TRENDS IN LONG TERM ECOLOGICAL RESEARCH

http://www.ecotrends.info

Long-term ecological research sites within the U.S. date to 1902 when the Santa Rita Experimental Range and to 1911 when the Priest River Experimental Forest were set aside as research centers. By 1980 when the Long Term Ecological Research program was established, 78 experimental forests and > 10 rangeland research stations had been conducting research, in most cases for > 40 years. Currently this large suite of NSF and USDA supported sites, including 26 LTER sites, represents a wide range of ecosystem types, from forests to grasslands and shrublands, freshwater lakes and streams, near coastal marine and estuaries as well as urban areas and systems in the arctic and Antarctica. A variety of different kinds of data have been collected from these sites through time, ranging from primarily climatic and demographic data since the 1800s to more recent quantitative assessments of plant, animal, and microbial populations and communities, hydrological and biogeochemical cycles, biodiversity, and disturbance regimes.

As the LTER enters its "Decade of Synthesis", the USFS enters its "New Century of Service", the USDA ARS enters the time when "The Future Grows Here", and new initiatives, such as the National Ecological Observatory Network (NEON) become operative, there is a critical need for a collection of highly accessible, up-to-date, and easy to use data sets that span the ecosystems and history of the U.S.

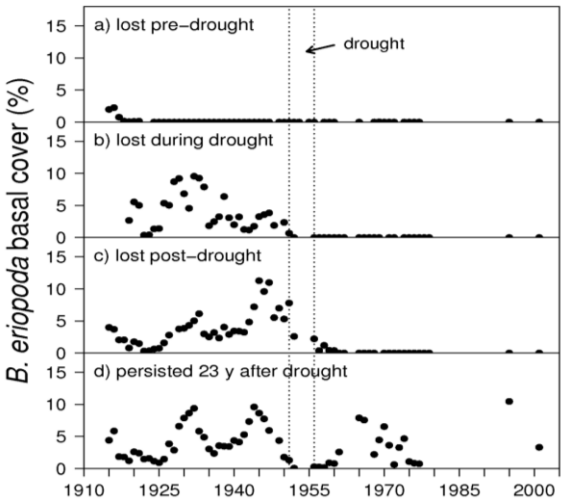
Goals: to create a platform for synthesis by making long-term data accessible, and to illustrate the utility of this platform in addressing within-site and network-level scientific questions.

Products: (1) a book to be published on trends in long-term data within and among sites, and examples that illustrate the value of long-term data in addressing important questions; (2) a web site containing derived data and metadata that can be easily explored, accessed, downloaded, and plotted for synthetic analyses.

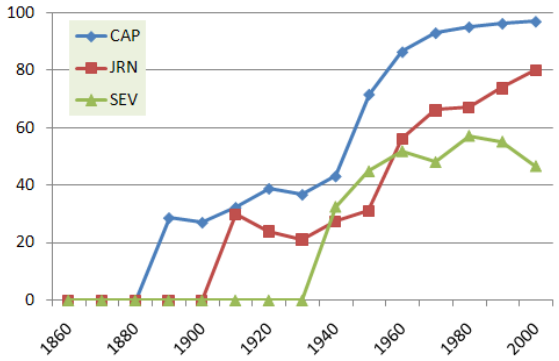
Types of data being collected by site:

1. Biotic structure, including biodiversity
2. Disturbances
3. Human population and economy
4. Biogeochemistry
5. Climate and physical variability

Examples of long-term data:

