

A. Center/Institute/Program

University of Kansas Field Station

Kansas Biological Survey – Higuchi Hall
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Director/Chairperson: Dr. Edward A. Martinko
Representative to AERC: Dr. Edward A. Martinko
Alternate: Dr. Jerry deNoyelles

B. Major objectives of the Center/Institute/Program

1. Provide a focal point for studying ecosystem processes in the transition zone between the eastern deciduous forest and the tallgrass prairie biomes.
2. Sponsor and facilitate long-term, interdisciplinary ecological studies that draw upon core databases and expertise at KU, and collaboration with outside scientists.
3. Develop and maintain long-term studies in both experimentally-manipulated and native habitats.
4. Promote large and mesoscale ecosystem and community experiments, including long-term studies using both terrestrial and aquatic facilities.
5. Enhance environmental education and community outreach.

C. Major ecosystem research emphases

1. Ecology of the prairie-forest ecotone, including studies of secondary succession, carbon sequestration, disturbance ecology, habitat fragmentation, biodiversity and global climate change.
2. Ecosystem-level hazard assessment of xenobiotics, with emphasis on aquatic ecosystems.
3. Land use impacts in the Great Plains on soil carbon, nutrient cycling, and biodiversity.
4. Understanding landscape change by linking studies of remote sensing, ecology, and biogeochemistry.

D. Staff

Permanent scientific staff: PhD: 31
Scientific support staff: Technicians: 4
Other support staff: Administrative: 3
Graduate students: PhD: 12, MS: 13

E. Approximate annual funding (recent year)

Core funding: \$480,000/yr, Source: University of Kansas
Grants: \$1,200,000/yr, Major sources: USEPA, USDA, NSF, NASA, General Research Fund-
KU, Kansas Water Research Institute

F. Areas and facilities for ecosystem research studies

The field station includes about 3,400 acres (1375 ha) of diverse terrestrial and aquatic habitats in eastern Kansas. Experimental facilities at the field station include long-term sites for land use treatments, prairie manipulation, habitat fragmentation, experimental ponds, and laboratories. An additional 40,000 acres (16,000 ha) of lands are available for research. These lands are distributed throughout the state in various types of forest and prairie habitats.

G. Research staff directly involved in ecosystem research (names and specialty areas)

Alexander, Helen - plant population ecology
Armitage, Kenneth - small mammal ecology
Ballantyne, Ford – population and ecosystem dynamics
Billings, Sharon - global change biology and biogeochemistry
Boyd, Roger - avian ecology, wetland restoration
Butler, James - hydrogeology, aquifer characterization
Campbell, Scott - applied aquatic ecology
Cink, Calvin - avian ecology and population biology
deNoyelles, Frank - aquatic ecology, effects of pesticides on aquatic communities
Fitch, Henry - vertebrate ecology, ecology and behavior of reptiles
Foster, Bryan - plant community ecology
Freeman, Craig - plant systematics, prairie conservation
Hagen, Robert - population genetics and ecology
Haufler, Christopher - plant systematics
Healey, John - hydrogeology, aquifer characterization
Hirmas, Dan – soil morphology and landscape processes
Holt, Robert - theoretical and community ecology
Huggins, Donald - human disturbance in aquatic systems
Jakubauskas, Mark – remote sensing, bathymetric mapping, reservoir sedimentation
Johanning, Bruce - experimental facilities management
Kettle, Dean - natural resource management, restoration ecology
Kindscher, Kelly - conservation biology, restoration ecology
Lane, Dennis - air quality research, airborne particulates, acid rain
Macpherson, Gwen - geochemistry and hydrogeology
Marotz, Glen - air quality research, statistical analysis and experimental design
Martinko, Edward - community ecology, remote sensing of natural resources
McElwee, Carl - hydrogeology, availability of groundwater in Kansas

Pierotti, Raymond - evolutionary ecology, avian population biology
Pittman, Galen - field ornithology
Randtke, Stephen - water quality and treatment
Roth, Stanley - field ecology and environmental education
Salisbury, Vaughn - forestry, field ecology
Slade, Norman - small mammal ecology
Smith, Val - ecosystem and community ecology
Sturm, Belinda – antibiotic resistant genes in aquatic habitats
Taylor, Orley - insect ecology and behavior
Terwilliger, Valery - biogeochemistry and plant ecology, applications of stable isotopes
Thorp, James - ecology of large rivers
Ward, Joy – effects of global change on plant species
Zheng, Li - hydrogeology, water resources management

H. Long-term data sets (code name, number of years of data, computer accessibility)

1. Climate data: daily temperature and rainfall from Fitch Reservation, 1950-2008.
2. Climate data: meteorological station at field station recording 8 variables (hourly), 1988-present.
3. Frank B. Cross Reservoir: water chemistry, plankton, and fish, 1994-present.
4. Aboveground plant biomass: native and restored prairies, 1974-2006.
5. Vascular plant species inventories: 1948-present (intervals and scope varies).
6. Rare plants: historic data and continuous records (1988-present) for Mead's milkweed (*Asclepias meadii*), Western Prairie fringed orchid (*Platanthera praeclera*), and Eared foxglove (*Tomanthera auriculata*).
7. Tree growth and survivorship: native and successional stands, 1982-present.
8. Tree plantation (*Fraxinus Americana*): growth and survivorship, 1975-present.
9. Small mammals: population changes since 1948, monthly trapping 1973-present.
10. Reptiles: continuous records from 1948-present.
11. Birds: continuous records from 1948-present.
12. Land management histories: 1948-present.
13. Bibliography: about 800 scientific publications, theses, and dissertations based at the field station (1948-present).
14. Habitat fragmentation/biotic succession facility: (1948-present) data at regular intervals for herbaceous plants, woody vegetation, small mammals, and snakes, data also collected for insects and invertebrates, soils, and miscellaneous features.

15. Remote sensing: *Green Report* - Normalized Difference Vegetation Index (NDVI) Advanced Very High Resolution Radiometer (AVHRR), 15-year data set; Landsat Thematic Mapper data; ASTER data; MODIS data; Landsat Multi-Spectral Scanner (MSS) data; ASCS 35-mm slides, late 70's-early 80's.