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Nebraska Cooperative Fish & Wildlife Research Unit

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THE COMMUNICATOR

NEWS FROM THE NEBRASKA COOPERATIVE FISH & WILDLIFE RESEARCH UNIT

Volume 6, Issue 2 December 2010

New and Changing Faces

We welcome **Chris Chizinski, Corinne Kolm, Natalie Luben, Nick Smeenk, and Dan Uden** to the Coop Unit.

Chris Chizinski is a post-doc research associate and new coordinator for the creel survey project. Chris replaces **Tony Barada** who resigned in June to take a permanent position with the Nebraska Game and Parks Commission.

Craig Allen is advising three new students. Ph.D. student **Corinne Kolm** will be looking at Platte River watershed ecosystems services in native and restored grasslands. Ph.D. student **Nick Smeenk** is working on wetland assessment in the state of Nebraska. M.S. student, **Dan Uden,** will focus on the scenarios of climate change and land use change and biological invasions in the high plains.

Natalie Luben is a research technician with the angler behavior in response to management actions on Nebraska reservoirs project.

Karie Decker accepted the permanent position as coordinator of the Nebraska Invasive Species project. ❖

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Publications

Coop Unit scientists developed a special issue on *Adaptive Management of Natural Resources*. This issue will be published in 2011 by the *Journal of Environment Management* and will feature approximately twelve articles from authors at eleven institutions, including some of the most prominent scientists involved in the development of adaptive management. The national office of the USGS Cooperative Research Units Program provided the funding for this special issue. ❖

New Research

Scenarios of Climate Change and Land Use Change and Biological Invasions in the High Plains

Biological invasions are a growing threat to both human enterprise and ecological systems. Costs associated with non-indigenous species in the United States are estimated to exceed $120 billion per year. Ecological costs are more difficult to quantify, but include the extinction of indigenous biota and changes in ecological processes, with concomitant losses of ecosystem services and capital.

Climate change will almost certainly exacerbate problems with invasive species. A number of investigations have indicated that regional change in climate will affect plant invasions in the Great Plains. Observed or predicted alterations of climate include earlier onset of spring, warmer winters, spatial and temporal changes in precipitation patterns, and reduced snowpack in the Rocky Mountains—resulting in lower runoff to Great Plains' streams. However, much remains unknown concerning the relationship between climate change and biological invasions.

GOALS: The of purpose this study is to develop a gap analysis of research and monitoring needs for biological invasions as mediated or affected by climate change in the Northern Great Plains of the USA. This analysis is in support of the

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development of a Climate Effects Center in the Great Plains, and will include a gap analysis of: 1) current research, 2) research needs and 3) monitoring needs. Additionally, we will begin work on developing scenarios of climate/landuse change effects on species invasions and range contractions, and the effects of policy interventions on the impacts of invasions driven by climate change.

CURRENT STATUS: This project began in August of 2010. Preparations are underway to initiate field research in spring of 2011.

GRADUATE RESEARCH ASSISTANTS: Daniel Uden

FUNDING: U.S. Geological Survey and USGS Water Center

Wetland Condition Assessment

This project will add approximately 110 additional sample locations in support of the U.S. Environmental Protection Agency's 2011 National Wetland Condition Assessment. A network of assessment sample locations will be established in 11 different Nebraska wetland complexes. These will be used to track changes to the health and condition of Nebraska's wetlands. Cooperators with this project represent 17 different agencies and organizations.

In the years 2011 to 2013, a field team will visit each sample location and collect wetland assessment data. The data collection methods will conform to the protocol established by the U.S. Environmental Protection Agency. The indicators that we are considering for assessment include vegetation, algae, macroinvertebrates, amphibians, water quality, soils, and hydrology. Data will enable seasonal and annual changes in wetland conditions to be evaluated.

GOALS: Outcomes of this project will be an improved understanding of the condition of Nebraska's wetlands that can be used to target wetland conservation efforts, track changes in the invasive species distribution, evaluate potential climate change effects on wetlands, and describe the range of reference conditions for key and vulnerable wetland complexes in Nebraska that are also representative of many Great Plains wetlands.

CURRENT STATUS: This project began in August 2010. Preparations are underway to initiate field research in spring of 2011.

