**Decomposition project - A joint project for students in Israel and the USA as part of the LTER-EDU program**

September 11, 2012, 1:30 – 3:30 pm

Co-organizers: Dr. Saleit Ron (RH Israel LTER) and Kari O’Connell (AND LTER)

Attendees: 15 attendees from 12 different LTER sites. See end of document for a table of attendees and email addresses.

LTER-EDU is an educational project that offers school students an opportunity to be partners in the LTER global monitoring effort. The students collect meteorological data and monitor vegetation, arthropods, butterflies, birds and other ecological data, which is uploaded onto an educational website, enabling other students to participate in data analysis and to draw conclusions based on all the data gathered.

The goals of the workshop were to 1) introduce the LTER-EDU program and the decomposition protocol, and 2) extend an invitation and discuss how participants can join the collaborative monitoring effort in their sites.

Saleit Ron gave an introduction to the Israeli LTER site and the LTER-EDU project with a specific focus on the decomposition protocols and data entry system.

Kari O’Connell gave an overview of the recent partnership formed between Saleit and an Oregon high school teacher, Jill Semlick. Jill is implementing the LTER-EDU protocols with her high school biology and sustainable agriculture students this year. Her work will be the first pilot of a teacher in the U.S. doing the LTER-EDU protocols.

We opened the discussion to the group to talk about challenges for teachers in the U.S. involving their students in the LTER-EDU project.

Challenges include:

* Equipment & supplies.
* Too many variables changing (e.g. litter quality, microclimate, etc.). Stephanie et al. tried a LIDET-like exchange through the Ecoplexity project, and it was too complicated to mail the litter around.
* Litterbags being disturbed by vandals or critters (eating them)
* Variable length of time for decomposition to occur in different environments
* Timing of setting out bags with school year/semester schedule
* Access to computers
* Standardization – in methods, and in particular litter quality (different kinds of hay & straw)

We then discussed possible solutions to some of these challenges.

Since we would be starting this project with teachers we are already working with, we likely can find a way to support them with equipment & supplies’ purchases through LTER or LTER-leveraged funds. Also, there are many options for small grants for such purposes. Saleit mentioned that the protocols describe a way to dry the litter in a conventional oven.

We discussed that, especially for middle school students (and probably even for high school students), we would need to limit the type of comparison to one. E.g. type of litter (hay vs. native litter) or microclimate (comparing hay decomposition in one environment vs. another).

We discussed that the litterbags could be buried – that might protect them from vandals or critters. Also, teachers could inform all the other teachers and the grounds crew, etc. to make sure they know they are there. Also, Kari offered to check with Jay Sexton and Mark Harmon to see if they have any insight about critters eating litter bags.

In Colorado, it is so dry, that a teacher used compost to get the bags started. Coordinators could check with their local site scientists for suggestions about appropriate lengths of time for leaving out litter bags.

Teachers can have the 11th-grade class set out the decomposition bags in the spring, and then the next class (or the 12th-grade class), could pick up the first set of bags first thing in the fall. Or one class could set them out in the fall and another pick them up in the spring.

Saleit suggested that for teachers not having access to computers/knowledge about excel, they can designate one student as the one to enter the data for the class.

Standardization of methods can be improved if every group implementing the LTER-EDU project uses native litter in their litter bags. Then, the main question becomes about decomposition of litter native to that environment. We believe that this issue deserves some more discussion, and some of that might be achieved if Stephanie and Kari collaborate on a proposal (see below).

Several people expressed interest in bringing teachers into the LTER-EDU project:

* Stephanie Bestlemeyer
* Venetia (GCE)
* Katie Bennet (as a teacher)
* Mary Spivey (maybe)
* Molly Charnes (as a teacher)

**Next steps**

Saleit email notes of working group out to whole group. (Done)

Saleit email weblinks to LTER-EDU project to the whole group. (Enclosed)

Kari will send Jill’s description of what she did with her students and lessons learned to the whole group in the spring of 2013.

Kari will also send/start accumulating ideas for incorporating the LTER-EDU project into teaching carbon and nitrogen cycles, especially in light of the NGSS. The MSP has resources that can be used for this, and also Kari has teachers who have used a decomposition study to teach carbon and nitrogen cycles. Stephanie is interested in collaborating on this work.

Jennie DeMarco mentioned a Nitrogen board game. She will find the link and email it to the group.

Kari and Stephanie will stay in touch about possibilities for writing a small proposal that could fund implementing the LTER-EDU project with teachers & their students within the U.S.

Kari will send an email to Geoff Wilson introducing him to Kyle Wickings, a scientist at UNH interested in working with teachers.

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**Important links;**

The educational website of Ramat Hanadiv LTER site in Israel:

<http://www.ramathanadiv-edu.org.il/programs.asp>

The link to the LTER-EDU program:

<http://www.ramathanadiv-edu.org.il/Lter/LterEng/main.asp>

The link for the film of how to use the website:

<http://youtu.be/rZkHBCSDb9E>

The link to the film about the training course we did for European teachers at RH:

<http://youtu.be/_qyZb0InyHs>

The link for the film we made about research at RH:

<http://www.ramathanadiv-edu.org.il/movies.asp>  please look under- "exploring Ramat Hanadiv"

