## Summer 2006 Coweeta Meeting, 26-28 June
## Coweeta Conference Center, Coweeta Hydrologic Laboratory

The meeting spanned two half-days (June 26 and 28) and one full-day (June 27). On Monday June 26 from 12:00 to 5:00 pm the forecasting effort was discussed. On Tuesday June 27 from 8:00 am to 5:00 pm, research presentations by students and investigators were delivered. On Wednesday June 28 from 8:00 to 12:00 am, a discussion took place of initial ideas to organize the 2008 Coweeta LTER renewal.

**Attending June 26**

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|---|---|---|---|
| Mark Bradford | Chelcy Ford | Scott Pearson | Barbara Reynolds |
| Barry Clinton | Ted Gragson | Cathy Pringle | Mark Scott |
| Carolyn Dehring | Brian Kloeppel | Ron Pulliam | Jack Webster |
| Kitty Elliott | Jennifer Knoepp | Bob Ratajczak | Jim Vose |

**General Comments**

The outline of a) Clark's *Synthetic Carbon Modeling* and b) Leigh's *Forecasting Fine Sediments* documents were presented and used as the basis for discussing how to proceed. While the desire to hire a post-doc capable of managing the Bayesian modeling for Coweeta remains the ideal, it is also clear that there is significant preparatory work that can and should be carried out toward the stated goals of this effort. The objective for the group during this meeting was to make progress toward identifying what individuals and/or smaller groups can work on to begin making progress in the interim between the desire to hire a post-doc and the need to advance the research.

Points of agreement reached in the course of the meeting included the need for the forecasting to be question-driven, address uncertainty, and include both mechanistic and empirical dimensions. That a Bayesian approach may serve these purposes better than a frequentist approach was discussed and generally accepted albeit with the reservation that direct capacity to advance the Bayesian approach specifically is more limited within the group. There are inherent advantages to the Bayesian approach, including the ability to build-up to more encompassing models from the analysis of selected data sets. It also affords the possibility of comparison, in effect, establishing the probability of a given dataset given Model A or B as well as the probability of Model A or B given a certain dataset. Two questions raises for which no certain answer was available yet were a) how complicated does a model need to be in order to be "useful," and b) is it possible to collapse parameters for competing effects.

To advance the forecasting approach, three issues requiring development were identified:

1. What/why focus on forecasting in the context of the Coweeta LTER. Rather than the abstract reason for forecasting, what is the distinct advantage of forecasting for this project? The umbrella for forecasting should focus around land-cover/land-use change in line with the organization of the present Coweeta LTER research and the likelihood (based on a discussion Wednesday morning and the NSF Mid-Term review) that something in this vein will continue to organize the research in the future. Beyond agreement on this framework, nothing further was done.

2. What are the distinct advantages (and disadvantages) to using a Bayesian approach as opposed to other approaches? The group discussion focused on several issues that Chelcy Ford and Ron Pulliam then developed into a brief summary statement.
3. Which modules and/or building blocks should serve as the point of departure for our forecasting effort? The documents by Clark and Leigh are significant for identifying likely starting points, and Leigh has gone so far as to begin an analysis of Total Suspended Sediment <2mm in diameter using results he has in hand. However, the question was are their additional and/or overlooked modules that could be pursued given a) data availability, b) personal available, and c) capacity to demonstrate results. Scott Pearson led the balance of individuals present at this meeting in identifying four ecological response modules (along with the drivers, responses, functional relationships, temporal scales, spatial scales and notes) – aquatic insect, fish, and algal responses; carbon/leaf quality responses; terrestrial biodiversity responses; and fish behavioral response. S. Pearson has the intent of working on the terrestrial biodiversity response module over the course of the next year during his sabbatical at Harvard Forest.

Drawing from available information and ideas about the renewal, the preceding three points will be developed into a framework document over the course of the summer. A meeting sometime in the fall of individuals interested in forecasting will finalize this document that will then serve as the basis for moving the forecasting effort forward. Some sources mentioned during the meeting useful to developing this document:

Clark, James S. and Alan E. Gelfand. 2006. Hierarchical Modelling for the Environmental Sciences Statistical methods and applications. New York: Oxford University Press.

Clark, James S. 2005. Why environmental scientists are becoming Bayesians. *Ecology Letters* 8: 2-14.

Ellison, Aaron M. 1996. An introduction to Bayesian inference for ecological research and environmental decision-making. *Ecological Applications* 6(4): 1036-1046.

From 6:00 to 8:00 pm, the Coweeta LTER Science Advisory met (minus J. Clark) to discuss issues pertaining to the Coweeta LTER renewal.

