

## ***Interactive comment on “The fate of seeds in the soil: a review of the influence of overland flow on seed removal and its consequences for the vegetation of arid and semiarid patchy ecosystems” by E. Bochet***

### **Anonymous Referee #4**

Received and published: 14 November 2014

#### General comments:

I really enjoyed reading this paper. The paper offers an excellent and updated review on the effects of seed transport and removal by overland flow in arid and semiarid landscapes, describing the broad implications that this process can have for the organization, stability and functioning of vegetation in drylands. The paper is well written and organized, and the topic has a critical importance for promoting research at the interaction between the dryland disciplines of soil, ecological and hydrological sciences.

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A few minor aspects/edits are listed below for correction/clarification.

#### Minor comments:

Page 594, line 6. Delete the space between "afore" and "mentioned".

Page 594, lines 25-26: "these authors observed an increasing seed density in the downslope direction from the top to the bottom part of the slope that supports the hypothesis of seed redistribution along the slope...". Please, add ",at least in part," just after "supports". Vegetation density usually increases downslope, which can also have an important role on explaining the concentration of seeds at the base of hillslopes.

Page 595, line 5. Change "afore-mentioned" to "aforementioned".

Page 595, line 12. Please, delete "slope or".

Page 597, line 24: "was also correlated with soil properties related to runoff generation". Change "related to" to "associated with".

Page 597, line 26. Please change "plants" to "species".

Page 598, line 1: "...than the water...". Please, delete "the"

Pages 601-602, lines 27-2: "A possible outcome that has been inferred from these observations by many authors, that remains a controversial topic today, is that the vegetation patterning migrates progressively upslope (Thiéry et al., 1995; Montaña et al., 2001). In a recent model, Saco et al. (2007) related the migrating or stationary condition of bands to the dispersal of seeds by overland flow". Vegetation bands in some particular environments migrate upslope (tiger bush landscapes in Africa) while in other areas (e.g. Mulga bands in central Australia) they are stationary. A good review of the mechanisms that induce these differences can be found in Deblauwe et al. 2012: Determinants and dynamics of banded vegetation pattern migration in arid climates, Ecological Monographs, 82: 3-21.

Page 604, lines 22-24: "because future scenarios of climate change predict changes

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in vegetation (type, cover and spatial distribution) and in rainfall distribution (higher intensive rainstorms), leading both to more intense erosion events". Please, add a citation for this statement.

Page 605, line 14: "mine spoils, burnt areas, ...)". Please, delete the comma and the space between "burnt areas" and "...".

Page 605, line 28. Change "afore-mentioned" to "aforementioned".

Figure 2. Line patterns in this figure are not very helpful for identifying data type. Adding colour to this graph will substantially improve the identification of the different lines/vectors.

Figure 5. Why plants in the slope toe are labelled to be more competitive than plants in the slope? Plant species adapted to growth in sloped environments can be as competitive (or even more) for the use of water as plants adapted to growth in flat areas. However, the type of microsite can make a big difference in the use of resources: slope toes are generally very densely vegetated which subject these areas to a very high competition for resources (this point is correctly described in the text: page 598, lines 23-26).

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Interactive comment on SOIL Discuss., 1, 585, 2014.