

Interactive comment on “Groundwater surface water interactions through streambeds and the role of phreatophytes in identifying important recharge zones” by T. S. Ahring and D. R. Steward

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General Comments

This manuscript uses the presence/absence of phreatophytes to identify locations of groundwater/surface water interaction and uses temporal variations in phreatophyte growth to indicate declines in groundwater levels. This research is quite interesting, generally well-written and easy to read. The results are limited to a qualitative analysis of groundwater levels and groundwater/surface water interactions which may not be valuable in gauged basins, but may have significant value in ungauged basins, as

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described by the authors.

There are several scientific and grammatical issues that need to be addressed before the manuscript is finalized. These issues are addressed in the following sections.

Specific Comments

1) Was there any attempt to determine if phreatophytes were removed by land owners, flooding, or other non-water-availability-dependent reasons? These possibilities should be acknowledged even if they weren't taken into account. 2) Was the natural meandering of the stream bed over time taken into account when interpreting the results? From the photos it appears there has been stream bed movement. 3) Were the water level records corrected for barometric pressure when possible? WIZARD values are not, and several publications have indicated that barometric pressure can cause large variations in water levels, some specifically in Kansas (Butler et al., 2011, Ground Water, Vol. 49 No. 4 pp 525-533), and along the Arkansas River (See KGS index well program; Haskell well location). 4) Were the water levels chosen taken at the same time/season? Seasonal pumping can cause large (>100ft) variations in the water levels and it is important to ensure all water levels represent the same point in time. 5) Why is ASR not feasible here? There are both operational and pilot studies elsewhere in the state (e.g. Wichita, Republic). Is it because of a lack of an alluvial aquifer? Please specify. 6) How is the statement of potential future research, specifically the need for methods to make naturally infiltrated water cleaner without treatment, related to this research? 7) Figure 4 is very busy and difficult to view. It is recommended that it be split into several graphs (as Figure 4a-e, etc.) to better view the results.

Technical Corrections

1) Page 7 Line 22: Were not where 2) Page 12 Lines 3-9: This section is confusing and needs rewording.