

***Interactive comment on* “Soil nitrogen response to shrub encroachment in a degrading semiarid grassland” by Thomas Turpin-Jelfs et al.**

Anonymous Referee #1

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The manuscript "Soil nitrogen response to shrub encroachment in a degrading semi-arid grassland" is a comprehensive study about the effects of shrub/grass balances on soil nitrogen and microbe activity along a gradient of shrub encroachment.

The study was performed in a long-term experimental area, which is of great value because it allows comparable studies in the future aiming at checking the evolution of the observed patterns. This is of great importance since some effects of shrub encroachment on the ecosystem are immediate, while others need time to be detected.

The paper is well-written and the discussion is justified by the data presented. I specifically like the part of discussion based on nutrient ratios instead of solely on nutrient concentrations, this bring novelty and new perspective to this kind of work. Although already done by others (e.g. Blaser et al. 2014), this approach is still rare.

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In the introduction, I strongly suggest the authors to make a correction on page 2/line21. There they say that nitrogen is the nutrient that mostly limits primary productivity in dryland systems, which might be the case for temperate areas, but it is not for tropical areas.

Please correct on page 3 line 16 - asymbiotic instead of asymbioitic.

The quality/resolution of the graphs in the figures can be improved.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2018-331>, 2018.

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