THE COMMUNICATOR

NEWS FROM THE NEBRASKA COOPERATIVE FISH & WILDLIFE RESEARCH UNIT

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New and Changing Faces

We welcome **Emma Brinley Buckley**, **Lucia Corral, Caitlyn Gillespie**, and **Brian Hammond** to the Coop Unit.

Emma Brinley Buckley comes to us from Connecticut. Emma is a master's student advised by Craig Allen. She will be working on integrating science with the Platte River time-lapse project headed by Michael Forsberg and Michael Farrell.

Ph.D. student **Lucia Corral** is working with the wind and wildlife project. Lucia is supervised by Joseph Fontaine and Larkin Powell.

Master's student **Caitlyn Gillespie** is working on stopover decisions of migratory shorebirds assessing habitat, food, behavior and phenology. Caitlyn is supervised by Joseph Fontaine.

Master's student, **Brian Hammond** is working on the Fremont State Lakes renovation study to understand the effects of alum application and fishery renovation on water quality. Brian is advised by Amy Burgin and co-advised by Kevin Pope. ❖

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Research Highlight

Predicting Grassland Bird Responses to Biofuel–Based Landuse Change

GOALS: This project had 3 objectives.

- Assess the feasibility of supplying adequate biomass for cellulosic ethanol production in the Rainwater Basin region of south–central Nebraska.
- Develop biofuel–based landuse change scenarios for the region.
- Predict grassland bird responses under each scenario.

CURRENT STATUS: This project was initiated in August 2010 and utilized Geographic Information Systems (GIS) analyses and simple models to explore the future feasibility andimpacts of cellulosic ethanol production from residual maize (*Zea mays*) and switchgrass (*Panicum virgatum*) in the extensively cultivated Rainwater Basin landscape. Scenario planning considered a variety of potential futures for the region, including the conversion of: marginally productive rowcrop fields to switchgrass, Conservation Reserve Program (CRP) grasslands to switchgrass, CRP grasslands to rowcrops, and marginally productive rowcrop fields to CRP grassland. For each scenario, changes in landuse area were input into a customized version of the Hierarchical All Birds Strategy (HABS) model (Playa Lakes Joint Venture 2007) to estimate changes in bird abundances.

At current feedstock yields, removal rates, and bioconversion efficiencies, adequate biomass for large–scale cellulosic ethanol production could be produced within 40 km of existing starch–based ethanol plants. In general, converting marginally productive rowcrop fields to switchgrass is expected to benefit a variety of birds, especially sedge wrens (*Cistothorus plantensis*)

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and other species that prefer tall, dense grassland habitat structure. Alternatively, converting CRP grassland to either switchgrass or rowcrops is predicted to negatively influence species that rely on the presence of forbs, most notably the dickcissel (*Spiza americana*).

Although CRP grassland area is limited in the Rainwater Basin, it serves as an important avian habitat; converting CRP to alternative uses could negatively impact grassland birds. Switchgrass stands could benefit grassland birds if they replace rowcrops; therefore, maintaining existing CRP grasslands while converting marginally productive rowcrop fields to switchgrass could provide economic returns for farmers while benefitting grassland birds. The impacts of switchgrass on grassland birds are likely to depend not only on which forms of landuse switchgrass replaces, but on how switchgrass stands are managed, due to the influence of management on vegetative structure.

This project was completed in August 2012. Results are useful when considering the impacts of past and future landuse changes in Great Plains agricultural landscapes. The loss of existing CRP grassland in the Rainwater Basin would be detrimental to a variety of grassland bird species, and provides insights into how the historic conversion of the prairie landscape to rowcrop production may have impacted grassland bird populations. Alternatively, converting a relatively small proportion of rowcrop area to CRP grassland benefitted grassland birds and could be used to envision how the CRP program has benefitted grassland birds since its implementation. Although switchgrass may be utilized less as habitat by grassland birds than CRP grassland, it is still likely to provide superior habitat than rowcrops, and could also provide good financial returns for farmers. Maintaining existing CRP grassland, while converting marginally productive rowcrop fields to switchgrass and continuing to raise rowcrops on productive irrigated soils may represent an economically plausible agricultural future that could also benefit grassland birds.

GRADUATE RESEARCH ASSISTANT: Dan Uden

PROJECT COORDINATOR: Craig Allen

FUNDING: USGS Climate Effects Network, USFWS Great Plains Landscape Conservation Cooperative ❖

Honors and Awards

November 7, **Chris Chizinski** was presented with the University of Nebraska–Lincoln's 2012 Outstanding Postdoc Award. This award honors "exceptional comprehensive achievement in research, teaching, mentoring, innovation, and service." Chris' manuscript, "A modeling approach to evaluate potential management actions designed to increase growth of white perch in a high-density population" was selected as one of the ten Editors Choice manuscripts in the 2010 volume of *Fisheries Management and Ecology*.