**Attending June 27**

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| Marcelo Ardon | Barrie Collins | Nick Jeremiah | April Nuckolls |
| Becky Ball | Bob Cooper | Brian Kloeppel | Scott Pearson |
| Fred Benfield | Jim Deal | Jennifer Knoepp | Cathy Pringle |
| Becky Bixby | Carolyn Dehring | Tim Kuhman | Ron Pulliam |
| Timothy Blakely | Kitty Elliott | Stephanie Laseter | Barbara Reynolds |
| Paul Bolstad | Charles Fievet | Josh Lord | Nichole Rosamilia |
| Mark Bradford | Diana Flowers | Briahn Martin | Chris Sobek |
| Sarah Briden | Chelcy Ford | Bob McCollum | Eric Sokol |
| Cindi Brown | Ted Gragson | Sarah McQuade | Dorsett Trapnell |
| Chris Brunton | Travis Gray | Kate Morkeski | Robert Warren |
| Brooks Camp | Gary Grossman | Narayanaraj | Jack Webster |
| Barry Clinton | Jim Gruhala | Amanda Newman | Maury Valett |
| Patsy Clinton | Yorke Jander | Jared Nix | Aaron Vose |

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| Jim Vose | Katherine Windfeldt | Nina Wurzburger<br>Greg Zausen | Carolyn Zehnder |

**General Comments**

The meeting consisted of a sequence of ~15 minute presentations over the course of the day. Unlike last year during which the NSF site review was held and the previous year in which a mini-review was held, this meeting focused on ongoing research and other site activities. It was important for helping place the group in mind of both how the current iteration of the Coweeta LTER will finish out and begin anticipating the renewal of the Coweeta LTER due February 1, 2008. The presentation titles and authors are listed at the end of this report; the presentations will be posted at http://coweeta.ecology.uga.edu/webdocs/1/archives.html.

**Recognitions:**

**Greg Zausen**, joined Coweeta at the end of March, 2006, and works as a "Research Technician with Brian Kloeppel collecting samples and data from field installations at the Coweeta Hydrologic Station and off-site research locations. He is also involved with the LTER Schoolyard Program.

**Carolyn Dehring**, Assistant Professor in the Department of Insurance, Legal Studies and Real Estate of the Terry College of Business at the University of Georgia. She has started to work on socioeconomic issues in Buncomb County as part of the Coweeta LTER and seeking to collaborate with others on the project.

**Dorset Trapnell**, Assistant Director of the Institute of Ecology as of January 2006. This is Dorset's first visit to Coweeta to get a better understanding of what we do - Alan Covich is stepping down as director and John Gittleman becomes director as of July 1.

**Announcements – All Scientist Meeting:**

1. Early ASM registration ($45) ends June 30 so please register and pay fees individually: https://www.sgmeet.com/lter/lter2006/reginfo.asp
2. Site-Specific Poster Registration ends July 1. As a site we have 16 poster-slots available – sign up.

A group social and dinner (Willy's Barbecue) was held from 5:00-8:00 pm in the Coweeta Residence for all attendees.

**Attending June 28**

| | | | |
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| Fred Benfield | Bob Cooper | Ron Hendrick | Barbara Reynolds |
| Paul Bolstad | Kitty Elliott | Brian Kloeppel | Jack Webster |
| Mark Bradford | Ted Gragson | Jennifer Knoepp | Maury Valett |
| Barry Clinton | Gary Grossman | Scott Pearson | Greg Zausen |

**General Comments**

The morning was dedicated to an open discussion of the Coweeta LTER renewal in the context of a) the LTER Planning Process that culminates at the All Scientist Meeting in September and b) the LTER Network Cyberinfrastructure Strategic Plan. In general terms,

the discussion revolved around how Coweeta LTER site research could both build on the NSF site review comments from 2005 and ongoing efforts within the LTER Network to foster greater collaboration across sites. An initial list of key topics and questions was generated by the group that will be developed and circulated separately once the LTER Network Planning Proposal and Initiatives documents are provided by LNO. (According to the latest information this should occur within the first two weeks of July.) There will be a meeting August 14-16 in Albuquerque to which all sites will send a representative to comment on their sites interest, ability, means for inter-site collaboration in the context of the proposal and the initiatives. The Coweeta LTER site representative to this meeting will be Scott Pearson.

A very preliminary discussion was also held as to the manner in which new investigators might be added in the course of the renewal. In brief, several names have already been put forward as individuals who could contribute to future Coweeta LTER activities. In the course of circulating the initial renewal questions and the Network documents, names along with a brief justification will be solicited from all current investigators. This list of names as well as the initial ideas about the direction of the renewal will be used by the Science Advisory in a meeting this fall to arrive at a short list of potential invitees to the January 2007 Coweeta All-PI meeting where initial drafting of the proposal itself will be carried out.

