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MINUTES

LTER COORDINATING COMMITTEE MEETING

April 25-6, 1996
Manhattan, Kansas

In attendance

LTER site representatives: Fred Swanson and Reed Perkins (AND), John Hobbie and John O'Brien (ARC), John Yarie (BNZ), Peter Reich (CDR), Bill Lauenroth (CPR-SGS), Dave Coleman (CWT), Charles Driscoll (HBR), David Foster (HFR), Laura Heunneke (JRN), Kay Gross (KBS), Bob Waide (LUQ), Robert Wharton (MCM), James Gosz (NET), Jerry Franklin (NET), Stephanie Martin (NET), Rudolf Nottrott (NET), John Vande Castle (NET), Scott Collins (NSF), John Magnuson (NTL), Tim Seastedt (NWT), Ray Smith and Bill Fraser (PAL), Bruce Milne (SEV), Bruce Hayden (VCR)

Hosts: John Briggs, David Hartnett, Alan Knapp (KNZ)

Guest: Don Dreves (NOAA/CIA)

April 24

NATIONAL SCIENCE FOUNDATION REPORT

Budget Scenarios

Scott Collins (DEB/NSF) reported that Congress was close to passing another continuing resolution. The increase over last year's budget to come to NSF will make little difference at DEB, which will be funded at 95% of last year. This means that LTER will be in the hole about 5% this year; nevertheless, projects with an October start date will receive money early on a first come, first served basis. Several sites were forward funded (funds will need to come from elsewhere), and just enough funding was found for a supplement competition. The division may see an 8 to 7% increase in 1977, but the present agency budget request is effectively dead on arrival. Mary Clutter is promoting the idea of a new LTER site competition for an urban LTER. The '97 request includes an urban site to be jointly funded with Education and Social, Behavioral and Economic Sciences. Congress may like the idea and release new money, or like it and not release new money.

(By the end of the meeting, participants learned that a House omnibus spending bill for FY '97 had passed with \$3.25 billion for NSF, \$75 million below the President's request. Highlights: funds were restored for infrastructure, reduced for research, reduced for Education and Human Resources, reduced for salaries and expenses, and restored for the South Pole Safety Project. The Senate may restore more, but the LTER budget may still be negatively impacted. The bill included a proposal that the name of the agency be changed to the National Science & Engineering Foundation.)

There will be no cross-site competition this year, but the LMER-LTER workshop is still on, and the Network Office competition has reached the site-visit stage. The review team will visit both the University of New Mexico and SUNY-Buffalo, NY.

LTER Renewal Panel Results

All six sites reviewed (AND, CWT, KNZ, NTL, PAL, SGS) were re-funded; two were required to submit addenda. Data accessibility was an important factor. Some reviewers had trouble obtaining data that was supposedly online, and they insisted that at least core data be accessible online. Collins noted that, while LTER does a better job in this area than any other group in the ecological community, NSF administration wants good core data and metadata online to promote science and collaborative opportunities. LTER needs to emphasize that it is leading in this area by encouraging the larger ecological community to come up to speed, possibly through the National Ecological Analysis and Synthesis Center.

John Hobbie (ARC) noted that LTER has a broad data management policy in place, and that historically as a group LTER sites do not impose standards. Nevertheless, he argued, there has to be some uniform charge to LTER panels and continuity of policy within DEB. He cited the example of the JGOFS program, which recently set a two-year data availability policy. (Scott Collins provided other examples, including Systematics, Inventories and LTREB, but acknowledged that few sites in these programs have anything online yet.) Since the LTER sites are playing to two audiences—NSF and the greater ecological community—reviewers may be getting mixed messages. What should expectations be? How many and what kind of datasets should be online? What standard should be followed? Fred Swanson suggested that the sites might need to exercise some self-discipline in getting their datasets in order and making them accessible. He offered to share H.J. Andrews' recent review experience and to help prepare the next cohort. Finally, Scott Collins urged the group to use this requirement to demonstrate the value of LTER to the community, to set an example and promote LTER in a positive sense. "The writing is on the wall," he said. "There is no longer an excuse for any site to delay."

Program Officer Candidates

Division of Environmental Biology program officer candidates are needed from LTER to replace Scott Collins. Chair Jim Gosz showed a chart of the rotating program officer model and stressed the importance of the sites taking responsibility to ensure that there are LTER cognizant people in DEB. John Magnuson (NTL) reminded the group that providing program officers not only serves the community, but also is useful for the site. Scott Collins noted that Gaius Shaver (ARC) will start in and Tom Frost (NTL) has committed for 1997. Both will have the option to work in Long-Term Projects.

OXFORD CONTRACT

Publications Committee chair Bruce Hayden (VCR) reported that two weeks ago Oxford expressed new concerns about electronic publications in the near-completed contract negotiations, providing amended contract language for LTER's consideration. The Publications Committee found the new language and its implications unacceptable. From their comments, Hayden crafted language for the LTER/CC's review. New issues raised include the possibility of LTER material being sold to third parties without prior author knowledge and approval, Oxford claiming exclusive rights to LTER Internet postings that are in direct conflict with NSF's public access policy, and overly restrictive or inaccurate use of terms such as "verbatim presentations" and "raw data." The Publications Committee agreed that any derived publications should at least afford the author(s) an opportunity to incorporate new and/or contradictory findings.

