

Great Plains Cooperative Ecosystem Studies Unit



A PERIODIC REPORT OF ACTIVITIES

C. Lockert, editor
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UNIVERSITY OF
Nebraska
Lincoln

Great Plains/Rocky Mountain CESU Managers Meeting, April 18th

The Great Plains CESU will hold its annual Managers Meeting in collaboration with the Rocky Mountain CESU this year. The meeting, hosted by Colorado State University will take place on April 18th in Fort Collins, Co. This arrangement will provide an opportunity to bring our university and agency partners together to review the science, discuss agency needs, and generate potential projects in three theme ar-

reas that cross CESU boundaries: Wildlife Disease; Tourism & Interpretation; and Drought/Drought Mitigation. Breakout sessions will allow discussions between agency managers and faculty researchers to occur within each focus area. We hope to see many of our agency managers there, as well as faculty from our partner universities. Meeting logistics, registration forms and more details can be found on ei-

ther web site:

<http://greatplains.cesu.unl.edu>

or

www.forestry.umn.edu/research/cesu.

For more information contact:

Christine Lockert, GP-CESU
clockert2@unl.edu
402-472-5853

Lisa Gerloff, RM-CESU
lgerloff@forestry.umn.edu
406-243-5346

CESU Network News

Drs. Gary Machlis and Jean McKendry, have stepped down from their positions as CESU National Coordinator and Deputy National Coordinator of the network respectively. Effective January 16, Dr. Mary Foley of the National Park Service will serve as interim CESU National Coordinator until a permanent selection is made. Dr. Foley currently serves as Chief Scientist, Natural Resources and Sci-

ence, Northeast Region (Boston Office). She can be reached at 617-223-5024 or Mary.Foley@nps.gov.

One of the duties that Machlis and McKendry performed was to coordinate the NPS Research Coordinators whom are associated with each biogeographic CESU. The Great Plains CESU NPS Research Coordinator, Dr. Gary Willson, has agreed to serve as Lead NPS Coordi-

nator for a 1-2 year term. His responsibilities include coordinating communication, information sharing, and collaboration among the NPS Coordinators, as well as preparing a number of specific reports. The annual NPS CESU Coordinators meeting will take place May 3-4, 2006 in Omaha, Nebraska.

EXECUTIVE COMMITTEE MEETING:

Our university and federal agency technical representatives will want to plan to attend this meeting on the evening of Monday, April 17th at the Best Western University Inn, Fort Collins, CO. Issues relating to GP-CESU administration, membership, and function will be discussed. Contact Christine Lockert for more information.

Partner Spotlight: **Kansas State University**

An overview of the expertise that our newest member, Kansas State University (KSU) brings to the GP-CESU. This information is pulled from their membership proposal.

Understanding the Natural Ecosystems of the Great Plains.

Konza Prairie Biological Station.

The region surrounding KSU is rich in biological diversity, the 8,600 acre Konza Prairie alone contains more than 600 plant species. A sound understanding of the structure and dynamics of the natural ecosystems of the Great Plains is essential to maintain their biotic integrity, biodiversity, and productivity in the long term. KSU has extensive institutional experience and expertise in these areas. An interdisciplinary group of researchers, including ecosystems ecologists; population and community ecologists; aquatic ecologists; and soil, plant, and animal biologists, has accumulated a strong base of data and understanding of the Great Plains ecosystem structure and dynamics over the past several decades.

Geology-Foundations for Ecosystems.

Soils, bedrock, and the water that flows through them provide the foundation for all ecosystems. The Geology Department at KSU houses faculty with expertise in: bedrock geology, surface and landform processes, soil development, soil chemistry, and aqueous geochemistry.

Understanding Agroecosystems of the Great Plains.

The Department of Agronomy has national expertise in environmental soil science and rangeland sciences. Research programs focus on agricultural and grassland ecosystems. Research issues actively pursued include carbon cycling; global climate change; animal waste management; soil, water, and air quality; remediation; precision farming of landscapes; and cropping systems.

Detecting Ecosystem Change Using Remote Sensing.

