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Interactive comment on "Understory vegetation plays a key role in sustaining soil microbial biomass and extracellular enzyme activities" *by* Yang Yang et al.

Anonymous Referee #2

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The manuscript 'Understory vegetation plays a key role in sustaining soil microbial biomass and extracellular enzyme activities" by Yang and co-authors describes interesting findings and documents well the role of understory vegetation on soil nutrient dynamics, microbial community composition and extracellular enzyme activities. The manuscript addresses relevant scientific questions within the scope of the journal, and the results are interesting, but the interpretation could be still a bit more elaborated. The authors draw some comprehensible conclusion on the importance of understory vegetation to improve soil C sequestration. However they also conclude that high AP rates indicate P limitation, which, if they want to show it must be more elaborated (see. e.g. Margalef et al 2017, or Sinsabaugh et al 2008), and also it might be worth to com-

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Discussion paper

pare the effect of the treatment on enzyme rates normalized by microbial biomass C (or total PLFAs). Also the authors speculate that understory removal could have induced a shift in arbuscular (or other) mycorrhizal fungi composition, maybe it would be interesting to show more details on shifts in fungal marker composition (e.g. 16:1w5 compared to the other markers). There was also some temporal variation in PLFAs, so why not pay them more attention? The methods seem to be sound, but it would be helpful to state a bit more details on the RDA, were absolute PLFAs analyzed or group means, or relative marker composition? And were enzyme rates log transformed? More specific comments are in the supplement.

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Please also note the supplement to this comment:
https://www.biogeosciences-discuss.net/bg-2017-545/bg-2017-545-RC2-supplement.pdf

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