Hayden sought the LTER/CC's comment on how the draft language he provided could be improved or perfected to protect LTER's rights. He posted recommendations for their consideration and decision: 1) LTER must make a promise not to use verbatim material from the covered publications online without permission from the publisher, 2) the LTER/CC will empower the LTER/EXEC to approve the final wording of the contract, and 3) the contract language should include the opportunity for amendment or withdrawal after a period of two years. The group agreed to review the new Oxford text and the proposed changes and recommendations and provide feedback for a decision the next day.

On a related matter, Scott Collins volunteered that if a site synthesis volume is a criteria the sites want, he would take it as a suggestion to NSF to be included in the LTER site review panel guidelines.

EXECUTIVE COMMITTEE ELECTION

(A list of past and present members is now available at http://lternet.edu/program/ex_mem.htm)

Jim Gosz reported that three individuals were nominated via e-mail as possible replacements for John Hobbie (ARC), whose term on the LTER/EXEC has expired: Charles Driscoll (HBR), Stan Gregory (AND), and Ray Smith (PAL). He invited additional nominations from the floor, but none were put forward. The responsibility of being on the LTER/EXEC, he noted, may be more onerous now than in the past, with extra duties associated with the upcoming Network Office transition. He invited statements from the candidates present. Ray Smith emphasized an interest in maintaining budgets and bringing the LTER online data policy into accordance with site perspectives. Charles Driscoll emphasized promoting intersite work and reviewing data management activities. On behalf of Stan Gregory (not present), Fred Swanson noted that Gregory's work focuses on forest-stream interactions and limnology, and that he has been active in intersite work.

The first vote resulted in a near-tie between Driscoll and Smith (10 votes were needed to win). A second vote was taken and Ray Smith was elected. Jim Gosz extended thanks to John Hobbie for his dedicated service to the Committee over the last three years.

FALL 1996 LTER/CC MEETING

On behalf of the LTER/EXEC, David Foster (HFR) reviewed the LTER/CC's past decision to organize the larger (two representatives per site) Coordinating Committee meetings around synthetic themes to stimulate synthetic activities and products. Meeting support in the Network Office proposal now being reviewed is designed with this structure in mind. The fall 1995 meeting at Cedar Creek, for example, incorporated sessions on the topic of Biodiversity (see Biodiversity workshop report below).

The fall 1996 meeting, scheduled for Harvard Forest, will address regional science topics and will include a field trip to the Hubbard Brook site if cost and logistical concerns can be resolved. The media workshop previously planned for the fall meeting fell through as it became clear that the entire cost would fall on the site. The LTER/EXEC decided instead on the regional science theme, which particularly should be enhanced by the experience from the first two augmented sites (North Temperate Lakes and Coweeta) that have regionalization as part of their research programs. The regional theme should also serve to

tie together the activities of Harvard Forest and Hubbard Brook. David Foster solicited feedback from the group about the topic and workshop to help identify thrusts or subtopics to allow sites working on similar topics, such as disturbance, to get together. The following subtopics were settled upon:

Regionalization/Regional Scale Subthemes:

Scaling up (process, modeling)
Gradients/Ecotones
Disturbance
Human/Social Context

1997 COORDINATING COMMITTEE MEETINGS

Chair Jim Gosz invited feedback on future LTER/CC meeting topics and structure, as well as what products PIs would like to see from these thematic meetings (books, synthetic workshops, etc.). He noted that if the LTER/EXEC Network Office proposal is funded, there will be other opportunities for workshops. After discussion, the following themes and meeting locations were tentatively agreed upon. It was also agreed that themes would be developed at the network, rather than the site, level so that it was not considered critical that the host site and theme match up according to site specialty.

Future LTER/CC Meeting Themes:

1997

Ecological Applications to Policy and Management (AND, spring 1997)
Climate Variability and Ecological Responses, and Carbon Fluxes
(PAL, UCSB & NCEAS, fall 1997)

1998

Population Demography/Dynamics (SGS and NWT, spring 1998)
Interactions Between Ecological Systems Society (NTL, fall 1998)

1999

Complex Systems (SEV, spring 1999)
Disturbance and Recruitment Dynamics (LUQ, fall 1999)

2000 and Beyond

Biological Legacies
Comparative Study of Ecological Processes
Simulation Modeling
Site Histories

IMAGERY ARCHIVE

Following up on a proposal presented to the community by Bill Schlesinger (JRN) last year, NOAA Corps Officer Don Dreves was invited to present information on the Global Fiducial Program (GFP), an initiative begun by then-Senator Al Gore's recommendation that classified technologies be used in research. Some of these technologies have been used in research for 20 years, for example, in geological mapping. Demonstration projects, such as the Civil Requirement Group (NASA, EPA, DOE, NSF, CIA), have already been completed. The intelligence community wants civil agencies like NSF to buy into the program, and within NSF LTER is a particularly good fit.

The objectives of the GFP are: 1) to use national classified assets to obtain a long-term record at sites worldwide to study environmental processes and changes that occur over years or decades (natural environmental variation, human-caused changes); and 2) to benefit the next generation of scientists (the long-term record available will be declassified at some point). Once met, GFP objectives will: 1) make data available in an active archive (data will be classified, oldest likely to be declassified in future), 2) allow analysis of data to document environmental change and understand long-term processes (classified data available to properly cleared scientists, can prepare unclassified derived products).

