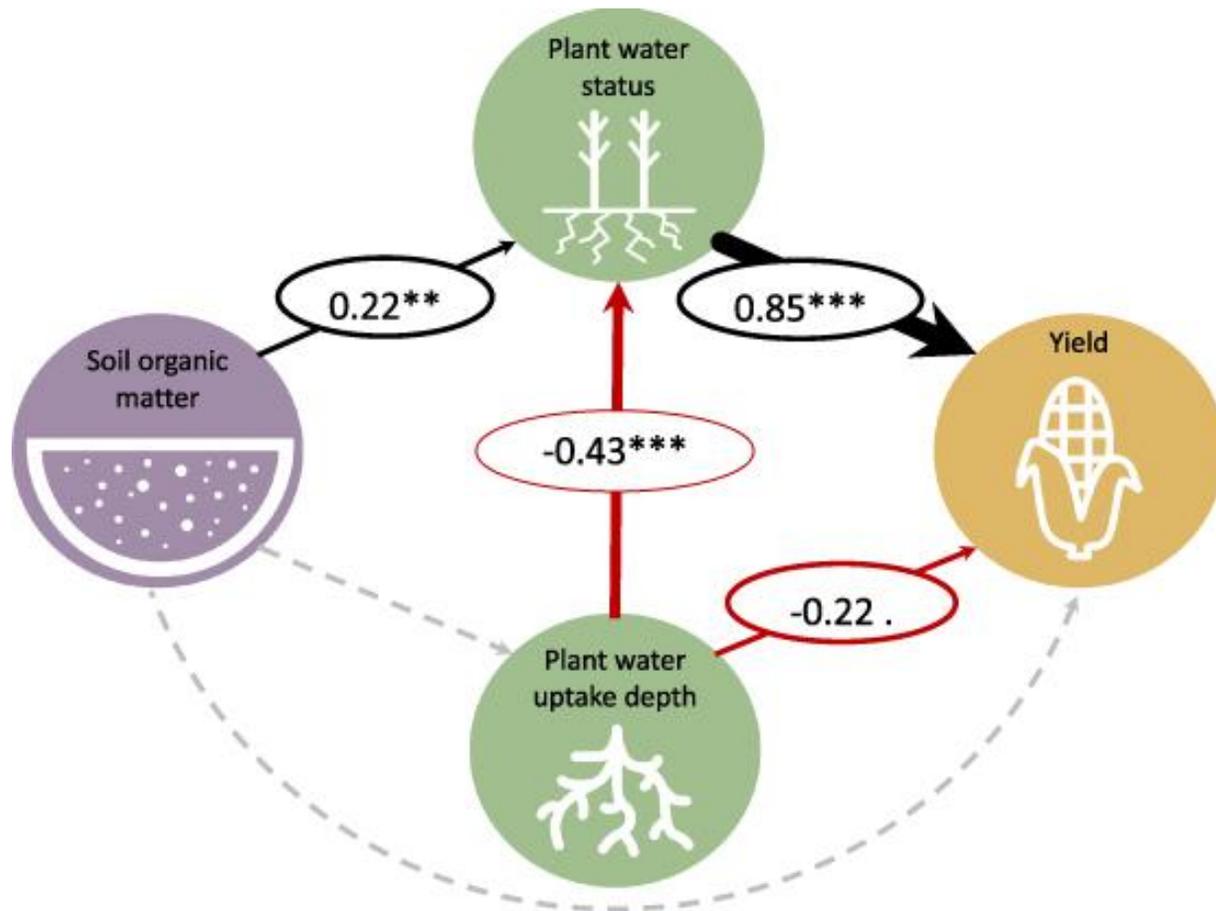
Crop-livestock integration: an intermediate between grassland and cropland?