GRADUATE RESEARCH ASSISTANT: Nick Smeenk

FUNDING: Nebraska Game and Parks Commission and the U.S. Environmental Protection Agency

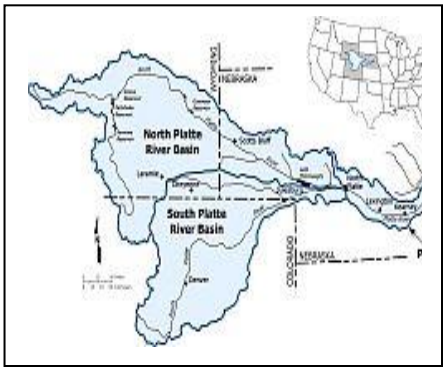
Platte River Watershed Ecosystems Services in Native Restored Grasslands

GOALS: This research project will focus on ecosystem services provided by native and restored grasslands in the Platte River watershed, including land enrolled in the USDA Conservation Reserve Program (CRP). Although empirical data has indicated that grasslands provide a variety of services important for humankind, including habitat for crop pollinators, carbon sequestration, and erosion control, little research has been undertaken that compares the functioning of high quality virgin prairie with either high or low-diversity restorations. This research will include comparisons of specific ecosystem attributes in each grassland type while also exploring how pockets of prairie (surrounded by intensive agriculture) add to the resilience of the system.

CURRENT STATUS: This project began in August 2010.

GRADUATE RESEARCH ASSISTANT: Corinne Kolm

FUNDING: National Science Foundation IGERT Program ❖



Editor, Caryl A. Cashmere

Welcome to the Nebraska Coop Unit newsletter! The newsletter will be distributed two or three times a year.

Questions or newsletter ideas can be directed to ccashmere2@unl.edu, or
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Research Highlight

Angler Behavior in Response to Management Actions on Nebraska Reservoirs

Also known as the creel survey project, this project has nearly completed its second year at the University of Nebraska–Lincoln. It currently supports a post-doctoral research associate, one Ph.D. student and three M.S. students. In January 2011, two new M.S. students will initiate new components of the project.

Goals: The goals of the Nebraska creel project are to understand 1) the participation patterns of anglers on local and regional scales and 2) how angling influences fish populations. To meet the project goals, we currently are working on five components: 1) statewide angler surveys, 2) regional angler surveys (Salt Valley region of southeast Nebraska), 3) ability of anglers to correctly identify fishes, 4) relationship between angling pressure and bluegill parasites, and 5) angler effects on sexually-dimorphic fish species.

Current Status: In September, Dr. Christopher Chizinski became the new project coordinator for the creel survey project. Chris replaced Tony Barada, who accepted a fisheries biologist position with Nebraska Game and Parks Commission.

October and November marked the end of the 2010 creel season for the statewide component of the project. Sampling was done at Calamus Reservoir, Harlan County Lake, Lake McConaughy, Lewis and Clark Lake, Merritt Reservoir, and Sherman Reservoir. Data collected at these reservoirs provide continuation to long-term (more than 10 years) data sets that are used to assess temporal trends in angler participation and use. Several small reservoirs—Fremont Lakes, TaHaZouka Park Lake, Gracie Creek Pond, Willow Creek State Recreational Area, Skyview Lake, Cottonmill Lake, and Yanney Park Lake—were also sampled this year. Data from these lakes will be used to assess methodology used to adequately sample small or complex fisheries.

Intensive, year round sampling continues on the 19 Salt Valley reservoirs. In 2010, Branched Oak, Bluestem, Cottontail, Merganser, Pawnee, Stagecoach and Wildwood Reservoirs were sampled. Data from these reservoirs will be used along with data from 2009 sampling to assess participation patterns of anglers within the Salt Valley region. In addition to in-person surveys conducted at these 7 reservoirs, over 300 mail surveys were returned from anglers interviewed during 2009 that contained more detailed information about participation patterns.

