International Committee

Progress Report (January 2007-May 2009)

Submitted by Bourgeron on behalf of the committee

The activities of the IC have focused on the ongoing transition of the ILTER from an infrastructure-building institution to a science-driven institution. The following report summarizes the key IC activities and plans for the next few months.

I.   ILTER institutional development, stability, and development (Hamburg, Vanderbilt, and Bourgeron)

The ILTER (http://www.ilternet.edu) has continued to become less dependent on US support. The website is now housed by the Environmental Change Network (ECN) which is the UK's long-term environmental monitoring program. ECN is led by Terry Parr, the current chair of the ILTER. The ILTER incorporated in 2008 in Costa Rica as a non-profit organization. Membership dues will be collected by the Costa Rican organization.

The ILTER executive committee meets via conference calls approximately monthly. Network visibility has increased via its collaboration with other regional and international organizations and/or programs (for current events: http://www.ilternet.edu/events). Three ILTER committees are driving the activities of the network: public affairs (chair: Tim Clancy, Australia), information management (IM; chair: Kristin Vanderbilt, USA), and science (chair: Bourgeron, USA). The IM and science committee activities and products are summarized in this report. The next step in the ILTER institutional development is to finalize protocols for membership dues and to hire an executive director to oversee day-to-day operations and coordination.

The 2009 ILTER annual meeting (http://www.ilternet.edu/events/2009-ilter-co-ordinating-committee-) meeting will be held in conjunction with the INTECOL meeting (http://www.intecol10.org/default.asp). A one day ILTER symposium is included in the INTECOL program (details to be finalized this month).

II. Information Management (Vanderbilt)

The ILTER's strategic plan calls for widespread data exchange among member networks to support broad-scale synthetic studies of ecological systems. To aid in the discovery and acquisition of data to achieve this goal, an ILTER Information Management System (IMS) is needed that will house data from throughout the network. Some networks, such as LTER Europe and the US LTER, have already invested significant resources in different information management approaches. LTER Europe has developed an ontology-based IMS, while US LTER favors an EML-based system. At the ILTER Coordinating Committee Meeting in 2007, it was decided that a workshop of metadata experts would be convened to evaluate the different approaches and make recommendations for an ILTER IMS.

Kristin Vanderbilt, as chair of the ILTER Information Management Committee (IMC), organized the "LTER Information Management Workshop on Ontology/EML Integration" at Lake Taihu Field Station, China, which was held April 7-12, 2008. Participants were invited from throughout the ILTER, and those able to attend included Herbert Schentz (Austria), Bert van der Werf (Netherlands), David Blankman (Israel), Chau-Chin Lin (Taiwan), Akiko Ogawa (Japan), Eamonn O'Tuama (from GBIF, Denmark), Matt Jones (US) and Honglin He (China). Following 2.5 days of discussion, the group agreed that the ILTER should ask member countries to provide discovery-level EML in English to the ILTER network's metadata cache, which will be implemented using Metacat, a tool developed to house EML. Kristin prepared a document based on the group's recommendations that described a proposed trajectory for the ILTER IMS (http://www.ilternet.edu/members-area/special-group-areas/imc/imc-meetings). Based on this document, a motion was passed by the ILTER Coordinating Committee to adopt EML as the ILTER metadata standard. The challenges facing the ILTER with respect to building an information management system at the scale of the ILTER is described in the paper "Building an Information Management System for Global Data Sharing: A Strategy for the International Long Term Ecological Research (ILTER) Network (Vanderbilt et al. 2008) that was co-authored by all workshop participants. A second paper, also a collaborative effort among most of the workshop participants, is under review by *Ecological Informatics* and describes the linguistic and semantic issues relating to translation of metadata from local languages into English.

The other accomplishment of the ILTER IMC in 2008 was the preparation of a "Data Access Policy, Data Access Requirements, and General Data Use Agreement" document (http://www.ilternet.edu/members-area/Policies-bylaws-terms-of-membership-etc). The ILTER Coordinating Committee (CC) approved this policy at the 2008 meeting.

