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2009

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# THE COMMUNICATOR

NEWS FROM THE NEBRASKA COOPERATIVE FISH & WILDLIFE RESEARCH UNIT

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Volume 5, Issue2

August 2009

## Faces – New and Old

We welcome **Tony Barada**, **Jason DeBoer**, **Caryl Cashmere**, **Karie Decker**, **Lucas Kowaleski** and **Kody Unstad**.

**Tony Barada** is the research associate for *Angler Behavior in Response to Management Actions on Nebraska Reservoirs*. **Lucas Kowaleski** is a research technician with the project.

Ph.D. student **Jason DeBoer** is advised by Kevin Pope and working with *Recruitment of Walleye and White Bass in Nebraska's Southwest Irrigation Reservoirs*.

July 6, **Caryl Cashmere** became the new half-time staff assistant, assisting with a broad range of business activities to help with the daily work flow of the Unit.

In early July, **Karie Decker** became the new project coordinator for the Nebraska Invasive Species Project. Karie replaces **Annabel Major** who is now the project coordinator for UNL's new Master Naturalist Program.

MS student, **Kody Unstad**, is working with the *SE Prairies Biological Unique Landscape (BUL)* project, advised by Craig Allen.

Research technicians **Michelle Hellman**, **Carla Knight** and **Lexi Maple** have elected to pursue master's degrees in Natural Resources. Michelle's advisor is Craig Allen. Kevin Pope will advise Carla and Lexi.

Congratulations **Thad Miller!** Thad received his master's degree in Natural Resources in May 2009, and is a scientific writer for Li-Cor in Lincoln. ❖

## Awards & Recognitions

**Jason DeBoer** was awarded an \$8,000 Othmer Fellowship from UNL which is designed to assist in recruiting exceptional students who are seeking a terminal degree (i.e., Ph.D., Ed.D., etc.), and is renewable for up to three years, given continued excellent progress toward the degree.

Undergraduate **Andrew Furman** received first place for his poster presentation at the UNL Undergraduate Research Fair. The poster was a culmination of Andrew's research project conducted through the UNL Undergraduate Creative Activities and Research Experiences (UCARE) Program. He was advised by Kevin Pope.

**Dustin Martin** received a Center for Great Plains Studies Research Grant-in-Aid award for \$280 to assist with postage expenses for a mail survey.

**Kristine Nemec** received a \$1,000 J.E. Weaver Competitive Grant from The Nature Conservancy to assist with insect identification expenses.

**Sarah Rehme** was awarded a J.E. Weaver Competitive Grant by The Nature Conservancy (\$1,000), and also a Center for Great Plains Studies Graduate Student Research Grant-in-Aid award (\$550). The grants are funding DNA analyses of samples taken from chicks of target species.

**Amy Williams** received a Center for Great Plains Studies Research Grant-in-Aid award for \$400. It will be used to help off-set research expenses. ❖

## Service

The UNL School of Natural Resources has multiple committees which are important to the success of the School. Following the 2009 elections, **Kevin Pope** was elected to the Graduate Committee, and **Valerie Egger** was elected to the Staff Advisory and Professional Development Committee.

**Kevin Pope** became president of the Nebraska chapter of the American Fishery Society in July 2009. ❖

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## Current Research

### *Angler Behavior in Response to Management Actions on Nebraska Reservoirs*

Natural resource agencies invest substantial resources to recruit anglers—the Nebraska Game and Parks Commission is no different. However, there is little understanding of human motives for participating in angling activities. Even less is known about the effects of management actions on angler participation.

**GOALS:** Project goals are to understand 1) the participation patterns of anglers on local and regional scales, and 2) how participation patterns of anglers influence fish populations.

The project currently has three study components:

- *Statewide Angler Survey:* Large Nebraska reservoirs are being randomly sampled April through October, 2009 – 2013.
- *Regional Angler Survey:* An intensive survey is being conducted on 18 reservoirs in the Salt Valley region of SE Nebraska. This survey is year-round and 24-hours a day.
- *Harvest Effects on Sexually-Dimorphic Fish Species:* Anglers are being interviewed at Sherman and Calamus Reservoirs during spring 2009 and 2010 to assess the effects of angler harvest on populations of sexually-dimorphic fish species (channel catfish, walleye, and crappie).