Finally, a brief discussion of how funding might be structured during the renewal was held. Historically it has been the case that individuals were direct-funded on the Coweeta LTER without any direct connection between what the proposal identified as the research to be carried out and the research that individuals actually carried out. Impending changes in the operation and funding of the LTER Network itself as well as certain short-comings in achieving objectives during the current Coweeta funding cycle suggest the need to at least revisit the historic Coweeta LTER funding model. Once possibility discussed at the meeting was the need to mix direct-funding of individuals with direct-funding of projects. Funding individuals remains important to ensure innovation, but funding projects can ensure that the activities necessary to achieve a certain objective identified as critical are carried out. Implied in funding a project is that a particular individual will be identified to ensure the research is carried out, but the funding itself would be contingent on success.

**Miscellaneous Reports**

The Coweeta LTER hemlock and sudden oak death subgroup met at 11:00 am for approximately one hour. The Annual Coweeta LTER meeting adjourned at 12:00.

**Co-PIs not attending:**

| | | |
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| Jim Clark | David Newman | Bruce Wallace |
| David Leigh | Monica Turner | David Wear |

**Presentations: Tuesday, 27 June 2006 (* = presenter)**

8:00 AM meeting announcements and introductions

8:30 Jim Vose*
*Strategic reorganization of the USFS Southern Research Station*

8:45 Becky Ball*, John Kominoski, et al.
*Effects of leaf litter species diversity on decomposition in a forested watershed in the southern Appalachians*

9:00 John Kominoski, Cathy Pringle*, et al.
*Effects of leaf litter species diversity on stream ecosystem function*

9:15 Marcelo Ardon* and Cathy Pringle
*Are leaf secondary compounds important in inhibiting leaf breakdown in tropical versus temperate streams?: Using standardized analytical techniques for cross-site comparisons (Coweeta versus La Selva, Costa Rica)*

9:30 Travis Gray* and Maury Valett
*Allochthonous controls on nitrate retention in headwater streams*

9:45 Nick Jeremiah* and Fred Benfield
*Assessing secondary production of an Appalachian stream dwelling snail during a watershed scale riparian zone manipulation experiment*

10:15 Eric Sokol* and Fred Benfield.
*Resolving the relationship between environmental variables and macroinvertebrate community assembly in headwater streams in the southern Appalachians*

10:30 Kate Morkeski*, J.E. Frank, Jack Webster, Fred Benfield, et al.
*The role of eastern hemlock in organic matter and nutrient dynamics of headwater streams*

10:45 Mark Scott and Fred Benfield*
*Fish and invertebrate 2005 summary for the Hazard Project*

11:00 David Leigh and Ted Gragson*
*Sediment forecasting*

11:15 Jack Brookshire*, Jack Webster*, Maury Valett, et al.
*Global scale climate variation drives amplitude and periodicity of forest nutrient cycling and loss*

11:30 Gary Grossman*, Bob Ratajczak, et al.
*Longitudinal patterns in diversity in stream fishes, with comments on turbidity*

11:45 Ted Gragson*
*LTER Network Planning Grant*

1:00 Barrie Collins*, et al.
*Coweeta LTER Information Management*

1:30 Mark Bradford*
*Interannual slow-cycle effects of foliar herbivory alter soil decomposer resource acquisition and population structure*

1:45 Barbara Reynolds*
*Effects of past land-use practices on soil microarthropod abundance*

2:00 Jennifer Fratterigo, Monica Turner, Scott Pearson*, et al.
*Investigating the dynamics of extinction and invasion in changing landscapes and climates*

2:15 Ron Pulliam*
*Forecasting population dynamics of forest understory herbs*

2:30 Sarah Butler and Katherine Elliott*
*Forest disturbance regimes in southern Appalachian forests*

2:45 Ryan Kirk and Paul Bolstad*
*Quantifying decadal land use patterns in Macon County, NC, from 1885-2035*

3:15 Carolyn Dehring*
*Land use regulation and watershed protection*

3:30 C. Zehnder* and K. Stodola
*Environmental gradients and variation in the strength of bird predation on oak herbivores*
3:45 Bob Cooper*
*Research in bird insect interactions at Coweeta*
4:00 Nina Wurzburger*, Ron Hendrick, et al.
*Rhododendron maximum litter and ericoid mycorrhizalfungi- a positive feedback?*
4:15 Barry Clinton*, et al.
*Riparian ecosystem structure and function*
4:30 Jennifer Knoepp*, et al.
*Long-term watershed biogeochemistry dynamics*
4:45 Brian Kloeppel*, et al.
*Long-term aboveground net primary productivity and carbon cycling dynamics*