Now that EML has been adopted as the metadata standard for the ILTER, ILTER members need to have access to training materials that will show them how to create EML and how EML fits into the overall information management scheme. At the 2008 ILTER CC meeting in Slovakia, the ILTER IMC decided that the best way to offer this information would be through a series of videos. Experts such as Inigo San Gil from the US LTER Network Office and Karen Baker from PAL LTER have been asked to share their expertise in information management in the first of these videos. Kristin Vanderbilt also made a video describing in broad terms the principles of information management. Inigo also experimented with another technology format and prepared shorter videos that are less conceptual in nature and more oriented towards tool use. The videos available currently are the following:

On the ILTER website: http://ilternet.edu/training/training-online-resources-collection

- On MediaSite:
    - A First View of Ecological Metadata Language – an overview of EML (Inigo San Gil)
    - Motivating Ecological Metadata Capture (Why EML?) (Inigo San Gil)
    - Principles of Data Management in the LTER (Kristin Vanderbilt)
- PowerPoint movie with narrative:
    - LTER Information Management: Considering the Conceptual (Parts A and B) (Karen Baker)

On SciVee:

- Getting Started with Ecological Metadata Language (creating EML using Oxygen) (http://www.scivee.tv/node/10876)
- Getting Started with Ecological Metadata Language - Using Morpho (http://www.scivee.tv/node/10881

The Finn LTSER has viewed the videos and offered feedback. ILTER members in Japan have also offered suggestions. The ILTER IM Committee has now resolved to define a curriculum that will lead the novice information manager through contextual information and then specific, tool-oriented videos with supporting training materials.   In the short term, videos will be made by personnel in Israel, South Africa, and Taiwan describing how they have developed their IM systems, and also several US LTER IMs will be recruited to share their strategies for information management.

On behalf of the ILTER IM Committee, Kristin Vanderbilt will propose a working group to be held at the US LTER's All Scientist Meeting (2009) that will focus on developing the IM training curriculum.   The US LTER is funding several ILTER Information Managers to attend the meeting, so there will be a broad range of experience and expertise to tackle this project.   The working group will also address the question of what technology to use to prepare the videos, as the videos need to be standardized in a format that is readily downloadable by low-bandwidth users.

Reference:

Vanderbilt, K.L., Blankman, D., Guo, X., He, H., Li, J., Lin, C.-C., Lu, S.-S., Burke, C.-J., Ogawa, A., O'Tuama, E., Schentz, H., Su , W., van der Werf, B.. 2008. Building an information management system for global data sharing: a strategy for the International Long Term ecological Research (ILTER) Network. Pages 156-165 in: Gries, Corinna, Jones, Matthew B., editor(s). Proceedings of the Environmental Information Management Conference 2008 (EIM 2008). September 10-11, 2008. Albuquerque, NM. LTER.

III. Science Agenda and Initiative (Bourgeron)

Bourgeron was elected in August 2006 for a 4-year term as chair of the ILTER science committee (concomitant with the term of the ILTER chair). To-date, the activities of the science committee have focused on the organization of science symposia during the ILTER annual meetings, the formulation of a science agenda, and the launch of the first ILTER network-wide science initiative (Interactions among ecosystem services, ecosystem dynamics, and human outcomes and behavior). The following activities listed below are led by Bourgeron.

a. The ILTER science agenda

Following the 2006 ILTER annual meeting and the formation of the ILTER science committee, a series of 6 conference calls among the members of the science agenda committee led to the organization of a science symposium and a workshop on the ILTER science agenda held during the 2007 ILTER annual meeting in Beijing 2007 (see the science abstracts at http://www.cern.ac.cn/ftp/Abstracts%20International%20Conference%20on%20Long-Term%20Ecological%20Research%20.pdf). The workshop built on the results of the ILTER science workshop that was held during the 2006 US-LTER ASM and that was attended by over 30 participants representing a large number of ILTER member networks.

