

Status and trends of ecosystem services: A cross-site comparison of LTER sites.
A workshop summary (Disturbance and ecosystem services) and proposal for a post-ASM meeting

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The workshop on disturbance and ecosystem services focused primarily on discussions of a plan for cross-site intercomparisons and syntheses of status and trends in ecosystem services. This was viewed as an essential early step in expanding the LTER framework to incorporate human activities as an integral component of social-ecological systems. The cross-site comparison of disturbance regimes, which was also a component of the workshop, will be incorporated into the disturbance synthesis headed by Ariel Lugo as part of the Trends project.

Ecosystem services are the benefits that society derives from ecosystems. They are therefore one of the primary suites of linkages between social and ecological processes in social-ecological systems. We propose three activities to assess the current status and trends of ecosystem services across the LTER network: (1) develop a list of ecosystem services at each LTER site; (2) develop a rapid assessment of recent trends in these services at all LTER sites; and (3) initiate discussions of more detailed cross-site comparisons of causes and consequences of changes in ecosystem services as a basis for future proposals to NSF and as a contribution to LTER network planning. These goals could be accomplished in a 1-day meeting of one representative per LTER site on May 15, 2007, one day prior to the LTER spring Science Council meeting in Portland, Oregon.

1. List of ecosystem services. Prior to the meeting (by December 2006) we would ask each site to develop a list of the ecosystem services that characterize their site. We would modify the Millennium Ecosystem Assessment list of ecosystem services to be appropriate to the LTER network and use this as a template for all LTER sites to fill in. We would also allow some flexibility in listing additional services that might be specific to individual sites. These lists would be developed by the scientists at each site. The graduate students designated to attend the meeting would prepare an excel spreadsheet of all services at all sites. Discrepancies and complications in the spreadsheet would be discussed at the meeting and a revised list developed.

2. Status and trends in ecosystem services. At the meeting we would develop protocols for a rapid prototype assessment of status and trends in ecosystem services at each site. We anticipate that this assessment would be conducted through a half-day workshop of LTER scientists and other experts at each site. Issues that must be resolved at the proposed meeting prior to the site assessment include temporal and spatial scale; site heterogeneity in ecosystem services and trends; and aggregation methods to provide a single assessment for each LTER site. The assessments would be completed by each LTER site by Thanksgiving 2007. Students who attend the meeting would collate the information in an excel spreadsheet. A core writing team that includes the students and meeting organizers would draft a manuscript to be circulated among participating LTER sites. We would aim for a manuscript for a journal like *BioScience* in spring 2008 that synthesizes status and trends in ecosystem services across the LTER network. The representative of each LTER site that participates in this assessment would be a co-author of the paper. The paper would be written in the context of previous assessments (e.g.,

Millennium Ecosystem Assessment and Hines center report). The report might also be a timely contribution to the MEA subglobal assessment.

3. Long-term research goals. At the meeting we would brainstorm about potential opportunities for more in-depth comparative studies of ecosystem services. These discussions would be conducted in the context of how best to implement the LTER planning goal of integrating social and ecological processes in a single common conceptual framework.

Meeting format. Each site would be invited to send one representative to the meeting (the person who best represents site understanding of status and trends in ecosystem services). In many cases this person would be one of the two site representatives attending the LTER Science Council meeting. The meeting, to be held the day before the Science Council meeting, would begin with three brief talks (1) history of ecosystem services and MEA approaches; (2) rapid assessment methods; and (3) charge to the group. Following a brief plenary discussion of the charge, we would split into breakout groups to discuss how to implement the rapid assessment (addressing issues of scale, heterogeneity, aggregation, etc.). After lunch groups would report back to the plenary, and we would have a general discussion to finalize protocols for the rapid assessment of status and trends. After break, we would expand the discussion to longer-term approaches to studying ecosystem services in a cross-site framework.

Costs: Many of the attendees would be among the site representatives to the Science Council meeting. For these individuals, we need support only for one extra day per diem and lodging. We request travel costs and lodging for Ann Kinzig who will likely not be one of the CAP site representatives to the Science Council, two graduate students who will help us with organizing the meeting and developing products from the meeting, and representatives from sites who do not have an interested scientist among their site representatives.