The Network:
The Long Term Ecological Research (LTER) Network is a collaborative effort involving more than 1800 scientists and students investigating ecological processes over long temporal and broad spatial scales. Each LTER site encompasses unique ecosystems and research approaches, investigators, students, and management systems. Each of the 26 sites works as part of the Network sharing expertise, data and a common mission.

The mission:
- Understanding ecological phenomena over long temporal and large spatial scales
- Creating a legacy of well-designed and documented long-term experiments and observations for future generations
- Conducting major synthetic and theoretical efforts
- Providing information for the identification and solution of ecological problems

The research:
- Pattern and control of primary production
- Spatial and temporal distribution of populations selected to represent trophic structures
- Patterns and control of organic matter accumulation and decomposition in surface layers and sediments
- Patterns of inorganic inputs and movements of nutrients through soils, groundwater and surface waters
- Patterns and frequency of disturbances

Core Research Questions:
Dynamic patterns and control of primary production, over time, and in relation to natural and induced stresses or disturbances.

Evidence presented by several researchers indicates that several key measurements of the producer system can be correlated with physical and climatological measurements at the site. These measures seem to have great potential for estimating other site parameters.

Dynamics of selected populations of seed plants, saprophytic organisms, invertebrates, fish, birds and mammals in relation to time as well as natural and induced stresses or disturbances.

The causes of population fluctuations, or sustained population declines, are among the most elusive of biological problems. Records of the population variations in invertebrates, fish, birds and mammals are longer than is usual for the species, including records of prehistoric populations. The length of such records can be a product of, or induce, long-term trends.

Patterns and control of organic accumulation (biomass) in surface layers and substrate (or sediment) in relation to time or natural and induced stresses or disturbances.

Patterns of inorganic contributions (atmospheric or hydrologic) and movement through soils, groundwater, streams and lakes in relation to time and natural or induced stresses or disturbances.

Patterns of inorganic contributions (atmospheric or hydrologic) and movement through soils, groundwater, streams and lakes in relation to time and natural or induced stresses or disturbances. Research has shown unusual variations and trends in inorganic contributions to ecosystems from the atmosphere. These inputs reach aquatic systems, in part, through surface and subsurface hydrologic flows, which in turn vary in relation to precipitation inputs. Long-term measurements of concentrations of constituents of this geochemical system will provide benchmark measurements for comparative as well as manipulative research.

Patterns and frequency of apparent site disturbances over space and time (drought, fire, windthrow, insects or other perturbations) that may be a product of, or induce, long-term trends.

Virtually all of the potential LTER study systems (land and water) will include unusual but probably natural local disturbances (e.g., floods, fire, insect attack). Study of system response to these interventions is an essential part of the LTER program. Thus, a class of research relates to the pattern and frequency of interventions (some may be very infrequent), and the status of the population recovery (which, in forest succession, may be very long).

Source: http://lternet.edu