Dreves distributed a MEDEA-recommended site selection list of 132 sites (including most LTERs), and provided Jim Gosz with a program summary. The GFP program involves: 1) calibrating sites (have ongoing investigations and other imagery, use to help understand NTM assets); 2) establishing change detection and process study sites (sites or transects most useful to study long-term change, coordinate with on-the-ground activities or unclassified imagery record, if possible); and 3) identifying criteria for selection (agency mission and mandates, long-term environmental change). Participating agencies will have the opportunity to get images for sites that normally would not be accessible, either due to cost or their classified nature. It is possible to define a central point and boundaries, with accuracy to a 10th of a minute. The intelligence community expects to produce 6,000 to 12,000 images per year—about 12 images/site on average. Currently declassified data include Corona satellite data, ER-2 and Blackhawk datasets from around 1969-1972.

The data and information management intelligence community is funding this effort out of an environmental program created a few years ago. They have agreed to provide: 1) data (digital form, one central location); 2) data access (via a database management system with a user-friendly interface that will enable browsing (B & W panchromatic) imagery, remote access to directory over a secure line); and 3) archives (will make data available for fiducial sites, pointers to data location—Reston, Virginia—in database management system, and pointers to unclassified data sources). There will be a web-type page with a link to the relevant person with classified clearance.

A policy for analysis access is presently being created by the central imagery office. The policy likely will include: 1) a PI and government project leader will be identified for each site, and 2) ongoing analysis and evaluation (to assure data quality, that collections accomplish the program purpose, and that data are useful). In discussion it was noted that spectral imagery now cannot be used in a derived publication, and that journals will have to start making accommodation. Bob Wharton (MCM) cited a recent example of using unclassified derived products for publication (see Schlesinger, W.H. and N. Gramenopoulos. 1996. Archival photographs show no climate-induced changes in woody vegetation in the Sudan, 1943-94. *Global Change Biol.* 2, 101-105).

The primary intention of the program will be to create a digital archive. The intelligence community has agreed to fund program development and capital investment for the archive startup, and to provide digital data. The plan is to develop a self-managed working group of civil agency participants. If NSF, NOAA and USGS do not nominate sites and demonstrate an interest in participating in a timely manner, the intelligence community will likely withdraw the program. Dreves pointed out that there are no direct costs to the civil agencies (other than personnel) for at least five years (USGS budget includes support) but, down the line, there may be maintenance costs at the agency level. There are some restrictions of which to be aware: 1) the activity cannot interfere with national

security interests; 2) the resolution level provides a "soda straw," rather than a broad view; and 3) manual intervention, once coordinates and boundaries are defined, is not possible. The smart system computer will run more or less automatically, adjusting to cloud cover. However, in response to a significant event, agencies can obtain near real-time data.

The LTER/CC discussed whether it was essential initially for each site and NSF to have a person identified for this activity. It was decided that sites should have input (in terms of defining boundary conditions, spatial coverage, etc.) into the type of imagery obtained and that John Vande Castle (NET) would be a key person to obtain clearance as an extension of his normal role. The process costs about \$3,000 per individual. The LTER-NASA remote sensing group should be able to inform this effort and be a centralized pool of talent for LTER, if appropriate clearances can be obtained. The imagery could be used in concert with SPOT or LANDSAT, since images of all areas at all sites would probably not be possible to obtain.

A hand vote showed unanimous interest among the sites in acquiring the imagery. (Although coordinates were provided to Bill Schlesinger previously, the Shortgrass Steppe, formerly Central Plains, site will need to provide new information to reflect its recent expansion.) Scott Collins agreed to notify NSF—ultimately Tom Baerwald in GEO—of the sites' support). Following a suggestion that a possible link could be made to the ILTER effort, Don Dreves urged site representatives *not to share this activity widely*—particularly with international colleagues—due to present sensitivities and possible national security concerns.

WORKSHOP REPORTS

LIDET Workshop

Tim Seastedt (NWT) reported that the critical nutrient data from the Long-Term Intersite Decomposition Experiment Team (LIDET) will soon be available. These data will be useful for addressing local and regional questions up to network-level questions. Mark Harmon is preparing a workshop report. The plan is to proceed with posting data online, testing hypotheses quickly, with a timeline of late fall for the draft stage on major synthetic questions. The group hopes to have a finished product early next year to submit to *Ecological Applications*, with the possible development of a book or synthesis volume later on.

Soils Standardization Workshop

Dave Coleman (CWT) reported on the recent Soils Standardization workshop held 26-29 March at the Sevilleta and organized by Phil Sollins (AND), Phil Robertson (KBS), Caroline Bledsoe (NET), Bill Schlesinger (JRN) and Coleman. The 32 participants adopted a set of recommended methods to foster and enable cross-site analysis with respect to soil physical, chemical and biological properties. Many arrived with draft chapters in hand and participated in concurrent sessions across aspects of soil physics and chemistry. The product of the workshop has been proposed as the initial volume in the Oxford synthesis series. The Publications Committee will review with the LTER/EXEC on behalf of the LTER/CC whether it is appropriate.