**CURRENT STATUS:** Data collections began in April 2009 and will continue through October 2013.

**RESEARCH ASSOCIATE:** Tony Barada

**GRADUATE STUDENTS:** Carla Knight, Alexis Maple

**GRADUATE RESEARCH ASSISTANTS:** Dustin Martin, Peter Spirk

**CREEL CLERKS:** Daniel Dobesh, Ron Grandi, Stuart Grant, Ross Juelfs, Rhonda Lawing, Gerald (Jerry) Schmitt, Chris Trumler, Toby Welch

**FUNDING:** Nebraska Game & Parks Commission

### *Assessing the Relationship between Stable Isotopes and Grassland Bird Productivity on Great Plains National Park Service Properties*

**GOALS:** This project will provide National Park Service (NPS) managers with an assessment of habitat quality for breeding grassland birds at three NPS sites, and assess the success of the

unique stable isotope techniques used in the study.

Little is known about the relative value of NPS grassland habitats to regional songbird production. Data collected should determine if bird reproduction is successful at these sites and provide insight for the best allocation of resources to promote grassland bird populations.

**CURRENT STATUS:** Park sites are Pipestone National Monument, MN; Homestead National Monument, NE; and Tallgrass Prairie National Preserve, KS. Research is targeting four species of grassland birds, dickcissel (*Spiza americana*), grasshopper sparrow (*Ammodramus savannarum*), eastern meadowlark (*Sturnella magna*), and western meadowlark (*S. neglecta*).



Male Dickcissel, Tallgrass Prairie National Preserve in Kansas. Photo courtesy of Sarah Rehme

The first year of field research (2008) found avian nest survival for Homestead and Tallgrass to be about 40% for target species. Low numbers of nests for all parks made 2008 results tentative. Homestead had estimates of 44.9 dickcissels and 0.8 eastern meadowlarks. No target species nests were found in Pipestone. Pipestone had estimates of 0.9 dickcissels and 3.9 western meadowlarks for the entire park. Tallgrass estimates were 5,067 dickcissels, 3,048 eastern meadowlarks, and 4,588 grasshopper sparrows for the western portion of the park.

Six technicians have completed 2009 data collection at all three parks. Analysis of stable isotope values from feather and blood samples taken from nestlings and adults have yet to be completed. DNA analysis will determine the sex of each chick and calculate the ratio of male to female chicks in each nest. Results will be used to test the assumption that sex ratios are equal when calculating fecundity estimates.

**RESEARCH TECHNICIANS:** Brent Johnson, Kelly Korth, Cassie Novak, Arjun Potter, Jake Walker, Amy Wolf

**GRADUATE RESEARCH ASSISTANT:** Sarah Rehme

**FUNDING:** USGS Natural Resource Preservation Program (NRPP) and the National Park Service

*Research continued on page 3*

Editor, Valerie A. Egger

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 [vegger1@unl.edu](mailto:vegger1@unl.edu), or 422 Hardin Hall, 3310 Holdrege, Lincoln NE 68583-0984.



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## 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

*Research continued from page 2*

### ***Diversity and Ecological Functions***

**GOALS:** This project seeks to understand how grassland plant diversity affects the provision of ecological services.

**CURRENT STATUS:** 2005 data were collected on pollination and herbivory. Field research in 2006 and 2007 focused on herbivory and invasion resistance. 2008 - 2009 data collections are complete. Data analysis is ongoing.

Kristine Nemeč conducted her fourth field season in 2009 on restoration plots located near Wood River, Nebraska (south central Nebraska) with technician Ashley Pella. As in previous years, ground beetles, ants, spiders, and aboveground insects such as lady beetles and grasshoppers are being collected. Plant species observed along transects are also recorded. The data collected are being used to compare ecosystem services provided by the plant and invertebrate communities in high and low

diversity grassland restorations. Insect specimens from last year's sampling season have been sorted and sent to insect taxonomists for identification. All spider specimens and most ground beetle specimens from the previous two seasons have been identified.

