Review of Fernald et al. "Linked hydrologic and social systems that support resilience of traditional irrigation communities" (**hess-2013-508-manuscript-version3.pdf**) in light of prior review comments and authors' responses (**hess-2013-508-author_response-version1.pdf**).

This is an extremely interesting and rich paper, which addresses a topic of direct relevance to socio-hydrology and the HESS special issues. There is enough material here for numerous papers; the challenge is to synthesize it into concise and compelling analysis and future projections. I do recommend that it be published, but offer suggestions and comments here that may improve it.

The abstract is overly descriptive of the research conducted and should be reformulated to synthesize results.

In light of the strong linkages between hydrologic and social systems, I suggest including short descriptions of acequia communities and management systems from current sections 3.2 and 4 up into the Introduction. This sets the stage for subsequent detailed descriptions of hydrologic processes and social-economic dynamics.

A better "roadmap" paragraph (instead of simply "Our approach in this paper is to briefly outline the key component issues" on p. 3) would guide the reader through the subsequent sections. Which are the most salient components to address resilience over the longer term?

Irrigation seepage is posed as an adaptive strategy. Is seepage intentionally preserved as a feature of head-tail dynamics along the acequia ditches? Is it a product of local materials, the result of relative abundance of water (within confines of land irrigable by gravity), or some combination of these? Comment on the scarcity-adaptation, and water spreading outcomes of seepage. The comment on "use of hybrid drip irrigation" in section 3.2 seems incongruent. See other papers in the HESS socio-hydrology series related to irrigation efficiency.

What does the paleo-climate record indicate were the hydrological extremes over the past 400 years of acequia resilience?

Fig. 4 plotted over five runoff seasons doesn't convey the time shift as effectively as Fig. 5; a simple statement would suffice to say that by the end of the 21st Century the shift is expected to be on the order of approx. 15 days.

The ICLUS and SWReGAP model descriptions are only loosely connected to the other sections; following the comments of an earlier reviewer that this often reads as a paper-by-committee, the entire section 2.3 could be removed (I realize this may be one author's work, and I regret to suggest this if the team effort would suffer).

Figs. 9 and 10 could be combined.

The changes in livestock numbers and type (Fig. 11, 13 – why separated by Fig. 12 on tracts?), plus the agricultural tracts (Fig. 12, Table 1) are only loosely connected to the other sections, and could be removed (my same regrets comment as above).

Section 3.3 (Figs. 14, 15, 16) are rich in detail, though a single 'take-home' message doesn't clearly emerge, or isn't artfully brought out.

Was the 2008 New Mexico Acequia Association assessment survey conducted in isolation of (before) the rest of the research reported on here? How do the views on parciantes' participation or conflict translate into management decisions that in turn translate into modified (socio-) hydrological regimes and, further, into high or low resilience? Modeling based on the causal loop diagrams (Figs. 17 and 18) is an important step in this direction. It would be helpful to know the specific steps you envision when making the statement at the bottom of p. 26, "In order to identify resilience, sustainability, thresholds, tipping points, and future directions for hydrologic and community health, our ongoing work is developing a model that brings together all scenarios to help identify higher levels of interaction than are obtainable with disciplinary approaches."

Finally, in relation to the authors' responses (to earlier review comments), "we don't claim that 100% of all acequias have survived, but that the institution of the acequia still operates and functions," it is important to distill the essential characteristics of this endurance. In view of changing hydrological regimes and external (urbanization) pressures – the two drivers posed as presenting the greatest threats – what are the hydro-hydraulic characteristics of the systems (leakage, upstream-downstream, main-stem or side-tributary, surface-groundwater conjunctive availability…) and the social-institutional (crop and livelihood diversification, local knowledge, mayordomos' expertise…) that strengthen resilience?