

Nutrient Network Workshop IV

18 – 22 June 2012

Business Meeting Minutes

The Nutrient Network business meeting for 2012 was conducted Wednesday, June 20th 2012 at the Institute on the Environment at the University of Minnesota. The discussion was led by Elizabeth Borer and Eric Lind and minutes recorded by Kim LaPierre (Yale University) and Peter Wragg (U of M).

Agenda Items:

- Funding for NutNet HQ
- Education & outreach questionnaire
- Request for observational data
- N-source experiment results and sources of Nitrogen fertilizer for continuing experiment
- Manuscript submission details and coordination
- Publications Committee – Carly Stevens & Andrew MacDougall
- Proposals for new all-network or sub-network projects

Discussion:

EB = Elizabeth Borer; ES = Eric Seabloom; Stan = Stan Harpole; Sarah = Sarah Hobbie; Cini = Cini Brown; EL = Eric Lind; Kirsten = Kirsten Hofmockel

EB gave reminder of the “NutNet extravaganza” at ESA 2012 in Portland. There will be a Wednesday afternoon Organized Oral Session (OOS 34) focused on NutNet work. Stan, EB, and EL also organized an evening Special Session for Wed night (8-10pm) on tackling grand questions and global scale problems with network science, including representatives from NEON, ZEN, other networks.

EB gave an update on **NutNet funding**.

The RCN funding officially ends in April 2013, will try to get a no-cost extension. The post-doctoral position (EL & previously Lydia) is critical to functioning of Network. But funding it has been challenging, it is becoming clear NSF won't be the source of funding. 8+ proposals have been submitted building on NutNet with none funded. Many of the reviews emphasize the lack of site-level understanding. Stan: “the program officers get it, but our peers don't.”

Cedar Creek 6-year LTER renewal has just been funded, and will fund 3 years of post-doc, for the last 3 years of the grant. That leaves a 3-year gap in the NutNet coordinator funding from Spring 2013. One option being pursued is a joint venture with the U of MN Institute on the Environment (IonE).

Funds remain to support one more full meeting, which is critical to keep momentum and provide space for progress on NutNet. Sarah suggested it will be convenient to piggyback on the ESA meeting in Minneapolis next year, although other groups will be likely to do the same. EB encouraged international NutNet PIs to look for funding to host meetings elsewhere.

EB discussed **New NutNet sites**

Last year three new sites were added, including one observational site during the meeting. Still, vast gaps exist in world grasslands where even minimal data collection would be extremely valuable: Russia, Mongolia, Estonia, Brazil, etc. A minimum of 10 square meter quadrats (*postscript: >5m apart*) of cover could be considered a NutNet observational dataset.

EB, ES, Sarah, Kirsten, Stan, others discussed **sources of nitrogen fertilizer**

ES and Stan conducted a sub-experiment to test the difference between ammonium nitrate, calcium nitrate, and slow-release urea. No differences were found in effect on biomass or %cover across four sites. This will be reported as an appendix to an experimental paper. Kirsten suggested that even where above-ground processes do not differ, soil processes could be affected, especially since with urea there is a carbon source as well as a nitrogen source being added.

One problem for global synthesis is that time-release urea seems unavailable across much of Asia, leading to a confounding of region with nitrogen source. ES suggested regular urea might be an option, but the problem is that raw urea volatilizes so that the rate might not be equivalent in a once/year application. Sarah said this is because the N has to be broken down, but that it is usually a problem only at high pH, and that the NutNet rates are high enough that it might not matter. Kirsten agreed. Discussion about whether the source needs to be changed, whether multiple applications of urea would be possible or necessary, with the conclusion that Sarah and Kirsten would investigate further.

Stan noted that the issue of micronutrient re-application should be discussed at a future meeting. ES suggested waiting until soil chemistry analyses are returned from post-treatment soils, so that K+micro plots can be compared to non-micro plots, and if levels are not different they can be re-added.

EB and Stan discussed a potential **collaboration with EPA**

Stan: Chris Clark (EPA) is investigating low rates of deposition to be matched with atmospheric N, which would be lower than the “agricultural” rates NutNet is using. A key question is whether response to nitrogen is linear or non-linear, and if non-linear where the threshold of response would be. ES described how a lot of EPA data is based on aquatic systems since there is little terrestrial data. There may be money to fund an extension of NutNet to investigate these questions. Two sites (cbgb and cedar creek) have extra N treatments (1 g yr and 5 g / m² / yr in addition to the standard 10 g). Initial results at both sites show response to 1g is almost as much as 10g. However the effects of the highest levels also decrease over time. EB reminded that Cedar Creek has long-term data with which this can be put into context.

Discussion of how to best collect additional N data in NutNet ensued. Justin Wright asked about adding N to site-specific subplots of all plots, but Stan suggested that could compromise the controls due to leaching, gopher attraction, etc. Robin Marushia asked whether both 1g and 5g would be needed, but Stan indicated that only the 1g would be sufficient. Representatives present for the meeting seemed to have general interest in pursuing this.

Stan discussed the possibility of **directly measuring site-level N deposition**

This can be done with a simple funnel with exchange resin, set out for up to a year and analyzed with chromatography. This only measures wet deposition; Carly Stevens suggested that dry deposition funnels are also available cheaply but require changing up to four times a year so

may not be practical. Stan's goal is to generate "easy" data so that a more comprehensive funding request can be made for the Network. Stan will construct and distribute 10 or so funnels to be placed in sites to collect these data. EB and ES indicated this is exactly the kind of "usable" science that would be attractive to potential funders like IonE. There was general enthusiasm for deploying the wet N deposition collectors, and a push from EB to Carly Stevens to get her paper published showing the importance of accounting for NDeposition in productivity.

EB and EL discussed the **manuscripts about to emerge from NutNet this year.**

Many papers should be going out for review (internal and external) soon, most are opt-in so EL briefly reviewed the Opt-in process, which is spelled out in detail at <http://www.nutnet.umn.edu/authorship>. EB advocated for a standard keyword, so that the Nutrient Network can be easily found in database or web of science searches.

Important:

- * All NutNet papers should use "Nutrient Network (NutNet)" as a keyword.
- * All NutNet papers must have an authorship contribution table as an appendix or supplemental file.

EB described the new **publications committee.**

Andrew MacDougall (Guelph University) and Carly Stevens (Lancaster University) are co-chairs of the publications committee. Other members of the committee will be ad-hoc. They will send out a form (*postscript: form has been shared to the listserv and is also available at <http://www.nutnet.umn.edu/authorship>*). This form should be filled out by the lead author of each manuscript proposed, including those that are already in progress. The main purpose of the form is to allow the committee to flag overlap and improve communication amongst authors, given that we are all working from similar datasets.

Also, the publications committee will be able to flag those abstracts which have been written as manuscript proposals which have "gone dormant," and make them available to other collaborators to take on as lead.

EL described a process for **proposing new data collection efforts.**

Charlotte Riggs (U of M) is interested in collecting data on soil organic matter and has written a proposal to visit a subset of US NutNet sites and perform the data collection. She has written a short (one-page) proposal which can be used as a model for future proposals, which is available at <http://www.nutnet.umn.edu/add-ons>. Future proposals for add-on work should similarly be clear about the scientific aims and questions, have a short research plan, spell out site responsibilities and costs, and especially for projects in which local effort is required, give a realistic time estimate for this work. This is most easily accomplished by field testing the proposed protocol in a NutNet site (or a few).

One recommendation for maximum participation in add-on projects is to have multiple levels of involvement, from "bare minimum" to full participation, with effort scaling accordingly.

Following a call of any further business, and hearing none, the meeting was adjourned.