Congratulations to **Chris Jorgensen** who was a keynote speaker for the State Habitat meeting in April and was awarded a $1,000 Pheasants Forever Wildlife Scholarship. Chris and **Jason DeBoer** were the recipients of a $500 travel grant from the UNL David H. and Anne E. Larrick Memorial Travel Fund.

Ryan Stutzman was awarded the Meritorious Graduate Student Award for the UNL School of Natural Resources. The award "honors, the best SNR students and recognizes their academic achievements, research, teaching contributions, leadership accomplishments, service and personal qualifications." ❖

Moving On

Karie Decker has accepted a new position with Nebraska Game and Parks Commission. "Starting November 26, I will be the Assistant Division Administrator - Research, Analysis, and Inventory Section - Wildlife Division. I am excited about the opportunities this position offers, but leave my current position with a bit of a heavy heart. Working with everyone in the invasives world has been has been incredibly rewarding these past few years. In my new role, I will still be involved in invasive species management as it pertains to game and non-game species."

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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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Chris Jorgensen, **Peter Spirk**, **and Ryan Stutzman** successfully defended their theses and will graduate in December. **Kristine Nemec** defended her dissertation and will receive a Ph.D. in December. In August, **Dan Uden** also successfully defended his thesis and earned a Master's; Dan is now working on his Ph.D. at UNL. ❖

Service Education

On October 25, eleven Coop Unit students gathered to assist Nebraska Game and Parks Commission with stuffing 8,000 (of their 10,000) surveys. The NGPC sends out a mail survey approximately every ten years to assess changes in attitudes and desires of anglers. Of the 10,000 surveys, 1,400 were sent to out-of-state addresses. This is an outstanding illustration of service education—we provided a service to NGPC at the same time that we provided an education to eleven students about the often overlooked logistics of research. ❖

Photo courtesy Kevin Pope

Outreach Activities

Kent Fricke and Dan Uden are co-mentoring a high school student in the UNL chapter of Upward Bound EnvironMentors program. The EnvironMentors program pairs mentors with local undeserved youth who are interested in conducting research and helps them to explore environmental education in college.

In October, Christopher Jorgensen co-hosted the first monthly Rainwater Basin Science Office Brown Bag Luncheon. The Rainwater Basin Joint Venture, along with the Nebraska Cooperative Fish and Wildlife Research Unit, hosted the informal gathering to discuss the status of Joint Venture research projects, monitoring efforts and restoration activities currently underway. The overarching goal of these forums is to allow researchers and managers the opportunity to discuss research needs, and develop research and monitoring projects that will address key uncertainties underlying the revised Rainwater Basin Joint Venture Implementation Plan.

Several Coop Unit students and staff participated in the third annual NaturePalooza hosted by the Nebraska State Museum and UNL's School of Natural Resources on November 4. Caroline Jezierski had an education station with information about the wind and wildlife project as well as a bird migration game. The migration game better educated attendees about the various birds species that migrate through Nebraska and the number that migrate through the state each year. Alex Engel and Isaac Mertens worked an invasive species activity booth which centered on increasing awareness of invasive species. Robert Kill was a participant at the Cornhusker Student Subunit of the American Fisheries Society booth, which presented commonly found fish in Nebraska.

Chris Wiley assisted Nebraska Game and Parks Commission (NGPC) employees with demonstrating how to use bow-fishing gear at two NGPC outdoor expos: May 12 in Kearney, NE and September 13-16 in Ponca, NE.

Five graduate students led a wildlife workshop this November at Lighthouse, a non-profit after-school program for under-

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privileged middle and high school students in Lincoln. Jessica Laskowski and Joseph Fontaine developed curriculum to teach concepts of wildlife ecology through outdoor, hands-on activities in an urban setting. Lucia Corral, Kent Fricke, Caitlyn Gillespie, Amy Oden and Jessica Laskowski taught students about habitat preference through an outdoor telemetry activity, indoor games and discussion. Using hand-held telemetry equipment, students located "black tiger cats" (transmitters) throughout the Lighthouse grounds. In order to determine the cats' habitat preferences, students compared the number of cats found in different habitats (e.g., tree, grass, pavement) to the proportion of habitat types available. Relating wildlife habitat preference to their everyday lives, students enthusiastically shared their various habitats, snack preferences and foods they passionately avoid. Jessica and Dr. Fontaine plan to make the curriculum widely available to teachers and lead similar wildlife workshops in the future.

Karie Decker was a guest speaker for several radio and television shows. She also had numerous invasive species outreach booths at various events throughout the state.