Publications Committee chair Bruce Hayden gave initial advice to the group about planning a synthesis volume: it should be the product of a science activity or workshop that achieves synthesis. In other words, it should be more than a collection of papers on a common

theme. For the soils volume, Phil Robertson (editor in chief) has over 50% of the material in hand and is in the process of identifying five anonymous, non-Network reviewers. The full manuscript will go back to the authors July 1, and will be submitted to the editors in August. The working title is "Soils Methods Standardization Volume."

Workshop participants:

David Armstrong (NTL), Robert Ahrens (NCRS), John Blair (KNZ), Caroline Bledsoe (NET), Richard Boone (HFR), David Coleman (CWT), Frank Day (VCR), Charles Driscoll (HBR), Edward Elliott (CSU), Timothy Fahey (HBR), Diana Freckman (MCM), James Gosz (NET/SEV), David Grigal (CDR), Peter Groffman (HBR), Mark Harmon (AND), Elisabeth Holland (NWT), Wesley Jarrell (JRN), Nancy Johnson (SEV), Eugene Kelly (SGS), Michael Klug (KBS), Kate Lajtha (AND), H. Curtis Monger (HRN), David Myrold (AND), Knute Nadelhoffer (ARC), Thomas O'Dell (UWa), Eldor Paul (KBS), Phillip Robertson (KBS), Roger Ruess (BNA), Robert Sinsabaugh (U of Toledo, OH), Phillip Sollins (AND), David Wedin (CDR), Ziaoming Zou (LUQ).

Brief discussion included a question about whether saturated soils were addressed. Coleman noted that while they are not featured, chapters do address saturated soils. During additional discussion, Gosz read a letter from Phil Robertson that announced that the National Resource Conservation Service has indicated its willingness to help LTER sites update soil maps. Bob Waide reported that a recent soil mapping exercise with the group at Luquillo had been very productive.

(Later in the meeting, Phil Robertson sent a motion requesting Network Office budget support—\$2,000-\$4,000 for six participants—for meetings with NRCS to produce detailed soil maps for the LTER sites. Chair Jim Gosz put the request to a hand vote, and the result was unanimous in favor. An ad-hoc soil map committee will be formed to pursue this opportunity.)

LMER-LTER Workshop

Co-organizer Bruce Hayden provided background on the development of the upcoming LMER-LTER workshop. Similarities between the LTER and Land-Margin Ecosystem Research (LMER) programs have been recognized for some time. Many have asked why these programs are managed separately, and the notion was floated at NSF that it might be

beneficial for both programs if LMER sites were converted to LTER sites. Since such a merger requires considerable study and community discussion, a proposal was submitted to NSF for a workshop to consider a common future for the two programs. The proposal was funded and 24 people have been identified who might serve to value the issues involved. Due to the extended government furlough the workshop was postponed, but it has been tentatively rescheduled for July. Hayden and co-organizer John Magnuson are finalizing a date and location.

Hayden noted that this exercise is extremely important in terms of the potential for bringing new sites on board. Some of the issues the workshop will address include defining what is expected of new LTER sites, and what extra funding would be required to bring LTER sites up to speed, in some ways, with LMER sites and vice versa. Among immediate concerns: the LMER site that was funded at a lower level than the others is up for competition and the announcement will have to go out soon. Biological Oceanography, the NSF division which jointly funds the LMER Program, has different concerns than DEB; namely, what to do with the long-term datasets already developed under LMER? Clearly,

LMER-LTER Workshop, continued

Scott Collins noted, there are long-term issues in coastal areas that could benefit from long-term funding. With respect to this activity, he noted that the LTER community needs to readdress the issue of new sites coming on board, and how the Network can best offer its support. James Gosz suggested this might be a topic to explore at the fall LTER/CC meeting.

LTER-NASA Standardization Workshop

John Vande Castle (NET) reported briefly on the upcoming May LTER-NASA standardization workshop led by Warren Cohen (AND) that will help to kickoff a study (involving 14 LTER sites) that is partially funded by NASA's Terrestrial Ecology Program in the Office of Mission to Planet Earth. The present NASA commitment is for \$4 million over three to four years, with the potential for additional support. Vande Castle noted that current information on the LTER-NASA collaboration is accessible via the Network web at <http://lternet.edu/nasa>. Included is information on the sun photometer activity, which started as a way to generate satellite data for the sites and now is a major part of the NASA AERONET program. He also provided information on NASA Global Land Cover Test Sites (includes LTERs) put together by Ken McGuire (MCM), which is now accessible via the same location at the Network web site. Future LTER-NASA activities include calibrating TM data, investigating TM calibration, and generating the distribution of sites using NASA scenes and AVHRR data.

Biodiversity Workshop

Bob Waide (LUQ) reviewed how the Biodiversity effort had begun and reported on the status of the effort since the Cedar Creek LTER/CC meeting last fall. From a suggestion that the Luquillo LTER, as a tropical site, should carry the banner for biodiversity, Waide volunteered to run a workshop on the topic at the last LTER meeting, and then agreed to lead the writing of a proposal to NCEAS, which was funded. Now the effort may extend to as many as three books, and possibly a video. To date, 11 sites have submitted the species lists that all sites agreed to provide for a common electronic document following the October workshop. Those still outstanding are due no later than May 15. The final details of the NCEAS-funded workshop (Waide & Willing), scheduled for September 10-17, 1996, are coming together. The products being considered include submission of an overview to *BioScience*, and a proposal (suggested by Judy Meyer, CWT) to support an annual review of the data and analysis. A biodiversity and productivity synthesis volume is a possibility, but depends on workshop outcomes. The workshop format will include three meetings:

- 1) The first meeting will involve the full group (a representative of each site and six outside participants, one to two with statistical analysis expertise), which will meet for five days. The smaller group will meet for two additional days, and subgroups will meet to answer specific questions (see preliminary questions below) to come out of the workshop.
- 2) The second meeting (to be scheduled), will include three days of critical evaluation of results and will involve outside experts with whom to test ideas developed in the first meeting.
- 3) At the third meeting (probably April 1997), the four principals will work on any book that may result.