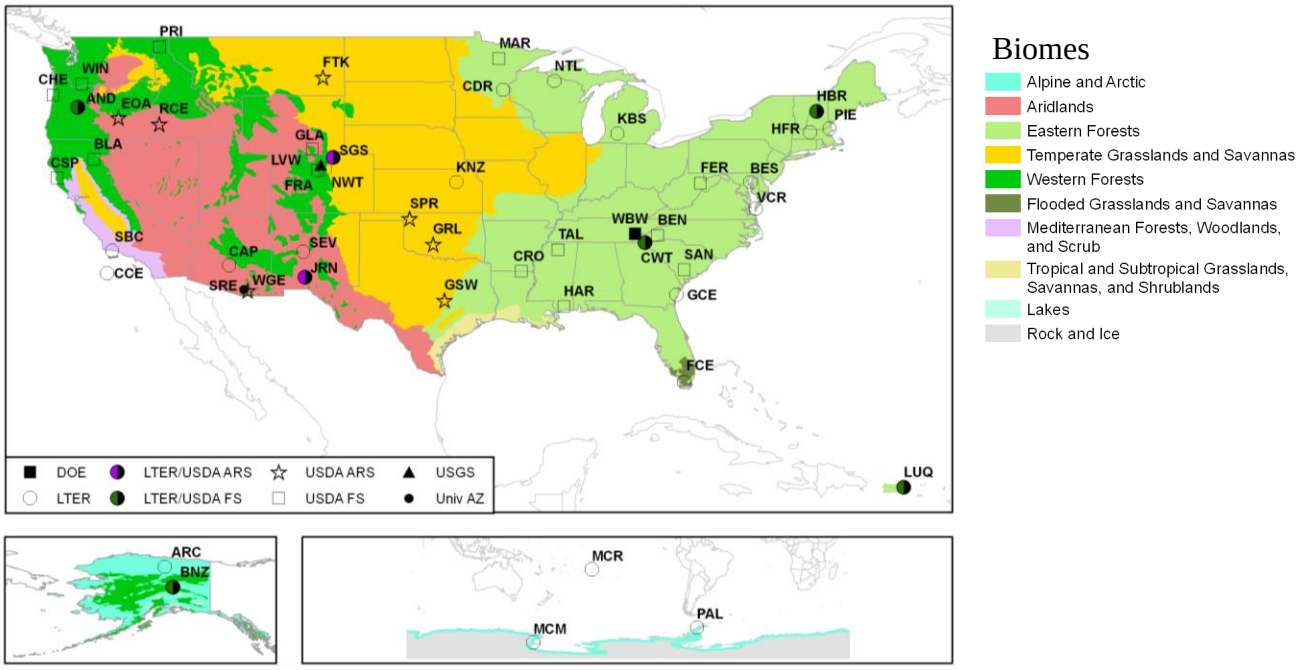


Cover of a dominant grass through time on each of four types of quadrats showing different responses to drought in the Chihuahuan Desert (Jornada ARS- LTER).



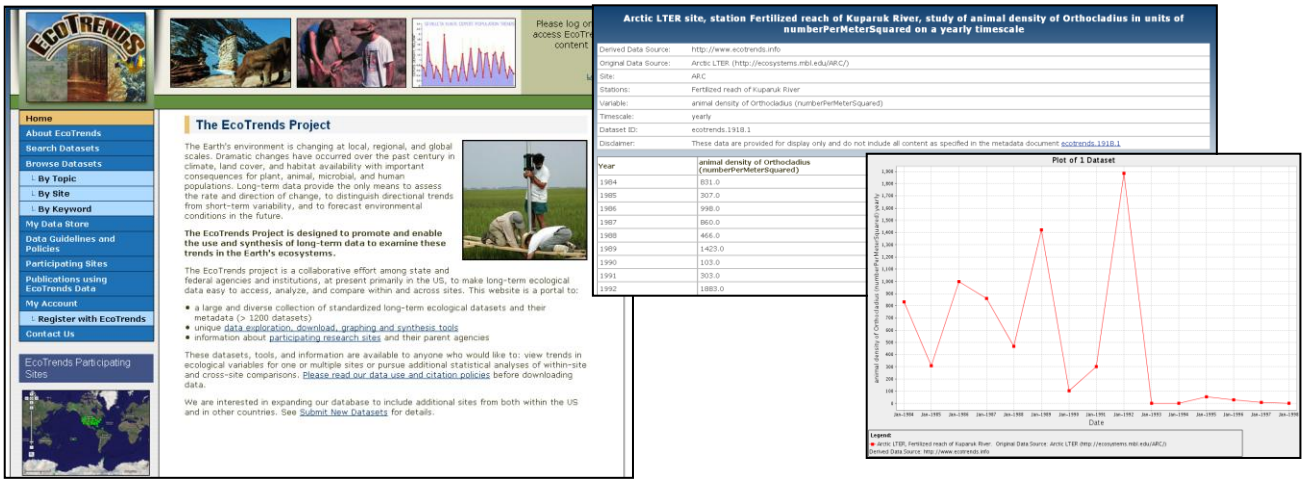
Urban population as a percent of total population at three southwestern sites.

EcoTrends Participants



AND: H.J. Andrews Exp. Forest
ARC: Arctic
BEN: Bent Creek Exp. Forest
BES: Baltimore Ecosystem Study
BLA: Blacks Mountain Exp. Forest
BNZ: Bonanza Creek
CAP: Central Arizona – Phoenix Urban
CCE: California Current Ecosystem
CDR: Cedar Creek Ecosystem Science Reserve
CHE: Cascade Head Exp. Forest
CRO: Crossett Exp. Forest
CSP: Caspar Creek Exp. Watershed
CWT: Coweeta Hydrologic Laboratory
EOA: Eastern Oregon Ag. Research Center
FCE: Florida Coastal Everglades
FER: Fernow Exp. Forest
FRA: Fraser Exp. Forest
FTK: Fort Keogh
GCE: Georgia Coastal Ecosystems
GLA: Glacier Exp. Forest
GRL: Grazinglands Research Laboratory
GSW: Grassland Soil and Water Research Lab
HAR: Harrison Exp. Forest
HBR: Hubbard Brook
HFR: Harvard Forest
JRN: Jornada Basin/ Exp. Range
KBS: Kellogg Biological Station
KNZ: Konza Prairie
LUQ: Luquillo Exp. Forest
LVW: Loch Vale Watershed
MAR: Marcell Exp. Forest
MCM: McMurdo Dry Valleys
MCR: Moorea Coral Reef
NTL: Northern Temperate Lakes
NWT: Niwot Ridge
PAL: Palmer Station
PIE: Plum Island Ecosystem
PRI: Priest River Exp. Forest
RCE: Reynolds Creek Exp. Watershed
SAN: Santee Exp. Forest
SBC: Santa Barbara Coastal
SEV: Sevilleta
SGS: Shortgrass Steppe
SPR: Southern Plains Range Research Station
SRE: Santa Rita Exp. Range
TAL: Tallahatchie Exp. Forest
VCR: Virginia Coast Reserve
WBW: Walker Branch Watershed
WGE: Walnut Gulch Exp. Watershed
WIN: Wind River Exp. Forest

EcoTrends website (http://www.ecotrends.info; open access Oct 1, 2009)



Project Leader: Dr. Debra Peters, USDA ARS, Jornada Experimental Range, Jornada Basin LTER program, Las Cruces, NM USA; debpeter@nmsu.edu
Project Coordinator: Christine Laney, New Mexico State University, Jornada Basin LTER program, Las Cruces, NM USA; chrlaney@nmsu.edu