Interactive comment on “Speculations on the application of foliar $^{13}$C discrimination to reveal groundwater dependency of vegetation, provide estimates of root depth and rates of groundwater use” by Rizwana Rumman et al.

Anonymous Referee #1

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This is a rigorous study examining the feasibility of using $\Delta^{13}$C as an indicator of groundwater use by vegetation. The paper is well written and addresses the important issue of determining vegetative water sources. The potential to use the measurement of $\partial^{13}$C in place of the more time consuming $\partial^{2}$H and $\partial^{18}$O analyses is promising and a very useful contribution to the field.

Overall, the paper is well organized and interesting to read. One thing I might suggest is a diagram or table depicting the different sampling plots/transects and how many/what kind of samples were taken in each. This is not completely necessary, but with such a
wide variety of variables being examined, it might be helpful.

Minor comments:

Figure 1: Change red lines to arrows (or something else). Right now they are covering data and look misleadingly like they are depicting actual data. Also, the y-axes in the top two panels do not match, but are consistent between all other pairs of panels.

Page 11, line 9: Error “shallowest site that at sites”

Figure 3: Make fonts and panel sizes consistent

Figure 5: X-axis label is cut off in panel (a)

Figure 5: It seems odd to combine both species together for the regressions when there are only data from E. camaldulensis for a small fraction of the total distance examined. It would be better just to include the regression for C. opaca while still keeping the E. camaldulensis data points in the figure for reference.

3.3 Leaf vein density: Error in first line “Leaf vein densityLVD”

Figure 6: Make font size in (a) match font size in (b)

Figure 7: Error in figure legend “from same individual leaves”