Organizers will send out a questionnaire to gather information about site datasets and mechanisms controlling biodiversity at sites, and site representatives will be required to do some pre-workshop reading and data preparation. Each will also be asked to search the literature for their site system and send ahead information on published datasets. They will *also be asked to look across the broadest scale possible to include non- LTER data.*

Possible outside experts (additional names were solicited for broader representation):

Gary Mittelbach—aquatic organisms
Sam Scheiner—plants
Terry Chapin—arctic herbs
Mike Huston—plants, forests and old fields
Sarah Spaulding—nematodes, algae
Mike Rosenzweig—small mammals
Stuart Pimm—birds
Matt Lafield—algae, aquatic invertebrates
Steve Hubbell/Rich Condit—tropical trees
John Moore—microorganisms
Bill Tonn—fishes
Bob Haskins—birds

Workshop Questions:

- What is the shape of the relationship between productivity and biodiversity?
- Are patterns consistent among systems? Among trophic levels?
- Are there different mechanisms (including disturbance) controlling biodiversity at different points along the productivity gradient?
- What is the spatial scale of diversity in these systems?
- Do spatial patterns shift from low to high productivity?
- How does diversity respond to manipulated increases in productivity?
- What kind of experiment would we design to test the mechanisms underlying the relationship between productivity and diversity?

ESA FLED REPORT

Kay Gross (KBS), chair of the ESA Future of Long-Term Datasets ad-hoc committee, distributed copies of the final FLED documents and reported that the committee was now dissolved. She thanked the LTER community for their participation in the effort and noted that an additional copy of the two volumes was mailed to each LTER site. Volume I contains the text of the summary, and Volume II is a directory of organizations that collect or maintain long-term datasets, including contact information, web page addresses, a list of individual collections, and an annotated bibliography. The full set will soon be on the ESA home page (<http://www.sdsc.edu>). A second committee may be formed to look at data sharing and archiving. Gross is presently preparing a final report to the Mellon Foundation, which funded the effort, and she invited comments from the LTER/CC to include.

Kay Gross suggested that continuing LTER support and participation might include: 1) providing information on locating and using existing sources of ecological data, 2) establishing and maintaining a home page with links to various sources of ecological data (possibly cooperating and supporting the efforts of other agencies), and 3) educating ESA members as to how to use and contribute to these data. Funding would likely be through

Systematics at NSF, but alternative sources of funding would also need to be identified. (Mellon and other foundations and agencies tend to support collection, but not archiving). LTER might establish a gatekeeper to prioritize data to be archived and ensure that use and access information are not lost (see the metadata recommendation developed by committee member Bill Michener, Vol. I), to adequately document data and standards, and to promote incentives to document data and make it widely available.

The FLED Committee endorsed using a system of accession numbers and made recommendations as to how to cite datasets. With regard to data sharing and coordination issues, LTER may want to lend its support to an ESA demonstration project funded by NSF's Biological Instrumentation and Resources and encourage the Ethics Committee of ESA to renew its Code of Ethics to include explicit language that addresses data sharing and collection and intellectual property protections. LTER can also promote interactions and collaborations between ecologists and scientists in other disciplines (such as systematics), perhaps by sponsoring workshops to highlight the differences, and support efforts by other disciplines to increase funding for biological collections.

During discussion of a possible role for LTER in the implementation of the recommendations in the FLED report, Kay Gross offered to take to ESA any LTER recommendation or expression of support or participation. Instead, Jim Gosz suggested that he draft a letter on behalf of the LTER/CC offering LTER's services to ESA and send it to lead PIs via e-mail to solicit their comment. The LTER/CC unanimously endorsed this proposal. The letter will include an argument for the national need of an ecological archive, information on LTER site archeological datasets, and an expression of concern about data sharing and citation issues.

Scott Collins noted that if this activity is important to the community, they will have to find a way to support it. NSF and other agencies prefer to provide developmental support; maintenance costs will have to come from the community itself, perhaps via membership and user or subscriber fees.

NATIONAL ENVIRONMENTAL MONITORING & RESEARCH NETWORK

Chair Jim Gosz reported on the status of the National Environmental Monitoring and Research Network, which is being formed with residual money from the widely criticized and now defunct EPA/EMAP effort. The NEMR activity, which evolved out of an NAS committee evaluation of BMAP, proposes to use an all-agency effort (NPS, EPA, NSF, etc.) to develop a national capability to access national conditions and trends. He passed out a report on the initial meeting held in Washington, D.C., attended by Gosz and Bruce Hayden, which was a first attempt to draft an NEMR framework. The next meeting of the interagency committee (June) will be national in scope, and will be chaired by Jerry Melillo. Jim Gosz displayed a pyramid-shaped figure to illustrate the hierarchical approach being taken:

Index Sites

100 LTER-like sites. This would be the research arm or branch where mechanistic understanding of the causes and effects of how systems function is explored. One objective would be first to identify these index sites (size not defined), then move up to a finer scale and more intensive research, using the results to understand trends at regional and continental scales.

