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Interactive comment on "Climate and soil factors influencing seedling recruitment of plant species used for dryland restoration" *by* M. Muñoz-Rojas et al.

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- We would like to thank Referee #2 for the useful comments that we believe have improved our manuscript. We also hope that with all the modifications the paper is now suitable for publication in SOIL. All the suggestions and comments have been addressed and a new manuscript including updates and modifications is attached. Please, see below a point-to-point response to Referee #2.

This is an interesting and timely study into factors affecting seedling emergence during restoration of degraded sites in dryland conditions. Overall the experiment and write-up was well-done. I have a few minor comments and suggestions:

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Line 61 – I suggest citing Thomas et al., 2015 in addition to the Audet and Muñoz-Rojas citations. Line 70 – I suggest citing Thomas et al., 2015 in addition to the Machado and Muñoz-Rojas citations.

- This citation has been added. Please see lines 61 and 70 and the references section.

Line 85 – The 2014 IPCC report is now available, why cite the out of date report?

- This citation has been updated. Please see line 90 and the references section.

Lines 185-186 – What are Figs S1 and S2? These were not a part of the file sent to me. If they are figures meant to be part of a supplement, I suggest incorporating them into the manuscript instead if at all possible/reasonable.

- These figures were uploaded as supplementary material in a separate file. However, they have been incorporated in this new version of the manuscript. Please, see pages 25 and 26.

Lines 226-228 – It states here that changes in temperature did not affect seedling emergence. Then it says these results are consistent with similar studies. Then Lewandrowsk (2016) is cited, and it is stated that seedling emergence decreased with increasing temperature in that study. This finding is not consistent with the finding of this study. This section should be reworded/reconsidered as needed.

- This statement has clarified. Please see lines 229-233: 'Overall, our results showed that rainfall patterns had a large influence on seedling emergence across the five native species, and suggest that seedling recruitment of these native plants may decrease in a climate scenario of increasing drought. These results are broadly consistent with other similar studies conducted in seasonally dry environments. For example, Lewandrowski (2016) found that seedling emergence of Triodia species decreased with water stress and high temperatures (35- 40° C)'.

Lines 246-248 – Here the idea that seedling emergence took slightly longer under higher temperatures is discussed. Then, in the lead-in to the Cochrane et al. (2015)

study discussion, the authors begin with “However”. Leading with “however” tells the reader you are about to present something that is somehow different than what you have been saying to that point. The Cochrane et al. (2015) study is in agreement with this study. Therefore, the “however” in Line 247 should be removed.

- Our results actually showed that shorter (and not longer) times recorded under higher temperatures, particularly in A. hilliana and T. epactia. This typographical mistake has been corrected and the paragraph has been modified. Please see lines 250-256: ‘The mean time for emergence of the five plant species was significantly different across temperature and rainfall treatments with slightly shorter times recorded under higher temperatures, particularly in A. hilliana and T. epactia (Fig. 2); results that are in agreement with some previous studies (De Frenne et al., 2012; Richter et al., 2012). However, in the southwest of Western Australia, Cochrane et al. (2015) found that emergence of seedlings was delayed with warmer conditions, compared to control. It has been previously suggested that early emergence is a strong determinant of seedling vigour and can significantly increase plant biomass (Verdú and Traveset 2005)’.

Line 282 – “deeper soil layers” would be more appropriate than “deeper soil profiles”. The profile is the soil cross section from top to bottom, and it has layers. We don’t have shallow and deep profiles, at any given site we have the soil profile, but we do have shallow and deep layers within a profile.

- It has been corrected. Please see line 289.

Line 310 – In addition to the Cortina and Valdecantos references, I suggest citing Lozano-García et al., 2011, and Keesstra et al., 2016 (would become 2016b in this paper).

- These references have been added. Please see line 316 and the references section.

Line 313 – I think “plat” should be “plant”.

- It has been corrected. Please see line 319.

Figures 2 and 3 are not called for in the manuscript. A call needs to be added or they need to be deleted.

- It has been corrected. Please see lines 252 and 276.

References Keesstra, S., Pereira, P., Novara, A., Brevik, E.C., Azorin-Molina, C., Parras-Alcántara, L., Jordán, A., Cerdà, A., 2016. Effects of soil management techniques on soil water erosion in apricot orchards. Science of the Total Environment 551–552, 357–366.

Lozano-García, B., Parras-Alcántara, L., Del Toro, M., 2011. The effects of agricultural management with oil mill by-products on surface soil properties, runoff and soil losses in southern Spain. Catena 85, 187-193.

Thomas, C., Sexstone, A., Skousen, J., 2015. Soil biochemical properties in brown and gray mine soils with and without hydroseeding. SOIL 1, 621-629. doi:10.5194/soil-1-621-2015

Please also note the supplement to this comment:
http://www.soil-discuss.net/soil-2016-25/soil-2016-25-AC2-supplement.pdf

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