

ASM2015 Workshop Rpt 091115

**Workshop Report  
Arts and Humanities at LTER Sites**

**Long-Term Ecological Research All Scientists Meeting  
Estes Park, CO. August 31, 2015.**

Organizer: Mary Beth Leigh (BNZ). Co-organizers: Lindsey Rustad (HBR), Fred Swanson (AND), Clarisse Hart (HFR), Terry Daulton (NTL).

Thirty three people who have worked at 14 sites took part in four hours of workshop discussion at the 2015 LTER All Scientists Meeting (ASM). This is the fourth edition of this working group gathering at ASMs and attendance of individuals and representation of sites is consistent with past ASM workshops.

**Review of progress.** The workshop began with a brief rundown of the impressive progress at the network scale (as distinguished from site-scale activities) since our first ASM working group workshop in 2006 and especially since the 2012 ASM workshop of this group – and quite a bit of the progress has been made in only the past year:

- Past ASM arts/humanities workshops – 2006, 2009, 2012 plus another LNO-sponsored working group workshop at AND in 2011.
- NSF supplemental funding for Future Scenarios projects in 2009 to AND, BNZ, HFR, NTL. This ramped up the arts/humanities programs at these four sites.
- Art shows in the NSF building with a subset of the works displayed at the Ecological Society of America meeting later in the summer – three sites exhibited 2012 and 11 sites in 2013 (the name of that exhibit was Sense of Place in Changing Places and the show received some coverage in Science 8March2013, 339:1132)
- The Ecological Reflections webpage ([www.ecologicalreflections.com](http://www.ecologicalreflections.com)) was established to share information about arts/humanities programs at more than 20 sites (not all LTERs).
- An NSF grant funded a synthesis post-doc – Lissy Goralnik in the Dept. of Forest Ecosystems and Society, Oregon State U., (Michael Nelson, advisor and AND PI). They have published a book chapter based on a survey of LTER PIs' attitudes about the value of arts/humanities engagement in LTER programs. <http://andrewsforest.oregonstate.edu/pubs/pdf/pub4882.pdf>
- An essay appearing in Ecosphere on the occasion of the ESA centennial (Aug 2015) describes the recent emergence of arts/humanities engagement with over 100 LTER, field station, marine lab, and NPS sites nationally. <http://www.esajournals.org/doi/pdf/10.1890/ES15-00139.1>
- A team of LTER and OBFS folks secured an NSF grant (Mary Beth Leigh, BNZ, PI) to hold a workshop at the Nevada Museum of Art in Reno with an associated field trip to Sagehen U. Calif. Reserve and USFS Experimental Forest June 19-21, 2015. The two dozen workshop participants brainstormed about art-science convergence (and called their work "ArtSciConverge"), providing good material for the RCN proposal, below. For more info: <http://fsmi-art.blogspot.com/2015/07/artsciconverge-nsf-workshop-in-reno-nv.html>
- The team that led the Reno workshop submitted a Research Coordination Network (RCN) proposal to NSF at the beginning of August (Mary Beth Leigh, PI). If the proposal is successful, the grant would provide funds to enhance networking among sites that include arts/humanities in long-term ecological inquiry, including LTERs, field stations, and marine labs.

- Lindsey Rustad and Mary Martin (HBR) received an NSF EAGER grant (Early Concept Grants for Exploratory Research) to extend their WaterViz project – visualizing long-term streamflow and other environmental data (e.g., daily flow over the course of a year) using scientific, visual art, and sonification representations of the data and neuroscience analysis of human responses. EAGER grants acknowledge cutting-edge and risk-taking qualities of the research. This is about the learning process and creativity. AND will be a secondary participating site.
- The Ecosphere essay, Reno workshop, and RCN proposal all deal with commonalities of LTER, biological field stations (Organization of Biological Field Stations, OBFS), and marine labs (National Association of Marine Labs, NAML) (and shorthand for the latter two organizations together is FSML – just rolls off the tongue, doesn't it?) and an effort to provide networking across this array of sites. Note that some sites are members of two of these networks. Most of the LTER sites and more than 10% of the ca. 400 FSML members have arts/humanities engagement.
- Note the blog with valuable information on art-science interactions managed by Faerthen Felix (Asst. Manager of Sagehen): <http://fsml-art.blogspot.com/>
- An important feature of communications with NSF over the past year or so has been the challenge to move from Broader Impacts to Intellectual Merit.