NEMR, continued

Regional Scale

1000 sites spread out over the country to monitor key indicator variables and identify trends, processes, and keystone species, etc.

Continental Scale

Complete or continuous spatial coverage of the entire country.

Since LTER operate like index sites, the NEMR effort provides an opportunity to educate agency participants about the LTER Program and research component, and for LTER to play a lead role. The LTER concept was received favorably at the first meeting. Hayden and Gosz will continue to keep the LTER/CC informed, but also invited names of good candidates for participation in the next meeting, with enough lead time for adequate communication and education.

April 26

OXFORD CONTRACT, continued

The LTER/CC revisited the Oxford contract issue after having had the opportunity to review the language and terms recommended the previous day by Publications Committee chair Bruce Hayden. Hayden began the discussion by reporting that, in light of the issues raised by Oxford's new proposal regarding electronic publications, the EXEC recommended that a standard print contract with no electronic publications rights included be pursued. (A hand vote was taken and resulted in unanimous support.) The original contract allowed more flexibility and the opportunity to address this area as the implications of new technological developments become known. For example, LTER may want to use developing technologies to develop model animations and display model results. It was generally agreed that further delay in the contract negotiation process should be avoided to prevent possible impacts on existing Oxford site volume agreements.

1. A motion was advanced to authorize Bruce Hayden and Jim Gosz (LTER contract signatories) to negotiate a standard contract with Oxford based on the original document and consistent with site synthesis volumes now in effect. *(The motion carried unanimously.)*

2. A second motion was advanced that over the next six months Bruce Hayden and Jim Gosz would negotiate with Oxford to develop an addendum to the publications contract to cover electronic media and report back to the LTER/CC. *(The motion carried unanimously.)*

Kay Gross (KBS) suggested that the ESA publications office be contacted to benefit from their recent comprehensive research into electronic publications issues. Bruce Hayden noted that any and all ideas and/or referrals that might help to move the effort along are welcome. Finally, he noted that Bill Lauenroth (SGS) had expressed some concerns about the quality of recent Oxford science publications, which he was asked to share with the Publications Committee.

NETWORK OFFICE PUBLICATIONS

New Directories

Stephanie Martin (NET) provided a brief review of the goals and objectives of the existing Network Office print and online publications program, including the categories of publications produced and/or picked up and added to form a numbered series at the request of the LTER/EXEC and CC in 1990. She distributed a new set of network slides (one per site) and a sample CD of the loaner slide set maintained at the Network Office, noting that a similar CD could be prepared for each of the sites at minimal cost and/or that the slide set images could be archived online. The images have been collected from a number of sources and, in some cases, prior permission would need to be approved for this use.

The present Network Office budget includes funding for an updated personnel directory and an updated site directory, both of which were initially expected to include a section on international LTER sites. It was decided that the site directory will include U.S. LTER sites with maps showing other countries that have organized LTER efforts. Stephanie showed examples of the different approaches LTER has taken to site directories, from the original pamphlet-sized directory (1988) to the 1991 edition (with chapters on each site originally prepared for the 1991 All Scientists Meeting) to the present eight-page brochure to a "pocket-sized" model from another program. She recommended the last example as the most portable and versatile of these for a public information piece, as well as the least expensive for color production.

After discussion, the group decided that as a first priority Stephanie should update the existing color brochure, which they agreed has been the most useful and versatile of existing program literature, and that at a later time—possibly under the new Network Office proposal—the possibility of preparing a pocket-sized booklet with additional information on the sites should be pursued. They also decided to rework the language describing the overall program.

Information for an update of the Network personnel directory was recently requested by Rudolf Nottrott. As with past updates, once the process of collecting the additions and changes and entering them into the existing database is completed, Stephanie will produce a printed version and update the organizational information. Interim changes are made as they are submitted, so that the most current information is available online. The directory was initially intended for distribution just to personnel in the database but, by popular demand, the directories are now distributed in limited numbers outside LTER. Ray Smith (PAL) commented that, when his site joined the Network, he found the personnel directory to be the most useful introduction.

Informal Publications

In reviewing a recent request from Mark Harmon (AND) that the Network Office publish abstracts from a scientific exchange with Russian collaborators, the LTER/EXEC decided to change existing policy with regard to informal publications. They saw this request from an individual proposing that the Network Office publish material from an effort that was not initially Network-organized or endorsed as being qualitatively different from proposals received in the past. The request, along with the increased use of electronic publication, prompted the Committee to review the past policy with regard to printing and distributing informal reports through the Network Office. Chair Jim Gosz submitted the following policy language for LTER/CC approval:

“Activities promoted, facilitated or otherwise supported by the Network are eligible for publication in summary form electronically. Hard copy publication is the responsibility of the PI unless specifically determined by the LTER Executive Committee.” (*The new policy was unanimously approved.*)

Jim Gosz directed the Publications Committee (Bruce Hayden and Stephanie Martin and possibly others) to develop a template to be used for informal publications selected for online distribution.

