**Fahey comments on Luquillo LTER**

I had a great introduction to LUQ during my first visit that encompassed parts of the LTER and CZO annual meetings. Spending time with PIs and students in the field was most helpful. I also read through the LTER proposal. Unfortunately, I wasn’t able to attend the LTER management session, and my suggestions below should be taken with a big grain of salt.

The LTER project is a central point for an excellent overall program of research on tropical ecosystems at LUQ. In general, the LTER project and proposal are nicely integrated. The choice of drought as a central theme worked well in the proposal, and the LTER annual Meeting session was interesting and informative. An important decision will be whether to use drought in this way in the upcoming proposal (see below). Like other LTER sites the LUQ includes a variety of complementary projects funded by other grants and the usual issue of coordination among all these projects is challenging. The LTER maintains a suite of long-term monitoring and experiments which provide a context for many of these complementary projects exactly as LTER should function.

I divide my comments into four categories: management issues, research issues, upcoming site review and next proposal. I hope these comments are helpful.

1. **Management issues**
2. There wasn’t much in the proposal about site management. With so many different groups using the site, and likely future increases, it would be worthwhile to consider whether any changes are needed. A centralized GIS with georeferenced locations of LTER and non-LTER projects might be helpful. This would be a big burden for the site manager and some way of distributing the workload might be needed. AT HBR we now require new projects to specify locations with the site management group at the project proposal and initiation stage and this has proved effective. We also specify at the proposal stage that investigators must provide data sets to the data manager in a timely fashion.
3. It is worth considering whether to develop an umbrella website for all or most projects associated with LUQ. Is it worthwhile to build out the website to include CZO, ULTRA, etc. including common publication lists and data sets? As above, this is a lot of work but it could contribute towards integration across projects. Perhaps pooling of data management funds across projects could facilitate such an effort.
4. I understand the unique challenge faced by LUQ with distributed investigators, 12-month sampling season and high travel costs (both $ and time). This makes cross-project integration difficult and constrains cohesiveness and overall program identity (e.g., as expressed by graduate students). It might work to schedule a regular “cooperators week” each year that gets on everyone’s schedule. Everyone from LTER as well as complementary projects would plan to be on site most every year at the same time. Field trips can be scheduled together with topical project workshops and short talk sessions.
5. **Research issues**
6. There are several points of convergence among LTER, CZO and a couple of the big external funded projects. Assuming CZO becomes a long-term program, this complementarity should be developed as fully as possible.
7. The current LTER proposal interjects theory at several points and the overall issue of how the only tropical LTER site can inform general understanding of tropical ecosystems should always be emphasized. As Aaron Ellison noted in his earlier comments, this issue is inherent in the connection between long-term data sets and models. Specific to the current proposal is drought as a central theme.
8. I was particularly impressed by the abundance of *Presteoa montana* across most of the landscape I visited. The CZO folks suggested connections between this species and land form development and there are several other intriguing issues about this species, briefly noted in the proposal. It must be challenging for NPP estimation.
9. One additional connection with the CZO revolves around soil physics. Seems like further development of hydrologic flowpaths and connections with stream dynamics would be a fruitful area for integration. The possible loss of the Bisley stream gages seems like an issue of first importance.
10. At HBR we have been faced with what to cut under flat budgets, and we went through a couple of workshops to provide a basis for such decisions. It was a very useful exercise! For example, we eliminated chemistry sampling for some watersheds and some long-term litterfall plots in our most recent proposal.
11. **Site Review** (I’ve been through 5 of these and my comments below reflect a few things I can still remember).
12. Try to avoid humorous statements that grouchy site reviewers might take as an indication of limited scientific rigor. We were chastised for “plants rule, microbes drool.” On the other hand, they have to find faults and this might be the least for them to complain about!
13. Be sure each of the stories presented in the review is very tight scientifically. We ran into this a couple of times. Lugo’s critique re stem shrinkage and drought NPP response would be parallel.
14. Look closely at the composition of the review team to help guide presentations. One time we had a Bayesian enthusiast and took a lot of grief for not covering data-model fusion in our overviews of current research.
15. Be careful about attribution and ownership. We had big issues one time with separation of USFS and LTER (we led off with USFS as the site overseer which NSF did not like).
16. Make sure there is a good connection between data streams, process studies and models. We ran into trouble when a reviewer claimed we could not model what said we were modeling.
17. I’m sure you know that data management must be in perfect working order and as comprehensive as possible. Everything presented should be accessible.
18. **New LTER Proposal**
19. I guess you’ll need to start planning this pretty soon! Or wait until after site review (that might be too late to start). Maybe you could combine the two activities in upcoming planning sessions?
20. The drought theme seemed to work well in the current proposal; however, because the recent drought will be history and two experiments will already be underway (stream and forest) when the new proposal goes in, you may need to change emphasis.
21. The conceptual model is somewhat similar to ours at HBR. You have the disturbances interacting with land use. I noticed that the land use theme doesn’t get much specific attention in the proposal. Perhaps if you try to be more complementary with CZO you could make more of the geophysical template and interaction with disturbances. If you try to be more complementary with ULTRA, the land use theme could be developed more. I agree with Aaron that these proposals need to tell a good story rather than pack in expansive details about everything that is being done.