Soil organic matter and water retention: updated pedotransfer functions



Soil organic matter, crop rotation diversification, and resilience

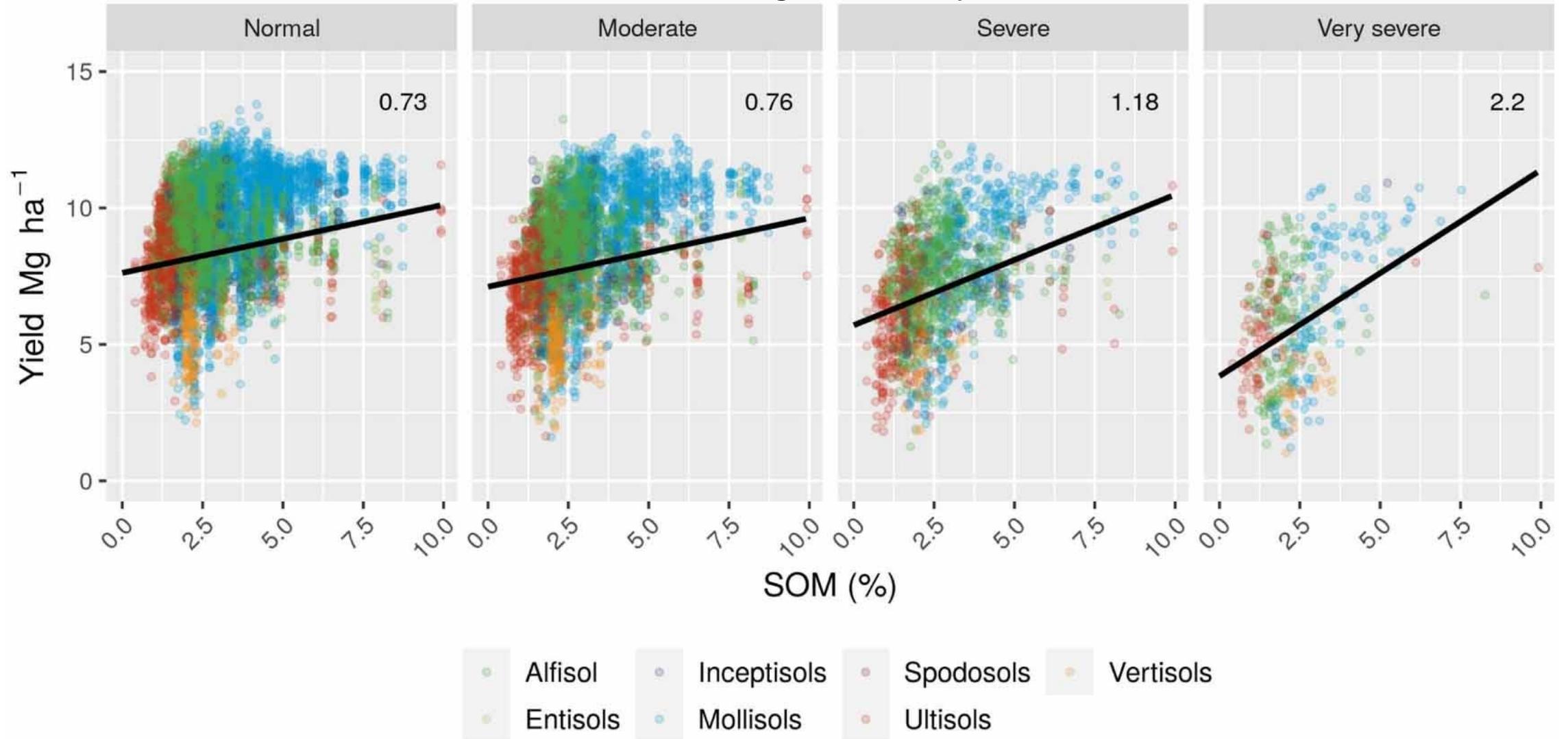


Bowles et al. (2020) <https://doi.org/10.1016/j.oneear.2020.02.007>

Renwick et al 2021 *Environ. Res. Lett.* 16 084067. <https://doi.org/10.1088/1748-9326/ac1468>

Soil organic matter protects against maize grain yield loss under drought

Drought severity



Takeaways: toward quantifying soil health management impacts on water in grazing lands

- Management affects soil health, with potential benefits for plant productivity and impacts on water fluxes
- Understanding the magnitude of effects on water fluxes and productivity requires further empirical and modeling research
- Functional significance for drought resilience in rainfed systems or water savings in irrigated systems should be quantified
- More grazing system-specific data needed for soil health and water outcomes of forage traits (e.g., deep rooting, mixtures) and no-till





Thank you!

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