

## Networking of long-term biodiversity & ecosystem research and monitoring from local to global

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The question of how to build adaptation strategies at regional to global level was addressed in this talk, including a brief explanation of the integrated approaches to environmental monitoring and research in Europe, the rationale behind the ALTER-NET initiative and the future of the Summer School. Mr. Parr began his talk by explaining that there are 5 important things we know for certain in nature conservation: a) Biodiversity is threatened, b) Ecosystem services are threatened, c) long-term perspectives are necessary to understand, d) landscapes are multifunctional and e) Pressures exist at local and global scales. Today's issue for conservation action remains in understanding how to assess ecosystem vulnerabilities and provide solutions to policy-makers. Extensive measurements include remote sensing and land cover assessment that can provide information in the short term, and intensive measurements also exist in the form of long term ecosystem monitoring and research. In the United Kingdom (UK), for example, population growth, urbanisation, intensive agriculture and consumption are important threats. However, media coverage on environmental issues has increased in the past years and biodiversity inventories have been enlarged by amateurs naturalist all over the region and existent research networks. The UK Countryside Survey is one of these biodiversity research network that has been addressing important issues of the nature of biodiversity changes, its causes and what are the consequences of these changes for human livelihoods. Subjects addressed by the Countryside Survey includes regional butterfly and plant inventories, soil quality assessments, microbial biodiversity, the effects of the loss of biodiversity on pollination and other ecosystem services, forecasting changes, etc. These surveys provide large scale, long term policy relevant science for conservation action, however, maintenance of the network is expensive and it still lacks strong forecasting capacity. At the European level, the Long-Term Ecological Research Network (LTER) consists of biodiversity observatories (research sites) all over Europe. LTER is formed by 54 sites that include disturbed to pristine environments. Approximately 260 field measurements have been coordinated in LTER sites using standard protocols. This information is stored in a central database with Internet access for the entire research network. LTER measurements have included climate change impact on rabbit grazing potential, models of carbon storage potential and emissions, species reproduction in lake ecosystems, among others. LTER information integration has been useful to detect changes in species distribution. LTER Europe is in expansion with the inclusion of new sites and methods for research in human dimension of environmental changes. Terry Parr also talked about the ALTER-NET, a long term biodiversity, ecosystem and awareness research network, which has the objective of integrate European research in conservation by knowledge transfer and establishing research networks; and also briefly, he talked about the International-Long Term Ecological Research (ILTER) network and its goal of establishing an international coordinated effort of site-based, long-term ecological and socioeconomic research

(<http://www.ilternet.edu>). Furthermore, Mr. Parr discussed with the Summer school staff and student on how the summer school initiative could be logistically improved in order to most successful way to influence graduate students and professionals to participate in research networks and establish collaborations after the course has finished.

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