

Identifying the benefits and barriers to graduate student urban cross-site socioecological research
Working Group Final Report
December 13, 2011

In December 2009, we were awarded \$8,100 to complete a peer-reviewed manuscript that would build upon ideas generated within the above named working group at the LTER 2009 All Scientists Meeting in Estes Park, CO. We conducted a full study of LTER graduate students in 2010-2011, culminating in the submission of a manuscript to *BioScience*, an article in *Anthropology News*, and pending presentations at the Graduate Student Symposium of the 2012 LTER ASM and other meeting(s) to be determined. The activities and products funded by the award will be described further in this report.

Principal Investigator:

Michele Romolini

Award Year:

2010

Budget:

\$8,100

Number of Participants:

5 (+ 2 faculty mentors)

Participants:

Rebecca Garvoille (FCE)

Stuart Geiger (BES, now University of California-Berkeley)

Yevgeniy Marusenko (CAP)

Sydne Record (HFR)

Michele Romolini (BES)

Laura Ogden (faculty mentor - FCE)

Morgan Grove (faculty mentor - BES)

Summary of Research Activities & Products:

- **September 2009:** this study began with the graduate student working group named above at the LTER All Scientists Meeting in Estes Park, Colorado. In this session, 19 participants from six LTER sites articulated the challenges they faced in carrying out socio-ecological research. From this session, we discovered that “urban cross-site socio-ecological research” was too specific and that there was much ambiguity simply surrounding the term “socio-ecological.”
- **January 2010:** the five participants began conducting biweekly conference calls to discuss the outcomes of the 2009 working group, and to design a follow-up study to further explore the experiences of graduate students regarding socio-ecological research in the LTER Network.
- **July 2010:** we launched two separate surveys:
 1. a broad, 49-question survey emailed to all LTER graduate students on the network listserv,
 2. a targeted, 22-question survey emailed to graduate students identified by senior LTER researchers and staff as having conducted socio-ecological research.
 - The broad survey asked questions about the types of research students were conducting; institutional and disciplinary affiliations; familiarity with and interest in socio-ecological research; and the challenges and opportunities related to the pursuit of socio-ecological research.

- The targeted survey expanded on the broad survey by asking more specific questions about students' definitions of and direct experiences with socio-ecological research in the LTER Network.
- We gathered data from 103 students (57 fully completed responses) for the broad survey and from 41 respondents (33 fully completed responses) for the targeted survey.
- We asked targeted survey respondents to indicate their willingness to participate in follow-up interviews.
- **August 2010:** we held our first face-to-face meeting, for two days following the ESA annual meeting in Pittsburgh. Here, we conducted some preliminary quantitative analysis and began to identify areas that we wanted to explore further. From the surveys, it became clear that LTER graduate students not only had different definitions of socio-ecological research, but also different understandings about what it meant to be a socio-ecological scientist conducting interdisciplinary research in the LTER Network. In order to add greater depth and context to our findings, we designed a semi-structured interview protocol to ask graduate students more detailed questions about how they conceptualized and practiced socio-ecological research in the LTER Network at the individual/project level, the site level, and the network level.
- **November-December 2010:** we carried out hour-long semi-structured phone interviews with 10 current or recently graduated students who volunteered to participate and who self-identified as conducting a socio-ecological project in the LTER Network.
- **January 2011:** we held our second face-to-face meeting for two days in Berkeley, CA, to conduct qualitative analysis of our interviews and to begin to outline our manuscript.
- **February-August 2011:** we prepared the manuscript and had it reviewed by the following LTER scientists from different LTER sites and scientific disciplines: Terry Chapin (BNZ), Dan Childers (CAP), Aaron Ellison (HFR), David Foster (HFR), and Laura Ogden (FCE)
- **September 2011:** we submitted the manuscript, entitled "The Next Generation of Scientists: Examining the Experiences of Graduate Students in Network-Level Science," as a Roundtable article to *BioScience*. The manuscript is currently in review, with the following abstract:

Integrating research and resources of thousands of scientists from dozens of institutions, "network-level science" is becoming the model for contemporary scientific research. We examined how graduate students experienced, engaged with, and interpreted one such large-scale, highly distributed scientific network—the Long Term Ecological Research (LTER) Network—in the context of its emergent socio-ecological research initiative. Conducting workshops, surveys, and interviews, we found that graduate students hold many underlying ambiguities in how they conceptualize and practice socio-ecological research within the LTER. We present these ambiguities at three scales: the individual/project, the LTER site, and the LTER Network. The level of student engagement with and knowledge of the LTER Network is varied, and students face different institutional, cultural, and logistical barriers to practicing socio-ecological research. These types of ambiguities are unlikely to be unique to LTER graduate students, thus our findings are relevant to other scientific networks implementing new research initiatives.

- **October 2011:** we had a piece accepted in the "Anthropology and the Environment" section of *Anthropology News*. This article is scheduled to run in December 2011.
- Finally, we were invited to present results at the Graduate Student Symposium of the 2012 LTER ASM. We also are discussing other appropriate meetings to disseminate our findings.