Fish identification quizzes were developed and tested at Naturepalooza hosted by the UNL School of Natural Resources in October. Participants were asked to examine fish replicas and identify the species. Understanding angler ability to

Research Highlight continued on page 5

Annual Meeting

The 2010 annual Coordinating Committee of the Nebraska Cooperative Fish and Wildlife Research Unit was held on Tuesday, November 2 on the University of Nebraska–Lincoln East Campus. Approximately 43 university and agency guests joined the Coop Unit scientists, staff and students to discuss unit progress and research programs. Presentations were given by two project coordinators and eighteen students.

Conferences/Meetings/Workshops

Sam Wilson gave a presentation on his masters work titled "River otter home range and habitat use in the Platte River, Nebraska," at The Wildlife Society meeting, February 26 in Norfolk, NE. On March 13, Sam gave a presentation on mountain lions in Nebraska at the Prevent Blindness Nebraska Hunt for Sight Wild Game Feast in Council Bluffs, IA.

February 24-25, Dustin Martin, Kevin Pope, and Peter Spirk attended the Nebraska Chapter of the American Fisheries Society conference in Ponca, NE. Dustin gave a presentation titled "Substitute sites and angler use of Salt Valley reservoirs." Peter and Kevin gave a presentation titled "Effects of length limits on sexually-size dimorphic fish."

February 22-24, Jason DeBoer and Kevin Pope attended the Dakota Chapter of the American Fisheries Society Annual Meeting in Spearfish, SD. Jason and Kevin gave a presentation titled "Irrigation and year-class strength of fishes—the importances of a species' spawning period."

Kristine Nemec presented a poster titled "Grassland diversity and ecosystem services within an agroecosystem" at the Water for Food conference, held May 2-5 in Lincoln and at the NSF IGERT (Integrative Graduate Education and Research Traineeship) project meeting, held May 23-25 in Washington, D.C. Kristine also delivered a talk titled "The relationship between diversity and resistance to invasions in prairie restorations" at the Association for Environmental Studies and Sciences conference, held June 17-20 in Portland, OR.

July 24-29, Jason DeBoer and Kevin Pope gave two presentations at the Joint Annual Meeting, Centrachid, Essocid and Walleye Technical Committees, North Central Division of the American Fisheries Society in LaCrosse, WI. Their presentations were titled "How does reservoir retention time affect larval fish ontogeny?" and "Morphology of larval fishes: What does it tell us about early life–history?"

Jason and Kevin also attended the Greater Platte River Basin Symposium, held in Lincoln October 7. They gave a presentation titled "Irrigation and year-class strength of fishes—the importances of a species' spawning period."

Nineteen unit staff and students attended the annual Midwest Fish and Wildlife Conference held in Minneapolis, MN, December 13-15 (despite 20" of snowfall on December 11!). Several made presentations or had a poster.

- Craig Allen, presentation, "Impact of biological invasions on the resilience of ecological systems."
- Jason DeBoer, presentation, "Does retention time affect fishes in irrigation reservoirs?"
- Karie Decker, presentation, "Landscapes, invasions and the changing flora of Nebraska."
- Michelle Hellman, poster, "A survey of herpetofauna in restored wetlands in southeast Nebraska."
- Christopher Jorgensen, poster, "Assessing landscape and habitat attributes at multiple scales: What drives avian abundance and distribution in grasslands?"
- Alexis Maple, presentation, "Latitudinal influence on age estimates for bluegill using otoliths and scales."
- Dustin Martin, presentation, "Predicting angler effort from online fishing forum use."
- Sarah Rehme, presentation, "Enhancing long-term avian monitoring programs with short-term, fine-scale data at National Park Service properties."
- Lindsey Richters, presentation, "The influence of stocking densities and habitat variability on channel catfish populations in Nebraska."
- Peter Spirk, presentation, "Sex-selective harvest: What drives it?"
- Ryan Stutzman, presentation "Assessing the impacts of landuse change on avian migration in the Prairie Pothole region."
- Amy Williams, presentation, "River otter use of Phragmites australis in the Big Bend reach of the Platte River." ❖

Research Highlight continued from page 3

correctly identify fish is important for predicting the likely success of complex fishing regulations.

Bluegill were collected from 15 reservoirs within the Salt Valley region and assessed for larval trematodes and additional ectoparasites. Larval trematodes visibly affect bluegill making them undesirable for anglers therefore affecting the amount of angler participation at Salt Valley reservoirs.