Lindsey Reinarz continues work on her thesis.

**GRADUATE RESEARCH ASSISTANTS:** Lindsey Reinarz (University of Nebraska at Omaha, advised by L. Wolfenbarger and Craig Allen), and Kristine Nemeč (employee of U.S. Army Corps of Engineers)

**RESEARCH TECHNICIANS:** Michelle Hellman, Ashley Pella

**FUNDING:** The James S. McDonnell Foundation—*Studying Complex Systems*, Nebraska Game and Parks Commission, University of Nebraska at Omaha, and the Nature Conservancy

### ***The Effect of Common Reed (*Phragmites australis*) on River Otter (*Lontra canadensis*) Habitat Use***

**GOALS:** The recent invasion of *Phragmites australis* in the Big Bend region of the Platte River has made the need to examine its potential effects on river otters more critical. The ability of *P. australis* to rapidly alter the landscape could have large effects on a population that may still be vulnerable, such as river otters. Using locations from radio tagged otters along the central Platte River in conjunction with GIS, this study will determine if otters use river ways with *P. australis*, or if otter den use in areas with *P. australis* is more or less than expected relative to availability, and will identify any differences in otter use of areas before and after *P. australis* treatments. This study will increase our understanding of the effects of this invasive plant on river otters—a flagship species for non-game conservation.

**CURRENT STATUS:** Three trapping seasons have been completed with a total of 18 otters successfully implanted with transmitters. Over 1000 locations have been recorded. The fourth and final trapping season will be conducted this fall in the Central City area of the Platte River.

**GRADUATE RESEARCH ASSISTANT:** Amy Williams

**FUNDING:** Nebraska Game and Parks Commission, The Nebraska Environmental Trust

### ***Identifying Socio-Ecological Factors Determining Invasions and Extinctions***

The proportion of endangered and invasive species within a country can be used as a measure of a country's ecosystem resilience. Countries with high proportions of endangered and invasive species would be considered less resilient than countries with low proportions.

*Research continued on page 6*

## Conferences/Meetings/Workshops

In March, Craig Allen spoke about resilience as an invited speaker to the Texas A&M University 10<sup>th</sup> Annual Ecological Integration Symposium: *Resilience from Genes to Ecosystems*.

Chad Smith attended the American Water Resources Association Adaptive Management Summer Specialty Conference, June 29-July 1, in Snowbird, UT. He gave a presentation on Platte River adaptive management and was part of panel discussion on national Adaptive Management (AM) programs

July 20-24, Chad attended the National Conference on Ecosystem Restoration in Los Angeles, CA. He was a member of team presenting the AM workshop, a panel member for an AM programs discussion, and he gave a presentation on Platte River adaptive management.

In late July, Ryan Luckenhoeff attended a genetics workshop presented by Dr. Brian Sloss. The workshop was hosted by the North Central Division of the American Fisheries Society in LaCrosse, Wisconsin.

Craig Allen, Kristine Nemecek and Sarah Rehme attended the Ecological Society of America meeting in Albuquerque in early August. The 2009 meeting theme was *Ecological Knowledge and a Global Sustainable Society*. Sarah's oral presentation was entitled: *Grassland songbird community diversity, evenness, and nest survival vary inversely with park size and latitude*. Kristine Nemecek's oral presentation was: *The Relationship between Diversity and Invasion Resistance in Wet-Mesic Tallgrass Prairie Restorations*.

Kevin Pope, Dustin Martin, Lindsey Richters and Alexis Maple will attend the 2009 American Fisheries Society Annual Meeting in late August. This year's theme: *Diversity, the foundation of fisheries and the American Fisheries Society; are we gaining ground?* Lindsey's oral presentation is entitled: *The influence of stocking densities and habitat variability on channel catfish populations in Nebraska* and Dustin's oral presentation is entitled: *Influence of substitute sites on management actions*.

