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FOR THE BIRDS

FROM THE PLATTE TO THE PANHANDLE AND THROUGHOUT NEBRASKA'S RAINWATER BASIN, RESEARCHERS IN UNO'S LABORATORY OF AVIAN ECOLOGY ARE ANSWERING QUESTIONS ABOUT HOW TO PRESERVE AND PROTECT OUR FEATHERED FRIENDS

By Susan Houston Klaus



CRANES OF THE GREY WIND
THOMAS D. MANGELSEN

Early March snow flurries and dim morning light blend the soft greys of sandhill cranes standing in the shallow waters of a submerged sandbar. A pair of mallards and a female wigeon are dwarfed by the regal cranes whose ancestors have come to the Platte River for more than 10 million years. Soon, mated pairs and family groups will come together, and like smoke rising from a chimney, great kettles of cranes will spiral and rise miles above the river. As they sail on southerly winds, the skeins of cranes will disappear against blue April skies — only the sounds of their ancient voices trailing back to earth as they journey to their northern home.



CHELSEA FOREHEAD

While many of her cohorts this summer have been following news, entertainment and more on Twitter, Chelsea Forehead has been busy tracking different kinds of tweets.

The graduate student is conducting field research through the UNO Laboratory of Avian Ecology on the interactions of the brown-headed cowbird (a real jerk of a bird) and the dickcissel.

If you're like most Nebraskans, you've likely never heard of them. Nor, for that matter, most of the other 461 varieties of birds that have been sighted in the state.

But birds matter. How they survive and thrive in their habitat has an impact on those who want to protect and preserve their ecosystem, like conservationists and land managers — and on those who simply want to appreciate them, like tourists and residents.



Photo: Sue Cedarholm

THE WORLD IS HIS STUDIO

It was apparent as far back as his days at then-Omaha University that Thomas D. Mangelsen had a thing for birds. As a 19-year-old freshman in 1965, Mangelsen won the title of world champion goose caller in a competition at Missouri Valley, Iowa.

Mangelsen spent two years at OU as a business major before transferring to Doane College and earning a degree in biology. He since has put his studies in both disciplines to good use — and then some.

Mangelsen today is one of the world's foremost nature photographers, having captured stunning images of flora, fauna and wildlife on all seven continents. Recently profiled in a "60 Minutes" feature, he also is owner of eight Mangelsen Images of Nature Galleries, including one in Omaha and another in his home of Jackson, Wyoming.

Among his most popular works is "Cranes of the Grey Wind" taken of sandhill cranes on the Platte River during early March snow flurries in 2011. The early spring gathering of sandhills on Nebraska's Platte is among the greatest wildlife spectacles on the continent, with hundreds of thousands of birds present at once.

See more about Mangelsen, his work, his honors and awards at mangelsen.com



JOHN MCCARTY AND LAREESA WOLFENBARGER OF THE UNO LABORATORY OF AVIAN ECOLOGY.

“Birds are really excellent indicators of the health of the ecosystems as a whole,” Forehead says. “By studying them, we can investigate larger environmental issues. It’s about the air we breathe, the water we drink and the soil we grow our food in.”

A SPECIAL PLACE FOR BIRDS — NEBRASKA

The state’s agricultural landscape is constantly changing, and along with it the migratory, breeding and nesting habits of birds. Fewer resources available to birds, as well as man-made influences, mean that the avian population has to find a way to adapt.

Some species can. Others can’t.

Through the lab, co-principal investigators and mentors John McCarty and LaReesa Wolfenbarger guide students in gathering data to address questions from resource managers and other decision-makers about how to strive for an ecologically balanced environment.

“Our focus is on answering really specific applied questions that people need the answers to, and that’s why students come and work with us in our lab,” McCarty says.

Sharing what they discover with others is “kind of built in” to the projects, Wolfenbarger adds. “In so many of the projects, the person who has the questions is an active part of the research.”

The husband-and-wife biology professors — McCarty is director of environmental studies and Wolfenbarger is biology department chair — founded the lab after they arrived at UNO in 2001.