#### Reports from LTER sites

- Virginia Coast Reserve - Art Schwarzchild. The VCR program continues to emphasize painting and involvement of both art teachers and students. The offerings include a week-long summer camp featuring art. The program retains one piece per visiting artist and has exhibited works on site and on campus.
- North Temperate Lakes – Tim Kratz. The NTL program originated in several artists-scientists interaction culminating in widely-displayed exhibits. The current emphasis is on a regular artist-in-residence program.
- Harvard Forest – Aaron Ellison. HFR's connections with the arts date from its inception in the first decade of the 20<sup>th</sup> century. In recent years HFR has brought artists and writers to their site through the Bullard Fellows program, and some of the resulting works are posted on their webpage. Their science team's recent book *Hemlock: A Forest Giant on the Edge* (2014, Yale) is a very interesting example of use of arts and humanities in the telling of a science story – decline of hemlock to the wooly adelgid. Several other books are in the works by visiting artists and writers.
- Hubbard Brook – Lindsey Rustad. A major focus of arts/humanities at HBR is the new EAGER project, mentioned above, which is a major extension of earlier work by artist and composer in the WaterViz project.
- Bonanza Creek – Mary Beth Leigh. Early projects included large performances and art exhibits – very demanding of time and funding. The most recent project focused on visual arts and writing (*Trophic Cascades*). Funding from BNZ and the outreach component of Mary Beth's NSF grant for microbial ecology research is supporting the launch of a new visual arts and writing project entitled *In a Time of Change: Microbial Worlds*, in which new models are being tested for fostering deeper and more meaningful collaboration between professional artists and scientists toward the goal of advancing Intellectual Merit. Outreach components will include art exhibits, readings, and K12 outreach activities like painting with bacterial cultures on Petri plates.
- Andrews Forest – Fred Swanson. AND continues its two writer residency programs (one by invitation, one by application) at the pace of six total per year, and engages several artists and

composers per year. A book of collected writings is forthcoming and Mark Harmon is arranging an art show on the theme ROT: The Afterlife of Trees.

- Luquillo – Grizzelle Gonzalez. Writers and artists in residence periodically visit LUQ. Elizabeth Robles produced an illustrated book titled *Libro de las Fechas* (2014) blending art, botany, prose, and poetry and published in conjunction with the US Forest Service and the Museum of Contemporary Art of Puerto Rico.
- Baltimore Ecosystem Study – Morgan Grove. BES has had several artists and writers in residence and plans for more. Recently they have put emphasis on interactions with kids, including holding data jams.

### General discussion.

The extensive reporting on progress to date, the new RCN and EAGER projects, and reports from sites did not leave much time for open discussion, but here are a few topics raised:

- Use of arts/humanities to reach kids – how much of that is going on? Lots. Examples were offered: BES’s data jams, SEV’s engagement of artists in their site REU program, VCR’s week-long courses, AND’s Canopy Connections program with journaling and art, BNZ’s use of art in microbial ecology projects, and other examples were mentioned.
- Engagement of philosophy. Michael O’Rourke offered interesting insights about possible engagements of philosophy to help deal with complex problems and the challenge of working across disciplinary world views and work cultures. We could enlist philosophers to help harness philosophical concepts to map world views within a group. Some training programs might help.
- Engagement of history. Knowledge of historical context may give researchers different questions and to identify audiences with different perceptions of ecosystems. The relationship of the community of historians involved in LTER with the arts/humanities working group seems to be proceeding on two tracks – historians have participated in several arts/humanities working group workshops and have also held their own workshop to drill in on history-specific work.
- Art-science connections. Long-term embedding of artists and humanists is critical. Grizzelle Gonzalez comments on the importance of “creating a space where artists and scientists can interact.” At LUQ, they hosted a program where artists came to be technicians for a month.
- What forms will work at the art-science interface take? HFR’s new book *Hemlock* provides an interesting example of employing arts/humanities in telling a science-based story. What other examples exist or might be created through the arts/humanities work we seek for LTER? We should remember that art goes beyond simple science communication. Someone asked: can you put scientific instrumentation in an art exhibit?
- Can arts and humanities play a more decision-making role in value-based environmental questions?
- The challenge of communicating across disciplines and worldviews. There was lively exchange between a social scientist and an ecological scientist about the communication challenges – what is the meaning of “meaning” and of “values” and “normative”?
- Measuring how art-science collaborations impact the science, and assessing the process.
- Exhibiting as scholarship: Brack Morrow gave an example from New Mexico of art and science being exhibited together.
- Archiving of art works. The question of how to archive and share art works remains open. The Reno workshop brought this into focus as Bill Fox of the Nevada Museum of Art described the culture and capacity of major museums for art curation, including associated information on the artist and the context of the art works. A complementary model for art collecting and sharing

would be to have a system something like the LTER data harvester systems for climate and streamflow data (ClimHydroDB), in which each participating site would archive digital versions of visual and acoustical works that could be accessed from a central web portal. If the RCN grant proposal is successful, these matters could be worked out.

- Capacity. Some sites are operating at the pace of a single artist or writer in residence per year. It's hard to find the resources (especially time) to do much more.
- Profile. Various sites and circumstances have led to varying levels of profiles of the arts/humanities activities – e.g., some sites have prominently displayed art works at mid-term reviews, while others have been mute about it. Acceptance seems to remain a mixed bag, depending on the specific circumstances.
- Use hashtag #ArtSciConverge on social media for primary inquiry and events

As commonly happens at ASMs, interesting interactions happen outside the workshops and other organized activities. One such encounter was with Bern Sweeney, Director of the Stroud Water Resources Center in southeastern Pennsylvania, who described the strong presence of art in their program since establishment of the center in 1967. This includes art works in laboratories, even though it can be damaged by air quality of the labs, and education programs that blend art making and aquatic ecology and the possibilities of encounters with the famous painter Jamie Wyeth who lives along the local stream – Brandywine Creek. As we continue to learn, the engagement of arts/humanities at sites of long-term ecological inquiry is widespread and little known.

Compiled by Fred Swanson, Teresa Hollingsworth, and Clarisse Hart.

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