Anonymous Referee #2
Major remarks
The author presents a good review paper on the current state of large-scale interactions of water and vegetation. The paper tackles some important aspects of research that connect hydrology, vegetation and land use. Even though the paper is written from the global perspective (p. 4442- line 21), the issue of which spatial scales (e.g. continental scales at GHM resolutions of 0.5 degree) are considered should be made very clear from the beginning, i.e. the abstract.

Okay, this will be made clear from the beginning.

The paper largely focusses on LPJ results. I believe that some value would be added if the results of other large-scale DGVMs would be included where possible. In this respect, the study of Davie et al. (2013) nicely fits.
Davie, J.C.S., P. D. Falloon, R. Kahana, R. Dankers, R. Betts, S. Gosling, N. Arnell, Q. Tang, X. Liu, D. B. Clark, Y. Masaki, B. Fekete, Z. Tessler, F. T. Portmann, T. Stacke, S. Hagemann, R. Pavlick, A. Itoh, K. Nishina, and W. Franssen, 2013: Comparing projections of future changes in runoff and water resources from hydrological and ecosystem models in ISIMIP. Earth Syst. Dyn. Discuss., 4, 279-315, doi:10.5194/esdd-4-279-2013. As many results reviewed and discussed in the paper are based on global modelling exercises, the paper would strongly benefit from a section that summarizes the current strengths and weaknesses of DGVMs and global eco-hydrological models. This can be a separate subsection or 1-2 paragraphs in the conclusions section. Some related information is currently provided, but it is distributed throughout the paper and not summarized consistently.

A section on DGVM's capacities was also requested by referee #1, and I will add this. The suggested, very recent literature will be included as it perfectly fits the topic, and other relevant, very recently published papers will be cited as well.

Generally, the paper is concisely written so that I suggest accepting the paper for publication after minor revisions have been made.

I thank the reviewer for being so positive about the paper. His/her other, minor comments (listed in the following) will be considered in the revision.

Minor Comments
In the following suggestions for editorial corrections are marked in Italic.
p. 4441 - line 14-16 Sentence is difficult to read- please rewrite.
p. 4442 - line 7-11 Long sentence is difficult to read- please rewrite.
p. 4444 - line 1 … than the replaced vegetation would do. The latter would die back … …stress.
p. 4445 - line 1 The word "desideratum" is very uncommon. Please use a more common phrase.
p. 4445 - line 5 … mechanisms as natural …
p. 4445 - line 6-7 Sentence is difficult to read- please rewrite.
p. 4445 - line 17 Please replace "harvesting" by a more common word.
p. 4446 - line 1 Sentence is difficult to read- please rewrite.
p. 4446-4447 – sect. 4. The use of the term 'climate scenario' is unclear. Is it related to emission scenarios (p.4446 -line 27), or to various GCM simulations projecting the future climate (p.4447 – line 7-8)?
p. 4447 – line 11 What do you mean with "fully realised in the field"?
p. 4448 - line 2-4 Sentence is difficult to read- please rewrite.
p. 4448 – lines 8 and 14-15 In line 8, it is stated that land use decreases global river discharge by 5%, but line 15 states that land cover/use change resulted in a global

discharge increase of 6 km3/year. These results are contradicting each other, but the paragraph is written in a way, which suggests that all studies follow the same line. Please clarify!

p. 4449 - line 18 Also efforts are needed to …

p. 4450 - line 26 … management need to …

Fig. 1 Please indicate the difference between the solid and dotted curves.

Fig. 2 Panel titles and legends are much too small. Please increase their sizes.

Fig. 2 caption The term "analogous to the index in" is unclear. Please explain/define if it is important, or remove this information. What do you mean with "harvesting"? I suggest using a more common term to describe what you mean.

Fig. 3 Figure quality should be improved, e.g. the contrast and the legend size.

Fig. 3 caption English needs to be improved. E.g. … 2080s. Areas are indicated by the percentage … … effect would be … Maps were modified …