Caroline Jezierski was a guest lecturer for several courses taught at University of Nebraska–Lincoln as well as seminars and courses at Iowa State University in Ames, IA and Creighton University in Omaha, NE. Caroline had various wind and wildlife outreach booths at wildlife events throughout the state of Nebraska. ❖

Publications

Two of three feature articles in the October 2012 edition of Fisheries were from researchers at the University of Nebraska–Lincoln. Authors of one of those feature articles, Using the Internet to Understand Angler Behavior in the Information Age, include Kevin Pope, and two graduate students advised by Kevin: Dustin Martin and Jason DeBoer. ❖

Career Opportunity

A search is currently underway to fill the Unit's need for an Invasive Species Program Specialist.

This position will serve as the coordinator for all state and federal agencies and non-governmental organizations involved in invasive species research, management and policy across the state of Nebraska. Develop state-wide invasive species management plans to aid partners with invasive species management and prevention. Coordinate activities of and represent the Nebraska Invasive Species Advisory Council as the liaison with the State Legislature. Conduct research on various invasive species issues with intent to publish in peer-reviewed journals. Coordinate and collaborate with agencies and organizations to develop statewide plans for managing invasive species. Develop collaborative research partnerships, develop study design, perform literature reviews, carry out research, conduct data analysis, write up findings for publication. Manage a web-based information clearinghouse on research, management, identification, and potential spread of currently and potentially established invasive species. Develop materials and provide outreach to Nebraska governments, individual stakeholders, and the general public regarding the management, and research of invasive species. Network with other invasive species biologists in the state and region, including diverse stakeholders such as the public, state and federal government agencies, non-government organizations and others.

View requisition 120967 at https://employment.unl.edu for details and to apply. Applicant review begins Jan 2. ❖

Annual Meeting

The 2012 annual Coordinating Committee of the Nebraska Cooperative Fish and Wildlife Research Unit was held Thursday, September 20 on the University of Nebraska–Lincoln East Campus. Approximately forty-eight university and agency guests joined the Coop Unit scientists, staff and students to discuss unit progress and research programs. Presentations were given by twenty students.

Conferences/Meetings/Workshops

Kristine Nemec gave a presentation titled "Effect of diversity and seeding density on ecosystem services in grassland restorations" at the Ecosystem Services Partnership Conference in Portland, OR July 31-August 4.

"Predicting variation in springtime playa occurrence and flooded area in Nebraska's Rainwater Basin" was the title of a presentation that Chris Jorgensen and Dan Uden gave for the Migratory-Joint Venture GIS webinar in July as well as for the Great Plains LCC webinar in August.

Chris Jorgensen and Joseph Fontaine attended the North American Ornithological Conference in Vancouver, B.C., August, 13-18. The title of their poster was "If you build it will they come? Managing grassland bird populations in tomorrow's landscapes."

October 13-17, Kent Fricke and Caroline Jezierski attended The Wildlife Society meeting in Portland, OR. Kent had a poster presentation titled "Adaptive management of invasive woody plants in the Lower Niobrara River Valley, Nebraska." Kent also helped organize "Behind the scenes of scientific publication and critical review" workshop at the conference.

Noelle Chaine, Karie Decker, Kent Fricke, Chris Jorgensen, Bethany Teeters and Dan Uden attended the Nebraska Natural Legacy Conference, October 24-25, in North Platte, NE. Noelle had a poster titled "Completing the adaptive management cycle-learning from actions and results." Karie's presentation was titled "The new invasive species watch list and reporting network." Kent's poster was titled "Applying adaptive management to invasive species." Chris' presentation was titled "The land managers ArcGIS toolbox: Decision support tools and species distribution models for conservative planning." Dan's presentation was titled "Predicted grassland bird responses to biofuel-based landuse change."

"Potential contributions of a drought tolerant biofuel feedstock to regional groundwater conservation" was the poster Dan Uden presented at the Water: Science, Practice and Policy Symposium, November 13 in Lincoln, NE.

November 14, Kent Fricke was an invited speaker at the meeting of the University of Nebraska–Lincoln Student Chapter of The Wildlife Society. Kent's presentation was titled "Student opportunities in The Wildlife Society."

Chris Chizinski, Dustin Martin, and Kevin Pope attended the National Science Foundation workshop, November 8 on UNL's city campus during the annual UNL Research Fair.

Shana Sundstrom and Craig Allen, along with their co-PI, Kirsty Nash of the ARC Centre of Excellence for Coral Reef Studies, Townsville, Australia, successfully held their first Working Group Meeting, "Managing for Resilience," at the USGS Powell Center in Denver this fall. The meeting was the first of three week-long gatherings that included scientists from the USGS, USFWS, NOAA, and places as far afield as the Stockholm Resilience Centre and the Zululand Ecology District.

Karie Decker attended and presented invasive species related topics at multiple meetings and conferences throughout Nebraska and South Dakota.

Caroline Jezierski attended and presented at many wind and wildlife conferences and workshops throughout the United States. ❖

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*