SITE ACRONYMS

(*Background:* Three-letter site acronyms drawn from full site names were developed and approved by the LTER/CC in 1989 in advance of the preparation of a complete Network personnel database and the establishment of the electronic mail forwarding system and electronic mail groups. They have been used as a shorthand reference for the sites in most Network-level activities and communications since.)

Jim Gosz reported that the Network Office discovered that the Central Plains site had changed its name and acronym (to Shortgrass Steppe, SGS), impacting several Network databases and both print and online information developed and maintained by the Network Office. Noting that implementing such changes take time and expense, Gosz asked whether any other sites were considering such a change so that, if so, the necessary updating work could be completed at the same time for inclusion in the upcoming personnel directory update. No other sites reported considering a name change. Ray Bero (NET) will be implementing the change across the electronic networking system, and Stephanie Martin will implement changes in those areas of the Network Office web and gopher site she manages.

SGS co-PI Bill Lauenroth informed the group how the change to SGS came about: The site recently increased its area nearly tenfold under its renewal proposal by agreement with the U.S. Forest Service and “Central Plains” was no longer accurate. They wanted to provide USFS and the Agricultural Research Service with the recognition they need, while moving from a place name with institutional implications to a more “biomic” name.

INTERNATIONAL LTER (ILTER)

Chair Jim Gosz reported that there are more opportunities for international exchange than the Network can handle. There has been a lot of activity on the IILTER front over the last several months, including recent exchanges with Czech scientists (who visited NSF and LTER sites) and Spanish, Portuguese and Moroccan scientists (an LTER-LMER contingent visited Iberian sites) illustrated the receptivity to the LTER model and the wide interest in forming LTER-like networks. He noted that the LTER model is an easy one to sell abroad because it tends to complement traditional science programs. It is to LTER’s advantage as well when as a result of these efforts additional funds can be leveraged for ecological science in other countries, ultimately influencing NSF’s perception of the success of the LTER Program. On a program level, these activities are a good way to get the rank and file directly involved in the LTER effort; on an individual level, the different perspectives participants obtain can prove very valuable to them professionally. The IILTER vision of a global LTER network may also include cooperation with broad interdisciplinary science efforts that include provision for cross-site synthesis, such as the Global Terrestrial Observation System (GTOS).

UPCOMING INTERNATIONAL ACTIVITIES & EXCHANGES:

May-June 1996—Puerto Rico, hosted by Luquillo LTER. Brazil is the biggest player among 13 participating countries who will meet to discuss the establishment of a regional connectivity station. Jim Gosz, Rudolf Nottrott and John Vande Castle will represent the U.S. LTER Network.

November 1996—Costa Rica and Panama. Initial regional ILTER meeting. Jim Gosz, Jerry Franklin and Rudolf Nottrott will represent the U.S. LTER Network.

January 1997—Chile

Date tba—Mexico, jointly funded by NSF and CONYICIT. There is still room for LTER participants. Those interested should contact Jim Gosz.

Date tba—Japan (possibly including Mongolia), with funding from International Programs. Two Mongolian scientists are slated to tour LTER sites in May. Eight to 12 participants are presently being identified for the Japan trip. Those interested should contact Jim Gosz.

Date tba—Brazil. NSF will provide funds for an LTER team to visit sites once they have been identified.

Jim Gosz also reported that the funds originally earmarked for a trip to **Poland** were expensed during the Czech Republic visit, but that there still may be a later opportunity to visit Poland and Slovakia.

BUDGET REDUCTION ANALYSIS & FUTURE STRATEGIES

Scott Collins (NSF) provided more information on the recent site review preliminary to a discussion of the process. He noted that by design the panel included some of the same individuals as six years ago. Past discussions with the community and within NSF had shown the need to formalize and build consistency into the site review process. This round, panelists were instructed to look at the: 1) quality of science, 2) quality of data management, 3) infrastructure, and 4) site management. They were encouraged to visit relevant web sites. Collins solicited LTER/CC comment via electronic mail (*sCollins@nsf.gov*) as to what the criteria for future reviews should be, particularly from those sites just reviewed. (There may be additional site visits scheduled for the two augmented sites next year.) He suggested that sharing review comments might be helpful, but reminded the group that NSF may not provide copies of review comments to others. John Magnuson noted that North Temperate Lakes has posted its renewal proposal at its web site and that the other five sites recently reviewed may want to consider doing the same. Jim Gosz advised that it may be more beneficial to compile comments (including from the Network Office) following the upcoming site visit, and present a more formalized report to Mary Clutter.

Collins noted that due to cost constraints NSF may have to cut the number of site reviewers in future. This has potential negative implications for sites placed on probation. It was decided that the LTER/EXEC will work with NSF to clarify this concern.