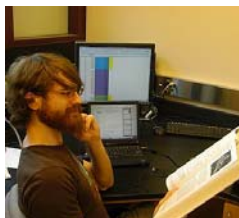
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## Graduate Student News

### Aaron Alai

*M.S. Graduate Research Assistant, Wildlife*

Aaron has analyzed South African bird species for discontinuities via body mass, and has built models for predicting species decline, migration, and nomadism (in collaboration with Graeme Cumming at the University of Capetown). Organisms located closer to discontinuities may be more prone to decline, migration, and nomadism with greater frequency than one would expect by chance. He has also investigated the hypothesis that competition amongst species is a driving force for the structure of aggregations.



Aaron is currently immersed in his thesis and is describing the patterns observed in his data. The data are suggesting that sometimes the location of a species within an aggregation can predict certain species traits.

### Jason DeBoer

*Ph.D. Graduate Research Assistant, Fisheries*

Jason received his M.S. in Biology in April 2008 from Grand Valley State University, Michigan. He is continuing his educa-

tion at UNL by pursuing a Ph.D. exploring potential recruitment bottlenecks for walleye and white bass in southwest Nebraska irrigation reservoirs.

### Michelle Hellman

*M.S. Graduate Research Assistant, Wildlife*

Michelle graduated from the University of Missouri with a B.S. in Fisheries and Wildlife. Her research interests include herpetology, recruitment, and reproductive physiology.

### Carla Knight

*M.S. Graduate Student, Fisheries*

Carla is working as a research technician conducting angler surveys. In addition, she is pursuing an M.S. degree exploring anglers' abilities to correctly identify native and non-native fishes of Nebraska.

### Aaron Lotz

*Ph.D. Graduate Research Assistant, Wildlife*

Aaron continues work on his dissertation research, and is now focusing on the relationship between the proportion of endangered and invasive birds and mammals in relation to a diverse set of economic, ecological and social/governance factors.

*Students continued on page 5*

Ryan Luekenhoff.  
Photo: Jason DeBoer



## Ryan Luekenhoff

*M.S. Graduate Research Assistant, Fisheries*

Ryan is working on developing a technique to distinguish juvenile white bass from juvenile hybrid striped bass. He finished his first sampling season this past fall and is awaiting results from the genetic analysis.

## Alexis Maple

*M.S. Graduate Student, Fisheries*

Alexis is working as a research technician conducting angler surveys on reservoirs in the Salt Valley region of southeastern Nebraska, and she is pursuing an M.S. exploring seasonal and latitudinal trends in sizes of fish caught by anglers.

In addition, Alexis is working on a project examining influences of latitude on two methods used for aging bluegill.

## Dustin Martin

*Ph.D. Graduate Research Assistant, Fisheries*

Dustin is continuing his graduate education by pursuing a Ph.D. focused on modeling the spatial and temporal participation of anglers in southeastern Nebraska. His first peer-reviewed manuscript was recently accepted for publication by *Ecology of Freshwater Fish*, and is entitled: *Spring home ranges of white bass in irrigation reservoirs of the Republican River Basin, Nebraska*.

## Kristine Nemec

*Ph.D. Graduate Student, Wildlife*

Kristine conducted her fourth field season in 2009 on grassland restoration plots located in south central Nebraska. She continues working for the U.S. Army Corps of Engineers in Omaha.

## Sarah Rehme

*M.S. Graduate Research Assistant, Wildlife*

Sarah is currently working on her second field season with Larkin Powell (UNL) and Craig Allen on a National Park Service project assessing productivity and site fidelity of grassland birds in three national parks.

## Lindsey Reinarz

*M.S. Graduate Student, Wildlife*

Lindsey wants to develop a method of evaluating success of prairie restorations. Progress continues on her master's thesis.

## Lindsey Richters

*M.S. Graduate Research Assistant, Fisheries*

Lindsey continues to work for the Nebraska Game and Parks Commission while pursuing her master's degree. Her second field season commenced in June 2009.

## Chad Smith

*Ph.D. Graduate Research Assistant, Wildlife*

Chad continues his work as director of natural resources for Headwaters Corporation, leading efforts to implement the Adaptive Management Plan for the Platte River Recovery Implementation Program.