The 2007 science agenda workshop (organizer: Bourgeron) addressed the following:

- Advancing innovative and anticipatory research (IAR)
- ILTER intellectual and technical infrastructure
- ILTER as a facilitator and provider of incentive to IAR
- ILTER as an incubator for developing new approaches to eco-informatics/cyberinfrastructure
- Informing decisions with socio-ecological knowledge (SEK)
- ILTER ways to integrating SEK into policy and management
- ILTER as a promoter for participatory research and monitoring within local communities
- Stimulating cultural synthesis and integration for socio-ecological science
- ILTER as a provider of international linkages/globalization of access to SEK
- ILTER as a facilitator and catalyst to international interdisciplinary approaches
- ILTER as a facilitator of knowledge flow
- Group discussion

Following the workshop, the ILTER science agenda (http://www.umweltbundesamt.at/fileadmin/site/umweltthemen/oekosystem/WS_LTER-A_2007/ILTER_Science_Agenda_07.pdf) was presented during the ILTER business meeting and approved unanimously by the ILTER Coordinating Committee. A document detailing the ILTER agenda will be written. The first ILTER network-wide science initiative (see below) was also approved.

A salient feature of the ILTER science agenda is that it is based on the feedback model framework which was developed in 2007 under the US-LTER strategic research initiative "Integrative Science for Society and the Environment" (ISSE) (Collins et al. 2007, Appendix 1) and by several workshops on land use and ES.

        b.   ILTER Ecosystem Services Assessment project

The ecosystem services (ES) initiative is the first network-level attempt by the ILTER network to address the linkages between ES and human outcomes and behavior, and how they influence each other in biomes. The work is conducted by developing site-specific feedback models for one selected site representing a biome for each member network. The feedback model framework was developed in 2007 under the US-LTER strategic research initiative "Integrative Science for Society and the Environment" (ISSE) (Collins et al. 2007, Appendix 1) and by several workshops on land use and ES.

 The ES initiative (http://www.ilternet.edu/research/ecosystem-services-assessment), entitled "Interactions among ecosystem services, ecosystem dynamics, and human outcomes and behavior", was developed after the 2007 Beijing meeting via conference calls among the members of the ILTER science agenda committee. A proposal and associated documents (http://www.ilternet.edu/research/ecosystem-services-assessment/esa-project-files/Interactions%20between%20ecosystem%20services.pdf/view) were written and approved by the ILTER Executive Committee.

The initiative is being implemented by email and conference calls (see the different phases in the initiative proposal). The first phase was completed by August 2008 for the ILTER Annual Meeting (18-22 August 2008) held in Stara Lesna, Slovakia (http://www.ilternet.edu/events/files-for-events-2008/ILTER-Slovakia-08-agenda-V5.pdf). An ES initiative workshop (http://www.ilternet.edu/events/ilter-science-workshop-ecosystem-services) was organized during this annual meeting.

Work has continued since the Slovakia meeting. To date, 19 member networks have participated actively in all the steps/phases of the initiative, providing a representative array of

sites. A synthesis workshop will be held 2 days prior to the 2009 ASM meeting. Scientists from the contributing networks will meet to consolidate and integrate results from the individual sites. A manuscript is expected from this exercise. A second workshop will be submitted to the ASM organizing committee with the goals of presenting the ILTER science agenda and the synthesis workshop to US scientists in order to facilitate and promote future working groups involving US and international scientists.

      c.   Other science activities

A new program to develop a network of Agricultural Sites is being developed under the leadership of Jacques Baudry (France). The core of the proposal is to increase interactions and formal collaboration among ILTER agricultural sites.

IV. The US IC, reorganization, and action plan

Now that the ILTER is on track as a science-driven organization, the following plan for the US IC is proposed for implementation before the 2009 ASM.

- Composition of the IC: A significant turnover in the membership has occurred over time. Proposed action: request that the US-LTER Chair submit candidates to renew half of the membership. It is recommended that the committee be restricted to 10 members. In our experience, this number is the maximum to conduct meaningful conference calls.

- Change in leadership: The senior co-Chair (Hamburg) had to step down a few months ago. It is proposed that the IC elects a new co-Chair before the 2009 ASM. Bourgeron would stay as senior co-Chair for one more year (August 2010) to provide continuity. A new co-Chair would be elected no later than August 2010. Co-Chair terms will continue to be staggered.

- A new agenda for the IC would be drafted before the 2009. It would be voted on by the IC during the ASM and submitted to the LTER Chair.

V. Funding

Two proposals (one for ILTER funding, one for the IC) will be submitted by the end of June 2009 by Bourgeron and Vanderbilt as requested by NSF.