THE COMMUNICATOR

NEWS FROM THE NEBRASKA COOPERATIVE FISH & WILDLIFE RESEARCH UNIT

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People

New Assistant Unit Leader

Dr. Kevin L. Pope recently joined the Nebraska Cooperative Fish and Wildlife Research Unit as Assistant Unit Leader. Kevin will direct fisheries research at the Nebraska Coop Unit and collaborate with UNL faculty, the Nebraska Game and Parks Commission, and other state and federal agencies.

Kevin is excited to be part of the UNL community and the USGS Cooperative Research Units Program. He is looking forward to developing research projects and building a graduate program in fisheries research. He plans to have his first graduate student on board by January 2006.

Kevin expects to continue development of a broad research program focusing on freshwater ecology issues

Before joining the unit, Kevin was an Associate Professor of fishery science at Texas Tech University. He received his B.S. in Fisheries Science from Texas A&M University (1991), his M.S. from Auburn University (1993), and his Ph.D. from South Dakota State University (1996).

Kevin will focus on graduate education, with a research emphasis on applied fishery ecology in lakes and reservoirs.

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INSIDE THIS ISSUE

Coneflower, yellow (Ratibida pinnata), South Central Nebraska

Current Research

Current research is focused on the Nebraska Landowner Incentives Program, the occurrence of amphibians in Nebraska Rainwater Basin wetlands, understanding how resilience is generated in ecological systems, and the role of diversity in providing ecological functions.

Landowner Incentives Program (LIP)

GOALS: This research focuses on assessing one aspect of the Nebraska Game and Park Commission's Landowner Incentives Program: the removal of invasive trees. The LIP program assists landowners with invasive tree removal. Landowners receive benefits in terms of increased forage on pasturelands while restoring prairie plants and wildlife, and implementing management practices to sustain prairie/grassland communities. We are focusing on the impact of tree removal on the avian community of grasslands.

CURRENT STATUS: As of August, 2005, the first season of data collection was completed and will serve as pretreatment base-line data. This consists of transect based counts of bird species, coverboard monitoring for herpetofauna, and assessment of plant communities.

GRADUATE RESEARCH ASSISTANT: Beth Forbus

FUNDING: The U.S. Geological Survey, and the Nebraska Game and Parks Commission

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Amphibians in the Rainwater Basin

GOALS: Our goal is to establish a program to monitor populations of amphibians in Nebraska's Rainwater Basin wetland complex in order to detect changes in presence in this region over time. The acquired data will also provide inferential insight into the presence or absence of amphibian species and changes in individual species presence and community composition: 1) following ongoing restoration activities, 2) following ongoing anthropogenic landuse/landcover changes, 3) in relation to existing wetland-patch network characteristics, 4) in relation to adjacent upland landuse/landcover and, 5) in relation to environmental contaminants originating as runoff from adjacent farm lands.

CURRENT STATUS: From April through August, 2005, fifteen clusters of functionally connected wetlands (approximately 250 individual wetlands) were each sampled three times from both the East and West portions of the Rainwater Basin. The western chorus frog was the most abundant species encountered in both portions of the Rainwater Basin. The western chorus frog and woodhouse's toad were the most widespread species in the Western region of the Rainwater Basin. The plains leopard frog and western chorus frog were the most widespread species in the Eastern region. Data analysis is currently underway.

GRADUATE RESEARCH ASSISTANT: Aaron Lotz

FUNDING: The Nebraska Game and Parks Commission

Resilience in Ecosystems

GOALS: We are conducting experimental and empirical tests of the model of cross-scale resilience proposed in 1998. One prediction following from that model is that birds of different body size will respond differently to resources as they 'scale up' and aggregate in larger concentrations. An example of this occurs with pest outbreaks–when larger volumes of trees are infested with insects such as spruce budworm, larger bird species begin to exploit the pest, and are drawn from broader areas to do so. This provides a robust check on outbreaks over a broad range of spatial and temporal scales.

CURRENT STATUS: We have conducted simulations that compare the actual distributions of function across animal size classes against simulated distributions, and find that the richness of function across size classes in real ecological systems is more constant than expected. We have identified study sites for field data collection, and will conduct field experiments during the fall and winter of 2005.

GRADUATE RESEARCH ASSISTANT: Aaron Lotz and Don Wardwell

FUNDING: The James S. McDonnell Foundation–Studying Complex Systems

Cross-Scale Structure in Ecosystems

GOALS: We will conduct a series of empirical analyses to determine the distribution of functional groups within and across scales, the association of measures of biotic variability in vertebrates (e.g., invasions, extinctions, nomadism, migration) with discontinuities in body mass distributions, and cross-scale analyses of patterns in body mass distributions from local to hemispheric scales.

CURRENT STATUS: Ongoing investigations

GRADUATE RESEARCH ASSISTANT: Aaron Lotz and Don Wardwell

FUNDING: The James S. McDonnell Foundation–Studying Complex Systems

Reakirt Blue Butterfly

Diversity and Ecological Functions: Pollination

GOALS: This is a pilot project that seeks to understand how the diversity of grasslands affects the provision of ecological services. For this pilot study, we have focused on the functions of pollination and herbivory.

CURRENT STATUS: The pilot year of data collection is

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Welcome to the Nebraska Coop Unit newsletter! We plan to distribute our newsletter two or three times a year. Please share this newsletter with anyone you think may be interested. If you wish to be added to our distribution list, know of someone who should be included, or wish to be excluded from future mailings, please contact us at allencr@unl.edu or vegger1@unl.edu.

