

LONG TERM ECOLOGICAL RESEARCH

2015 Mini-Symposium

PRIMARY PRODUCTION

5 March 2015, National Science Foundation

Stafford I, Room 110

At the base of almost all of Earth's food webs is the biological process of primary production - the conversion of solar energy and carbon dioxide into living biomass. This seemingly simple process is the domain of green plants, algae, and some bacteria that combine sunlight, water, and carbon dioxide to form organic molecules and oxygen. And although the basic process is the same everywhere, the rate at which primary production proceeds shows remarkable spatial and temporal variability. Because of the foundational nature of primary production in generating food and oxygen for the biosphere and because of its major role in the Earth's carbon cycle, understanding where, when, how, and why rates of primary production change is a central question for ecological research, and why this unifying process is a core measurement for sites in the Long-Term Ecological Research (LTER) network. And because the basic process is universal, primary production is an integrated measure of ecosystems that can be used to test ecological theories across very different habitats.

Presentations will address ecological controls and concepts related to primary production, including detecting effects of climate change on production in coastal environments and boreal zones; determining patterns and causes of temporal heterogeneity in production in forests and in aquatic ecosystems, and responses of primary production to disturbance.

Detailed agenda:

- 8:30am *Welcome and Opening Comments*
Saran Twombly (NSF Division of Environmental Biology), Peter Groffman (Cary Institute of Ecosystem Studies and Baltimore Ecosystem Studies, Hubbard Brook LTER sites)
- 8:45am *Grasslands and multi-year drought: using long-term data to inform past mysteries and minimize future surprises*
Debra Peters (New Mexico State University and Jornada site)
- 9:15am *Timing is everything: Understanding short- and long-term variability in light and temperature on inter-biome freshwater ecosystem production*
John Kominoski (Florida International University and Florida Coastal Everglades LTER site)
- 9:45am *Forest Net primary production: Examining spatial and temporal heterogeneity within the LTER Network*
Mark Harmon (Oregon State University and H.J. Andrews LTER site)
- 10:15am Break
- 10:30am *Marsh equilibrium theory: feedbacks and tipping points*
James Morris (University of South Carolina and Plum Island Ecosystem LTER site)
- 11:00am *The changing nature of trophic cascades at high latitudes*
Roger Ruess (University of Alaska Fairbanks and Bonanza Creek LTER site)
- 11:30am *Primary production in human-dominated ecosystems: Responses to human activities and provisioning of ecosystem services*
Emma Rosi-Marshall (Cary Institute of Ecosystem Studies and Baltimore Ecosystem Studies LTER site)