## Peter Spirk

*M.S. Graduate Research Assistant, Fisheries*

Peter completed his first field season during the past spring and summer. He is now concentrating on analyzing data from the field season and continuing with lab work to fulfill his first year's work.

## Kody Unstad

*M.S. Graduate Research Assistant, Wildlife*

Kody obtained his B.S. in 2004 in Environmental Studies/Life Science from the University of Nebraska Omaha, with a minor in German. Undergraduate internships included prairie and wetland restoration around Omaha and along the Central Platte River, pronghorn fawn capturing in the Oglala National Grasslands, and upland bird surveys in the Nebraska Sandhills. After graduating, he spent three years as an internet photographer and graphic designer for Woodhouse Auto Family. Following this, he spent a semester at Xinjiang University in northwest China where he studied a Turkish dialect called Uyghur.

Academically, his greatest interest is ecology. More than the study of individual organisms or species, it is the web of interactions between plants and animals and their environment that he finds most intriguing. This summer he has been researching insects in the tallgrass prairie of the Southeast Nebraska Biologically Unique Landscape. His is observing how abundance and diversity of certain groups of insects differ between high-diversity hay meadows and low-diversity pastures, and also between prairie edges near treelines and prairie interiors. On a personal note, he is excited to be getting married this coming November.

## Amy Willaims

*M.S. Graduate Research Assistant, Wildlife*

Amy graduated from Washington State University with a B.S. in

Students continued from page 5

Wildlife Ecology. Amy will study otters' responses to phragmites control on the Platte River. This past fall, she completed her first field season trapping, tagging, and tracking otters. She is pursuing a career in conservation of endangered species.

Implanted otter located during tracking.



Sam Wilson

### Justin Williams

M.S. Graduate Research Assistant, Wildlife

Justin expects to graduate in December 2009. As he completes his thesis, he is also working as an environmental scientist with URS Corporation in Omaha.

### Sam Wilson

M.S. Graduate Research Assistant, Wildlife

Sam continues tracking river otters on the Platte River, and also his work controlling feral hog populations with the Nebraska Game and Parks Commission. Sam coordinated an effort to eradicate feral hogs in Harlan County, in late February, using a helicopter and trained gunner. More than 100 feral hogs have been removed from this area in the last two years. ❖

Research continued from page 3

**GOALS:** 1) Identify and compare key socio-ecological landscape factors between countries with high proportions of invasive and endangered species to those with very few. 2) Examine nationally recognized environmental indexes and their effectiveness in predicting proportions of invasive and endangered species.

**CURRENT STATUS:** The proportion of **endangered birds** in a country is positively correlated to the total biodiversity of all species within a country and a country's total land area. The proportion of **endangered mammals** is related to a combination of ecological factors. The proportion of **invasive birds** in a country is positively correlated to the meat consumption within a country. The proportion of **invasive mammals** in a country is positively correlated to the GDP of a country. When we look at **all the endangered and invasive species** (both birds and mammals) combined, as a measure of resilience, the proportion of endangered/invasive species in a country is positively correlated with human life expectancy and a combination of economic factors. Nationally recognized environmental indexes were not good predictors of the proportion of endangered/invasive species in a country.

Analyses have been completed, and a report is being drafted.

**GRADUATE RESEARCH ASSISTANT:** Aaron Lotz

**FUNDING:** The James S. McDonnell Foundation—*Studying Complex Systems*

### **Missouri River Mitigation: Implementation of Amphibian Monitoring and Adaptive Management for Wetland Restoration Evaluation**

**GOALS:** This recently funded project will gather the data needed to determine what constitutes a successful wetland restoration, given the desired goals of the U.S. Army Corps of Engineers. Herpetofauna—primarily amphibians—will be used as indica-

Research continued on page 7

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## **Our Mission**

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

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

*Provide technical assistance to cooperators*

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tors of wetland quality. This will be accomplished by quantifying the occurrence and recruitment of amphibians at existing mitigation sites indicators. These models will be used by managers in future restorations and for adaptive management approaches to the design of new wetland restorations. The study area is the Missouri River corridor of Iowa, Kansas, Missouri and Nebraska.