For More Information Contact:

Nebraska Cooperative Fish & Wildlife Research Unit
University of Nebraska-Lincoln
103 Miller Hall
Lincoln NE 68583-0711
402-472-0449, FAX 402-472-2722
http://snr.unl.edu/necoopunit/

Craig R. Allen	Kevin L. Pope	Valerie Egger
Leader	Assistant Leader	Adm. Assistant
402-472-0229	402-472-7028	402-472-0449
allencr@unl.edu	kpope2@unl.edu	vegger1@unl.edu

Our Cooperators:

U.S. Geological Survey, Department of the Interior
University of Nebraska-Lincoln
  Institute of Agriculture and Natural Resources
  School of Natural Resources
Nebraska Game and Parks Commission
The Wildlife Management Institute
U. S. Fish and Wildlife Service

Future Research Projects

This fall preliminary work will begin for two new research projects. Graduate students will be recruited for enrollment in January 2006.

Impact of White Perch on Walleye

Goals: This project will help document competition bottlenecks that exist between white perch and other fish species of importance at Nebraska's Branched Oak and Pawnee Reservoirs. It is hoped that the study will result in a predator control program for the stunted white perch population which could be used to benefit the management of white perch in all Nebraska reservoirs.

Funding: U.S. Geological Survey, the Nebraska Game and Parks Commission

Spatial Risk Assessment of Invasive Species Impacts on Native Species in Nebraska

Goal: We will conduct spatially-based risk analyses for species and communities identified as at-risk by the Nebraska Legacy Project. Stressors will be invasive species on the Nebraska noxious weed watch list. Results may provide guidance for invasive species surveillance and monitoring, and prioritize research and management needs regarding specifics of impacts.

Funding: Nebraska Game and Parks Commission, and the U.S. Geological Survey ❖

Graduate Students

Donald (Don) Wardwell

M.S. Graduate Research Assistant

At the beginning of summer 2005, Don set out to field test the cross-scale resilience model using bird communities at Fontenelle Forest in Bellevue, Nebraska. Field work was postponed due to logistical difficulties. Don then devoted his attention to testing the model with simulations using empirical data. The results supported the hypothesis. The better part of the summer was spent writing a manuscript, "*A test of the cross-scale resilience model: Functional richness in Mediterranean-climate ecosystems.*" The manuscript is nearing completion and will be submitted for publication in the early fall of 2005.

Elizabeth (Beth) Forbus

M.S. Graduate Research Assistant

From late May through mid-August, Beth and research technician Lizette Peters traveled over 10,000 miles in Southeast Nebraska establishing research sites and collecting data for the Landowners Incentive Program (LIP). A handheld GPS unit was invaluable for mapping research sites. Coverboards were laid out for monitoring herpetofauna species. Visual monitoring identified and enumerated species of birds. The data collected will provide baseline data for understanding how bird communities change following invasive tree removal.

Aaron Lotz

Ph.D. Graduate Research Assistant

Among other things, Aaron is working the Nebraska Game and Parks Commission on the amphibians in the Rainwater Basin project. From April through August, Aaron drove over 8,000 miles conducting amphibian sampling on approximately 250 individual wetlands in the East and West portions of the Nebraska Rainwater Basin. Sampling was typically done at night providing Aaron with a variety of personal experiences (e.g. mosquitoes, mud roads, wildlife on the road) in addition to his research experiences. ❖

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To date, his research has focused on freshwater ecology issues, including assessments of: 1) fish populations as a base-line for understanding aquatic communities and ecosystems, 2) biotic and abiotic factors that affect recruitment and growth of fishes, and how these processes structure fish populations, 3) and the selectivity of recreational angling and its influence on fish populations.

Kevin expects to continue development of a broad research program focusing on freshwater ecology issues important for the management of Nebraska and other important fisheries.

Please join us in welcoming Kevin to the Unit, to the University and to Nebraska! ❖

EVENTS

COORDINATING COMMITTEE MEETING

In 2003, administrators of various federal and state agencies and the University of Nebraska-Lincoln signed a cooperative agreement establishing the Nebraska Cooperative Fish and Wildlife Research Unit. These same administrators comprise the Unit's Coordinating Committee.

The Coordinating Committee will meet December 6, 2005 to discuss the Unit's progress, mission, challenges and opportunities. This will be the first Coordinating Committee meeting of the Nebraska Coop Unit. Thereafter, the Coordinating Committee will meet annually.

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completed. Preliminary analysis indicates that pollinator diversity and visitation rates are greater over time on grassland sites having higher diversity and that herbivory rates are lower on more diverse sites.

GRADUATE RESEARCH ASSISTANT: none at this time. Technician: Brian Franzone.

FUNDING: The James S. McDonnell Foundation–Studying Complex Systems, with the Nature Conservancy and the Nebraska Game and Parks Commission. ❖

Conferences/Meetings

Craig Allen traveled to Montreal, Canada in August where he participated in the 90th Annual Meeting of the Ecological Society of America (ESA).

Kevin Pope will make a presentation at the 135th American Fisheries Society (AFS) Meeting in Anchorage, Alaska, September 11-15. Kevin is also officer of the Education Section.

On September 22, Craig Allen and graduate students Aaron Lotz and Donald Wardwell will have poster presentations at the 2005 Natural Areas Conference, *Changing Natural Landscapes/Ecological and Human Dimensions*, in Lincoln, NE.

Graduate students Aaron Lotz and Don Wardwell will accompany Craig Allen to the 12th Annual Wildlife Society Conference in Madison, Wisconsin, September 25-29. ❖

Our Mission

T*rain graduate students for professional careers in natural resources research and management*

C*onduct research that will create new information useful for management of natural resources*

P*rovide technical assistance to cooperators*