Because of the regions expanse and the significance of agriculture and other land-based resources, geospatial analysis techniques such as remote sensing, Geographical Information Systems (GIS), and Global Positioning System (GPS) technology will be a major component of Great Plains ecosystem research. KSU has extensive institutional experience and expertise in each of these areas, distributed through several departments and divisions including Geography, Geology, Biology, and Agronomy. KSU scientists are involved in a number of land use/land cover mapping analysis and analysis of ecosystem dynamics projects.

Understanding the Socioeconomic and Cultural Drivers of Ecosystem Change.

Ecosystem change in the Great Plains has long been intertwined with socioeconomic and cultural changes in the region. These drivers include migration, changes in production technology, and differences in

beliefs due to cultural influences. An interdisciplinary group of researchers with expertise in rural development has been formed at KSU. The group includes scientists trained in sociology, agricultural economics, geography, economics, planning, ecology, animal science, anthropology, journalism, and social work. Their common interest is in improving our understanding of the multi-faceted processes of rural development. KSU scientists have also conducted analysis of the consequences of population decline for community vitality in the rural Great Plains, impact of global climate change on southwestern Kansas, community changes associated with the adoption of irrigation technologies, the identification of best management practices for minimizing negative environmental impacts of economic developments, and a host of other socioeconomic and cultural drivers of ecosystem change.

A list of faculty expertise can be found on the final page of this publication. Our technical representative for KSU is:

Craig Paukert
Assistant Leader - Fisheries
Kansas Cooperative Fish & Wildlife Research Unit
Division of Biology
Kansas State University
205 Leasure Hall
Manhattan, KS 66506
Phone: 785-532-6522
cpaukert@ksu.edu

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Contact Us:
GP-CESU
University of Nebraska
School of Natural Resources
314 Biochemistry Hall
Lincoln, NE 68583-0759
Phone: 402-472-5853
Fax: 402-472-8390
E-mail: khoagland@unl.edu
clockert2@unl.edu



The mission of the Great Plains Cooperative Ecosystem Studies Unit is to determine the ecological state of public lands of the Great Plains and examine its future within the context of private lands. Our focus is on improving the scientific basis for managing ecosystems in the region, through more active an interactive technical assistance, research, and education among the partner institutions and agencies.

GP-CESU Members: University of Nebraska (host), Black Hills State University, Colorado State University, Kansas State University, Langston University, North Dakota State University, South Dakota State University, Texas A&M University, University of Minnesota, University of North Dakota, University of Oklahoma, University of South Dakota, and University of Wyoming. Bureau of Land Management, Bureau of Reclamation, National Park Service, Natural Resource Conservation Service, US Forest Service, and US Geological Survey.

Visit us online at
<http://greatplains.cesu.unl.edu>

KSU Expertise

Division of Biology

Blair, John M. Ecosystem Ecology
Cully, Jack F. Wildlife Biology
Dodds, Walter K. Aquatic Ecology
Gido, Keith B. Fish Ecology
Gipson, Philip Wildlife Biology, predators
Hartnett, David C. Plant Population Biology
Horne, Eva A. Behavioral Ecology
Joern, Anthony Community Ecology
Johnson, Loretta C. Ecosystems Ecology
Jumpponen, Ari Mycology
Kaufman, Donald W. Mammalian Behavior & Ecology
Kaufman, Glennis A. Mammalian Behavior & Ecology
Paukert, Craig Fisheries Science
Wisely, Samantha Wildlife Biology & Conservation Genetics
With, Kimberly A. Landscape Ecology & Conservation Biology

Department of Civil Engineering

Steward, David R. Integrated modeling approaches to understand natural/social systems response to human/climate-induced changes in groundwater use and availability.

Department of Agronomy

Fritz, John O. Forage Management
Ham, Jay Environmental Sciences
Kluitenberg, Gerard Soil Physics
Rice, Charles Soil Microbiology

Department of Plant Pathology

Garrett, Karen Epidemiology & Population Biology.

Department of Geography

Goodin, Douglas C. Climatology, remote sensing, landscape ecology, spatial analysis
Harrington, John A. Jr. Climatology, remote sensing, water resources, applied geography, GIS, biogeography
Harrington, Lisa M.B. Environmental change and management, rural land use, public lands, biogeography
Hutchinson, J.M. Shawn GIS Spatial Analysis Laboratory. Water resources, biogeography, environmental modeling, GIS, remote sensing, cartography