**CURRENT STATUS:** We are in the initial phase of implementing the monitoring program which will focus on tightly linking monitoring with hypothesis testing in an adaptive framework. The design consists of frog call surveys to determine occupancy rates for a large number of wetlands on numerous restoration properties, coupled with intensive sampling of frogs, turtles and salamanders to assess abundance and recruitment on eight restored wetland complexes in four states. The Nebraska Coop Unit is focusing on wetland complexes in the Falls City to Omaha, Nebraska reach of the Missouri River.

**GRADUATE RESEARCH ASSISTANT:** Michelle Hellman

**FUNDING:** U.S. Army Corps of Engineers

### ***Monitoring, Mapping and Risk Assessment for Non-Indigenous Invasive Species in Nebraska (Nebraska Invasive Species Project)***

**GOALS:** This project provides coordination of non-indigenous species management and research in Nebraska, and is mapping the potential spread of many invasive species in Nebraska.

**CURRENT STATUS:** Grant proposals have been developed and submitted to continue, and further expand, work begun by the project. It appears some additional funding is forthcoming.

In July, Karie Decker assumed the role of project coordinator (402-472-3133). She will continue working with agencies and Nebraska state senators to establish a Nebraska Invasive Species Council. The council will function as an independent advisory panel on invasive species to promote stronger partnerships in invasive species management, provide research based information to policy makers, and build awareness of these issues throughout the community. Karie will also engage in outreach programs promoting awareness of invasive species issues.

## **ANNUAL MEETING**

The 2009 annual Coordinating Committee of the Nebraska Cooperative Fish and Wildlife Research Unit will be held on Thursday, October 22 on the University of Nebraska–Lincoln east campus. Additional information will be forthcoming.

Two master's theses are nearing completion.

**GRADUATE RESEARCH ASSISTANTS:** Aaron Alai, Amy Williams, Justin Williams

**PROJECT COORDINATOR:** Karie Decker

**WEB SITE:** [snr.unl.edu/invasives](http://snr.unl.edu/invasives)

**FUNDING:** Nebraska Environmental Trust

### ***Population Assessment of Channel Catfish in Nebraska***

**GOALS:** This project is assessing the present variability in the dynamics (recruitment, growth and mortality) and structure (abundance, size- and age-structure, and condition) of channel catfish populations found in standing water bodies throughout Nebraska. Catfish populations from across Nebraska will be compared among water body types and among stocking strategies. This information will help managers determine the need for future stockings and harvest regulations of channel catfish. Also, a relatively new gear configuration for collecting catfish samples will be compared to current standards.

**CURRENT STATUS:** The first sampling season was completed summer 2008 on 22 Nebraska water bodies with approximately 5,200 catfish collected and 2,400 catfish aged for recruitment, growth and mortality estimation. The second sampling season commenced in June 2009 with return visits to several water bodies sampled in 2008. Sites were revisited to document temporal variability in catch rates.

**GRADUATE RESEARCH ASSISTANT:** Lindsey Richters (employee of Nebraska Game and Parks Commission)

**RESEARCH TECHNICIANS:** Matt Gruntorad, Anthony Miller

**FUNDING:** Nebraska Game and Parks Commission

### ***Recruitment of Walleye and White Bass in Nebraska's Southwest Irrigation Reservoirs***

Established for flood control and irrigation, the reservoirs in Nebraska's Republican River watershed also attract many anglers. White bass populations in these reservoirs are self-sustaining. Walleye, however, must be restocked annually as natural reproduction and recruitment of young are limited.

**GOALS:** This project will increase our understanding of the factors affecting recruitment of walleye and white bass in irrigation reservoirs, which is vital for understanding reservoir fish ecology in semiarid regions.

