

Meeting Notes - 2010 Coweeta LTER Winter Meeting
8 January 2010

Begin meeting at 9am

Collaborative/synthesis papers

There are currently 4 known collaborative/synthesis papers in preparation for the Coweeta LTER:

- Vose, Knoepp, and Clark – Carbon paper
 - 9 years worth of data
 - Synthesis paper using NPP, C:N ratios, etc.
 - Much of the data from long-term data from the gradient plots
 - Jim Clark showed graphs showing climate change in time from 1990-2010; showed example model of tree species sensitivity to climate, ask question “which species are tracking changes in climate” – example is *Pinus rigida*, which is sensitive to spring temperature, summer drought, and light competition (look at growth and fecundity)
 - There is disagreement with climate envelope models
 - Gradient plots total ANPP for all species shows an increasing trend over time (1995-2008), but may be response from previous disturbance (drought in the 1980s which killed many trees)
- Gragson and Pringle – Water Ecosystem Services in Southern Appalachia: Vulnerability to exurbanization and climate change
 - Synthesize paper that looks at ecosystem services of water and ties it into southern Appalachia; wrapping up and getting ready to circulate to others
 - Three areas of focus 1) hydroecologic integration, 2) ecosystem response of biotic systems, 3) socioeconomic policy triggers;
 - Ted and Cathy hope to get this published before mid-term review

Abstract - Landscapes in the southeastern U.S. are expected to change profoundly in the next 50 years. Not only will the dramatic exurbanization and its driving socioeconomic forces evident the last three decades persist, they will interact with the anticipated and significant changes in the rates, frequencies, and intensities of climatic factors. Much attention has been given to the pattern of, if not the process, stemming from this interaction in what represent the end members of our human-dominated world: urban and wildland areas. Our intent in this manuscript is to focus on the consequential interaction between climate and exurbanization on the rural and quasi-rural lands that continue to characterize much of southern Appalachia. Southern Appalachia as a region is both a ‘water tower’ to the southeastern U.S. as well as one of the most biodiverse temperate regions in the U.S. if not the world.

- Helton, Webster, Valett, and Meyer – Thinking outside the channel (see abstract)

Abstract - We identify important components of a revised strategy for simulating biogeochemical dynamics across diverse river networks, including approaches to modeling terrestrial-aquatic linkages, hydrologic exchange between the channel, floodplain/riparian complex, and subsurface waters, and interactions between coupled biogeochemical cycles.

- Webster et al. – Water quality and exurbanization (synoptic study)

Authorship

- Jack Webster included as co-authors for the synoptic study those who provided leadership in planning the study, sampling, synthesizing data, or analyzing data. Those that just were

helping with sampling were not included. Jack used authorship criteria based on LINX II publication policies, which states that the lead author has the responsibility of including everyone they think should be included (i.e., cast a wide net); if potential authors do not think they deserve to be co-authors, then it is their responsibility to contact the lead author to take themselves off as a co-author

- Jack went over several guidelines for authorship, including ESA
- Everyone agreed that Coweeta LTER should have written guidelines for authorship
- Jack will draft authorship guidelines and send out for PIs to review

2006 Landcover Data

- Ted Gragson reported on behalf of Jeff Hepinstall, who couldn't make it to the meeting
- Jeff Hepinstall should make the classification available in the next couple of weeks after he resolves certain introduced errors

Site Manager Report (Jason Love)

- **Formalize Coweeta Residency Policy to Give Priority to LTER Researchers:** Coweeta LTER has always had an informal policy that LTER researchers would be given first priority for using the dorm, but this policy was never explicitly stated and it was never defined what is meant by "priority". Beginning January 2010, LTER researchers will be given priority for using the dorm with the following caveats:
 - Non-LTER researchers must find other accommodations if an LTER researcher reserves a bed **two weeks or more in advance**, even if the non-LTER researcher reserved the bed first. This will give the non-LTER researcher ample time to find other accommodations, while giving LTER researchers first priority. Contact Site Manager if residency is full and he will take care of arrangements.
 - If an LTER researcher reserves a bed with less than 2 weeks notice, and the dorm is full, then the LTER researcher will have to find other accommodations.

Hopefully this will ensure that LTER researchers are not crowded-out of the dorm, but at the same time give ample time for our non-LTER partners to find accommodations elsewhere if the dorm becomes full.

- **Vehicles:** Likely will get a new vehicle for 2010 field season.
 - If you think you or your students will need a field vehicle for an extended time (more than just a couple of days), please let Site Manager know by May 1st so he can start making arrangements.
 - Please don't reserve vehicles for several weeks at a time (or a whole month) without first checking with Site Manager – other folks may have already asked about the vehicles.
- **New Field Technician:** We plan to hire a new field technician, hopefully by late February
 - Responsibilities include collecting weekly grab samples from 12 mesoscale sites (and later the microscale sites), process TSS from storm samples, assisting with calibration of datasonde, and assisting Jason Meador in various projects at Coweeta (gradient plots); will likely assist with various aspects of the terrestrial portion of the exurbanization study too
 - If you or your grad students have field work that you need assistance with, please clear it with Ted first

- Jason Love gave Ted a list of current and upcoming field tasks for 2010; we have a busy schedule, but if time allows, we will try to work with PIs if they need help with certain projects

Summer Internships

- Ted will know more about money available for summer interns –
- Use these opportunities to mentor a student and have them adopt a project – similar to REUs (don't use students hired in this manner as menial labor)

Weir Updates

- Jim Vose mentioned that weir 8 and 9 need repaired (\$100k/each);
- Need to look at supplemental or more likely infrastructure grants from NSF to help push funding from FS