Detailed information on harvested walleye, white bass, and white crappie was collected from Sherman and Calamus Reservoirs in 2010. Sex-selective harvest (female-biased) was evident for white bass and white crappie, but not for walleye. Peter Spirk will be wrapping up this component of the research project and expects to defend his thesis during the spring 2011 semester.

In December, several students presented their research at the Midwest Fish and Wildlife Conference in Minneapolis, MN.

Efforts are currently underway to analyze data collected in 2010 and prepare for a new creel season beginning in April 2011.

Graduate Research Assistants: Carla Knight, Alexis Maple, Dustin Martin, and Peter Spirk

Funding: Nebraska Game and Parks Commission ❖

Graduate Student News

Congratulations to **Aaron Alai** and **Sarah Rehme** who graduated in August. Both received a M.S. in Wildlife.

Sarah also has the below invited paper accepted for publication:

> Rehme, S. E., L. A. Powell and C. R. Allen. In press. Mulitmodel inference and adaptive management. *Journal of Environmental Management.*

In addition to her interests in avian species, Sarah is also an artist. She designed the cover for the special adaptive management issue of the *Journal of Environmental Management* to be published in early 2011. Sarah also designed the logo for the Nebraska Master Naturalist program which is based on a photograph by wildlife photographer, Michael Forsberg. Sarah continues to analyze data as a Cooperative Unit research technician.

Congratulations to **Chris Jorgensen,** who took second place in the student poster contest at the 2010 Midwest Fish and Wildlife Conference in Minneapolis, MN.

Teaching

This fall, Joseph Fontaine taught a new graduate-level course, **Adaptive Natural Resource Management.** The primary focus of this course was to introduce students to the concepts of structured decision making and adaptive management. In doing so, the course explored the history of natural resource management and the various management paradigms that have and continue to dominate resource management. ❖

Outreach Activities

On February 24, **Sam Wilson**, graduate student, gave a presentation to the Palmyra Youth Club on native Nebraska mammals. The youth were able to handle the pelts and see casts of tracks from many of the furbearers as well as deer and mountain lions.

Amy Williams, graduate student, took part in Morrill Hall's Sunday with a Scientist series at UNL on Sunday, July 18. Amy's program was entitled "Poop!: Getting to the Bottom of Nebraska's Otter Population" which included many demonstrations and hands-on activities to help families and children better understand how DNA analysis of otter scat can provide data about the recently introduced species.

Amy shared with museum visitors what she has learned in her research from where the otters live, their lineage, and population size to how well otters have been able to repopulate and how this information will make certain that otters will be here in the future.

Three Coop Unit students participated in the first Nature Palooza hosted by the Nebraska State Museum and UNL's School of Natural Resources. **Carla Knight**, **Chris Jorgensen**, and **Ryan Stutzman** had games and activities that helped visitors better understand Nebraska's natural resources and how to protect them.

Karie Decker, coordinator of the Nebraska Invasive Species Project, participates in numerous outreach activities ranging from radio shows, educational fairs, and outreach booths at many conferences.

On October 13, Karie organized the first Aquatic Invasive Species Workshop/Symposium held on East Campus. It was a great success. Several states and agencies were represented, and the attendees learned more about the effects of invasive plants, fish, invertebrates, and pathogens on Nebraska's native populations, as well as how to identify and manage them. The information in those presentations, especially the input from neighboring states, led to the completion of the Nebraska Aquatic Nuisance Species Management Plan. Nebraska's plan was submitted to the federal Aquatic Nuisance Species Task Force and received approval in November. This is the first big step for monitoring and managing aquatic nuisance species in Nebraska.

In November, a 13 year-old boy reported that there were zebra mussels at Zorinsky Lake in Omaha. He reported the finding by using the website reporting system, which Karie created, on the invasive species website.

Karie was interviewed by the *Lincoln Journal Star* and the *Omaha World Herald* concerning the situation at Zorkinsky Lake. Because of the alert, Nebraska Game and Parks Commission along with other officials, are actively researching solutions to the presence of the zebra mussels at the Lake. ❖

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*

OUR COOPERATORS