**CURRENT STATUS:** The adult walleye and white bass telemetry project to identify spawning sites and assess associated habitats



is complete, and a manuscript was accepted for publication in *Ecology of Freshwater Fish*. Patch occupancy models were developed to describe adult and larval walleye habitat selection in Enders and Red Willow reservoirs; revisions of this manuscript are ongoing. Juvenile white bass and hybrid striped bass were collected during autumn 2008 electrofishing surveys; surveys will be repeated this autumn. Work is underway to develop a technique for distinguishing juvenile white bass from juvenile hybrid striped bass in the field. Creel surveys were completed for 2008 and are on-going for 2009. Jason DeBoer and Ryan Lueckenhoff completed 2009 sampling for larval (spring) and juvenile (summer) fish; they are gearing up for autumn sampling of juvenile and adult fish.

**GRADUATE RESEARCH ASSISTANTS:** Jason DeBoer, Ryan Lueckenhoff

**UNDERGRADUATE ASSISTANTS:** Ted Ehly, John Walrath

**CREEL CLERKS:** Greg Hoffman, M. Doug Miller

**FUNDING:** Nebraska Game and Parks Commission

### ***River Otter Home Range and Habitats***

**GOALS:** This project is collecting home range and habitat use information on river otters along the big bend area of the Platte River using radio telemetry. Data collected, in conjunction with the Nebraska Game and Parks Commission's annual otter bridge survey, will help close existing information gaps and contribute to the creation of the Nebraska River Otter Management Plan and the Statewide Comprehensive Conservation Plan. This is one of the largest otter tracking projects in the United States and the only current project in the Midwest.

**CURRENT STATUS:** The fourth and final trapping/implanting season begins this fall. Tracking of the implanted otters, data collection and analysis continues. Dave Rempel joined the Nebraska Coop Unit in mid-January as a research technician and is providing on-site assistance with the project.

**GRADUATE RESEARCH ASSISTANTS:** Sam Wilson, Amy Williams

**RESEARCH TECHNICIAN:** Dave Rempel

**FUNDING:** Nebraska Game and Parks Commission, The Nature Conservancy

### ***Southeast Prairies BUL and Sandstone Prairies BUL Research***

**GOALS:** In 2007, the Southeast Prairies Biological Unique Landscape (BUL) and Sandstone Prairies BUL were included in a Flagship Initiative approved by the Nebraska Natural Legacy Project's Partnership Team. The fragmented nature of the land-

scape within the BULs creates challenges for conservation. The Nebraska Cooperative Fish and Wildlife Research Unit is one of four designated Team partners, and is conducting an evaluation project to help guide conservation work within the Southeast Prairies and Sandstone Prairies BULs.

In 2008, native prairies of various size, quality, and isolation were sampled to determine how these factors affect insect populations in tallgrass prairies. Understanding more about these issues will help inform decisions regarding project size, priority landscapes, and project design in managing eastern Nebraska landscapes.

**CURRENT STATUS:** Preliminary data collections were completed in summer 2008. Floristic Quality Assessment data were collected on 16 research sites. Following this, insect sweep netting took place on the same sites. 2009 data collection is nearing completion.

**RESEARCH TECHNICIAN:** Stephanie Lizano, Chris Wood

**GRADUATE RESEARCH ASSISTANT:** Kody Unstad

**BOTANIST:** Alicia Admiraal

**FUNDING:** Nebraska Game and Parks Commission

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

**GOALS:** This project assessed the risks that native Nebraska species face from non-native invasive species. Products include hazard indices and relative risk indices for each target.

**CURRENT STATUS:** Potential habitats for eight invasive plant species were modeled, and combined with assessments of ecological impacts of each species in a regional risk assessment framework to calculate relative risk scores and uncertainty.

Results indicate that *Rhamnus cathartica* (buckthorn) and *Elaeagnus angustifolia* (Russian olive) currently pose the greatest risks to endangered plants, whereas *Elaeagnus umbellata* (autumn olive) may pose the highest risk in the future. *Elaeagnus angustifolia* currently presents the greatest risk to rare communities in the present and forecast scenarios. *Panax quinquefolius* (American ginseng) and wet-mesic tallgrass Prairie are at greatest risk from invasive species, currently and in the future.

The master's student graduated in May 2009.

**GRADUATE RESEARCH ASSISTANT:** Thad Miller

**FUNDING:** Nebraska Game and Parks Commission, and U.S. Geological Survey ❖