A Conversation with the Public (Nik Heynen)

- Nik talked to some key local leaders based on Wayne Swank's input
- From Nik's conversation, it seems that no one really knows what Coweeta LTER is or is doing
- Nik would like to have a "conversation with the public" about what LTER is doing (exurbanization, land use, etc.)
- It seems that there is a thirst for knowledge in the local area
- Previous "brown bag" seminars at Coweeta have been well attended
- Conversation would be a two-way conversation (not just scientists speaking to the public, but the public also invited to speak with the scientists)
- Vose suggested using Southern Research press person to release press releases if we want to give word out about Coweeta LTER
- Nik would also like to use these occasions to interview the public once we have human subject clearance

Project updates

- Synoptic chemistry data (Webster)
 - No new updates since the summer and September meeting
 - Will send summer chemistry data to Chamblee for archiving
- Intensive tree plots (Clark) –
 - The gradients in the existing proposal do not have enough variation for Clark's climate model
 - Will need to maximize variation (sites in Athens (Whitehall Forest) all the way to sites in the Smokies);
 - Besides climate gradients, also important to have a soil moisture gradient
 - Jason will contact the Smokies to inquire about setting up intensive tree sites at 4-6 locations within the park
 - We might be able to use Ron Pulliam's plots at Whitehall Forest (**we need someone to check into this possibility**)
 - Will likely have 2 teams of 2-3 techs from Duke who will work in the Smokies and Whitehall to put in plots, measure trees, etc.
 - Needs to start in July to set up plots
- French Broad Watershed studies (Turner and Pearson)

- Working with herbaceous species at low/high elevations and bird species at low/high elevations with a mix of land use types
- Biotic Update (Maerz)
 - Peterson's fish crew will finish up this April; they may need help in April and May to sample the larger streams (a few days each month)
 - Maerz is looking into chasing things like floods and their effects on salamanders, etc.
 - Biotic surveys will take place every 5-6 years in the 37 synoptic streams that were sampled

Coweeta LTER Project Proposal Forms (Chamblee)

- Project Proposals will be organized in a database based on 1) theme (e.g. water quality), 2) project (e.g. synoptic sampling), and 3) study (e.g., stream chemistry from synoptic sampling) with a key distinction "project" and "study". The new form can be linked to at: <http://coweetagis.anthro.uga.edu/siteuse/>
- The overall research is divided into seven major themes based not only the current (2008-2014) LTER proposal, but historic research:
 - Water quality and quantity
 - Forest structure and function
 - Human land use and decision making
 - Climate change
 - Biodiversity
 - Modeling
 - Cross-site Collaboration
- John demonstrated the new project proposal form
- If you need to submit or edit a new project proposal form, please contact the Site Manager for a username and password
- Big change is that research proposal extends beyond the Coweeta basin to help capture projects in the French Broad, Little Tennessee River, etc.
- Pearson suggested that it might be a good idea to remind PIs about filling out project proposal forms when Ted asks for end of the year reports

Break-out Sessions

- There were two break-out sessions:
- One group discussed the intensive tree sites (Clark, Vose, etc.)
- One group discussed social science research (Gragson, Pringle, etc.)

Tree Breakout Session:

Attendees: Clark, Knoepp, Vose, Mohan, Bradford, Pearson

- For an analysis of climate effects it was determined that we need more variation of field sites
- The hillslope plots that will be used as part of the Coweeta LTER exurbanization study will be too similar in terms of climate, and discussion focused on additional sites in the Piedmont (e.g., Athens) and at high elevation, including Great Smoky Mountains National Park (GSMNP).
- It was suggested that we approach GSMNP to see if they would let us place two 50 x 50 m plots in 1) spruce-fir forest and 2) northern hardwoods; Love agreed to contact Keith

Langdon, head of Inventory and Monitoring for the park, to ask about using the park for this research project

- Other possibilities for high elevation sites include Grandfather Mountain State Park and high elevation forests along and adjacent to the Blue Ridge Parkway; Pearson has a contact person at Grandfather Mountain and will check on this possibility
- For a Piedmont site, it was suggested to use the University of Georgia's Whitehall Forest
- Ron Pulliam had long-term sites at Whitehall that we might be able to use; Mohan and Bradford will look into this possibility
- It was suggested that two teams of 2-3 technicians will need to be hired to census both the GSMNP and Whitehall
- The following will be measured in each plot:
 - Each tree >2m height tagged, identified, DBH measured, sex determined, and current reproductive status recorded
 - About 20 seed traps (laundry baskets) set out at each site; seeds collected and sorted ~quarterly
 - About a dozen or so seedling plots established; native seedlings will be planted in these plots that do not occur at the site to test for survivorship (e.g., sweetgum seedlings planted in northern hardwood forest)
 - Soil cores from different sites will be transplanted
 - Soil moisture measurements taken during the growing season?
 - Continuous soil moisture readings (Campbell Scientific TDR and datalogger) at each plot or site?
- Here are the following intensive tree plots that will be used in the climate model:
 - Coweeta Terrestrial Gradient Plots (five 80 x 80 m plots) (mountain)
 - Duke Forest Site (piedmont)
 - Mars Hill Site (mountain)
 - New (if approved) – Smoky Mtn spruce fir and northern hardwood (high elevation mountain)
 - New (if approved) – Whitehall Forest (piedmont)

Meeting ended at 4pm

Attendees:

Clark, Pringle, Webster, Vose, Benfield, Gragson, Chamblee, Love, Knoepp, Bradford, Ford, Pearson, Heynen, Clinton, Dehring, Jackson, Leigh, Maerz, Mohan, Depken