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Title: Metabolic tradeoffs and heterogeneity in microbial responses to temperature determine the fate of litter carbon in a warmer world

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This study quantified the effects of variability in taxon-specific responses to temperature on the emergent, community-level carbon use efficiency (CUE). The community was allowed to change as a result of competitive interactions among taxa, resulting from resource acquisition accomplished by specific enzymes produced, costs of enzyme production, and variations in temperature sensitivity. Other characteristics of the system examined included community taxonomic diversity, microbial biomass, and litter decay.

The authors' responses to previous reviewer suggestions were effective. The result is a more persuasive demonstration of the likely roles that inter-taxon variability may have on key measures of decomposition. Although their primary focus is CUE, much the same argument could be made for many other microbial-based, emergent responses.

The revised manuscript made it much clearer why the particular suites of constraints were imposed on different taxa, e.g., selectively increasing or decreasing temperature responses, which was one of my earlier questions.

I think that enzymes should be included in the sum of organic matter produced by microbes; this omission reduces CUE as enzyme production increases (lines 55-56, elsewhere) although I suspect it's a modest difference, was this contribution quantified?

Minor quibble: line 137, higher LOM and MBC do not necessarily lead to higher ratios of MBC:LOM unless the higher MBC values were relatively higher than the LOM values.

Beginning on line 281, it was interesting that simulations appeared to be C-limited despite the high C:N content of litter. This is worth a short explanation, of course the baseline CUE (0.38) is relatively low and possibly more typical of SOM than litter. Any thoughts?

Lines 190-195: Excellent synopsis reiterating likely complexities underlying such responses. Although this work doesn't demonstrate that taxon-specific variation MUST be evaluated for any particular insight to decomposition, it clearly demonstrates that such resolution CAN provide mechanistic insight to community-level phenomena.

The revised Figure 1 with legend is much better.