Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
https://doi.org/10.5194/hess-2022-200-RC2, 2022

Comment on hess-2022-200

Anonymous Referee #2

Referee comment on "Is the reputation of *Eucalyptus* plantations for using more water than *Pinus* plantations justified?" by Don A. White et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2022-200-RC2, 2022

I think this is a very useful contribution to the afforestation debate. The paper is very well written and presented. I do not have any particular criticisms. I note a posted comment regarding variability in species that, in an ideal world of data, would be good to delve into, but I suspect there are not the data to do this well. However it could be a discussion point.

One section perhaps could be reworded; in the para beginning line 97 there is a statement that .."there seems to be differences between etc." and then suggests studies that show similar outcomes. Could be just me, but seemed not quite the right text.

My other comments are around the Discussion, which I think is great. I suspect the section from Line 471-485 is the nub of the "thirsty eucalypts" concept that many have. What are people comparing when thinking about water use; is it mature closed canopy stand or a young stand going hard? What is the soil moisture status at the time of planting? etc.. with the pinus stands apparently having consistently longer rotations, there is a greater likelihood of attaining a hydrologic state matched to the site resources.

There is a paper (Lane et al. 2005 H.Hydrol. 310) that compares changes in streamflow for mainly South Africa and Australian catchments. The lone eucalypt site plots right in the middle of the flow reductions. These magnitude of these reductions appeared to be partly a function of soil depth/storage. This analysis also looked at the timing of flow reductions which also speaks to the age and rototion discussion.

The authors may or may not feel like any of the above might be useful discussion material.

Overall, I commend the authors for a very good paper