Gosz reported the results of this year's survey of the sites for information on how they handled **site budget reductions**:

Salaries

PIs	40%	Equipment	10%
Students	25%	Travel	5%
Postdocs	15%	M & S	5%

He noted that this information is useful to make the point with NSF that further reductions have to come from the science programs at the sites. Another \$20,000 will be lost due to inflation next year. The Network Office proposal was written at a 10% reduction, and the sites just reviewed had to project six years of flat funding in their proposals. Gosz asked the sites again to specify what the impacts are. Can they still adequately support the five core areas? If not, which four can they support? Perhaps a network-level effort to re-evaluate the five core areas should be undertaken. Ironically, at a time when the idea of a new urban site is in play, the innovations and new ideas have had to be the first to go at existing sites. It has become not just a question of which task to cut or eliminate, but which part of a person to cut. Collins urged the group to get this important message through to NSF, recommending that, without suggesting that a new site not be added, they might suggest bringing several sites up to enable the addition of an urban component. Jim Gosz noted that some sites already have social science pieces and that this may be the time to form an alliance with SBE. He suggested that the EXEC introduce the idea, providing examples from the augmented sites, when they next meet at NSF (tentatively January 1997).

1-800 NUMBER

Chair Jim Gosz reminded the group that, as announced at past meetings, more money has been spent in support of the 1-800 LTERnet dial-up connection than was allotted in the Network Office budget and that, as a result, the number will soon be disconnected. This had become a fairness issue. Unfortunately, even after sites were presented with affordable site connection options, there have been cases of abuse, most recently by individuals formerly associated with LTER sites who have run up bills of as much as \$2,000. Sites still needing assistance in selecting among the available options may contact Rudolf Nottrott (NET) for assistance.

STANDING COMMITTEE REPORTS

Graduate Student Committee

Committee co-chair Reed Perkins (AND) reported the results of the most recent Student Travel Award supported through the Network Office budget. He noted that he had met with Chair Jim Gosz to better define and coordinate the process and procedure for obtaining and reporting on the awards. This time, just one proposal was received, although funding for three (at \$1,500 each) was available. Perkins asked for the Pis' assistance in getting the word out about these awards to students at their sites, acknowledging that this competition had only been announced to students.

The LTER/CC discussed possible solutions to the apparent declining awareness or interest among students. Perkins noted that most students donot identify with the Network, and that when he solicited comment to shareat the meeting, there were few responses except

that several lamented the demise of the all scientists meetings. The opportunity for students to meet at the annual ESA mixer provides the opportunity for social interaction, but little opportunity to learn about long-term ecological research. Jim Gosz noted that the entire Network laments the loss of the all scientists meetings, but that they were not popular with reviewers. The challenge remains to find a way to involve non-LTER scientists and correct past impressions in the larger community that they were expensive and clubbish.

Peter Reich (CDR) suggested that perhaps fewer, more major awards allowing work that tied in with a student's thesis could be offered, and Jim Gosz responded that these awards were designed to provide travel support only for student intersite comparisons and that NSF does not favor the Network Office funding research. David Foster (HFR) reminded the group that some sites have site-based awards. Harvard Forest and the Shortgrass Steppe site, for example, both offer \$3,000 annually.

An idea suggested by John Magnuson (NTL) to develop a proposal for a topic-focused "traveling educational tour" for, say, five students to visit five counterpart sites was well received. Funding might be available from NSF's Education division or through special grants such as the Graduate Research Training Grant program. Magnuson offered the example of the student exchange program developed jointly by the University of Wisconsin-Madison (Magnuson) and the University of Washington (Bob Naiman) funded through GRTG: six students from each institution spend six months at the other institution to broaden their experience. Reed Perkins was asked to poll the student community for additional ideas and to report the results to the LTER/EXEC for possible action.

Climate Committee

Bruce Hayden distributed a preliminary proposal to use long-term climate data for a workshop on long-term reconstructions of past climate ecosystem interactions. He invited comment via electronic mail (*bHayden@LTERnet.edu*).

NSF SITE VISIT

The Network Office proposal review team will visit both the University of New Mexico and SUNY Buffalo, NY. The UNM visit will be June 5-6 and Bruce Hayden (VCR), Bob Waide (LUQ), and Ray Smith (PAL) of the LTER/EXEC will participate. Other participants include Phil Robertson (KBS), John Vande Castle and Rudolf Nottrott (NET), John Porter (VCR), John Helly (San Diego SuperComputer Center) and James Brunt (Data Managers Committee chair, SEV), who will coordinate to present information on technical capabilities. NSF will use the review process to begin negotiation for a six-year cooperative agreement.

The SUNY Buffalo group has strengths in environmental modeling and geography, spatial data and data archiving. Their only known connections to LTER are indirect (via Charles Driscoll, HBR and Bob Wharton, MCM). The relative strengths of the LTER/EXEC proposal include: it was written by representatives of the LTER community, not a foreign body; an intimate relationship exists between the sites and the existing Network Office; and the proposal leverages the resources and infrastructure support of three institutions (UNM, San Diego SuperComputing Center, University of Washington). Because there will be strong information management specialists on the panel, presenters are working to place more emphasis on the ability to handle information management and display, as well as organizational management. Jim Gosz thanked John Magnuson once again for coming up with the idea of having the LTER/EXEC write the proposal.

Handouts:

Climate workshop proposal (Hayden)

FLED Report (2 vols.) (Gross)

MEDEA Site Recommendations (Dreves)

Palmer LTER reprint (Smith, et al. 1995. *Oceanography* 8(3):77-86)

Palmer draft preface, AGU Antarctic Research Series book (R.M. Ross, E.E. Hofmann, L.B. Quetin, eds.)

Proposed Oxford contract language changes (Hayden)

submitted by Stephanie Martin, 5/15/96

approved by James Gosz, LTER/CC Chair