“I think Nebraska has a really special role in bird conservation,” says Wolfenbarger. “We’re in the middle of the spring migratory pathway and that makes our state a special place in terms of the diversity that we have coming through the state.”

The Eskimo curlew, a shorebird that regularly stopped here during spring migration in the 1880s, had all but disappeared by the turn of the 20th century. Today, it’s almost certainly extinct.

That was the direction the whooping crane was headed. One of the rarest species in the world, it’s an annual visitor to Nebraska, stopping on its way from the Gulf Coast of Texas to northern Manitoba through the state’s Rainwater Basin.

“In the 1940s, only a couple dozen of these birds existed,” Wolfenbarger says. “Since then, massive conservation efforts have resulted in a slow but steady increase in population. Now there are more than 430 in the population that migrates through the state.”



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COMMON GROUND

The first graduate student in the “McWolf” Lab — a portmanteau created by students — began her research in 2002. Since then, 17 others, with support from McCarty and Wolfenbarger, are working on or have completed their master’s theses. Several members have been nominated for or received awards from UNO and national groups for their research.

They’ve partnered with organizations, land managers and peer institutions — in areas that span the Sandhills, the Rainwater Basin in south central Nebraska, and rural areas outside Omaha — to study grassland birds as well as migratory shorebirds.

Getting buy-in from local landowners when lab researchers are in the field is important, not only in accessing land but also for sharing the goals of the data collection, Wolfenbarger says.

“One of the cool things when you’re working with landowners is that they know the wildlife of Nebraska and they appreciate it, so there’s a common ground that you have from the get-go. We’ve had really positive interactions.”

McCarty, a board member of the Nature Conservancy, gives credit to the financial support the students have received through the lab from that group, as well as UNO, the Nebraska Game and Parks Commission, U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture.

INFORMING CONSERVATION EFFORTS

Forehead’s research is taking place at the Nature Conservancy’s Platte River Prairies, located between Grand Island and Kearney. Nearly every morning this summer, she’s woken up with the birds to head out to a 3,000-acre piece of land where she gathers data for her study.

She’s looking for the presence of perches — natural and man-made — that cowbirds may use as vantage points from which they can target dickcissel nests. A nest parasite, the cowbird destroys an egg from the nest of another bird, replacing it with its own egg and leaving it to hatch and be raised by the host bird.

“I’m looking to see if the presence of these structures is affecting the levels of parasitism experienced by the dickcissel, which is a bird of conservation concern,” Forehead says.

Parcel by parcel of land, she’s also been looking for dickcissel nests to identify whether or not they’ve been parasitized. By the end of the summer, she estimates that she’ll have methodically visited each identified nest about 200 times.

“I want to try to help answer questions that would address a need in conservation — not just for curiosity’s sake, but for something that would inform our further conservation efforts.”



MICHELLE BIODROWSKI

NESTLING INTO CAREERS

Members of UNO’s Laboratory of Avian Ecology have used their time in the lab and in the field as launching pads for a variety of careers. Among them:

JOEL JORGENSEN, 1997 (BS) and 2007 (MS), who studied the buff-breasted sandpiper in the Rainwater Basin. He’s now the manager of nongame birds for the Nebraska Game & Parks Commission and continues to collaborate and consult with the lab (see article page 34 for more about Jorgensen). “I wouldn’t be in my job today if it wasn’t for my experience and what I got there,” he says.

CHASE WICKARD, 2017 (MS), who researched how Conservation Reserve Program land is impacting the Brown-headed Cowbird in prairies just outside Omaha. After receiving his degree, he joined E&A Consulting in Omaha as an environmental services scientist. “How John and LaReesa go about being professionals in the lab, how they deal with students, being very positive and encouraging, really translated into the workplace for me,” he says.

MICHELLE BIODROWSKI, 2013 (MS), who looked at the effects of patch burn grazing on the dickcissel and grasshopper sparrow at Platte River Prairies. Today, she’s a private lands wetland easement team specialist for Conservation Districts of Iowa. “The lab is producing some very good science in all kinds of interesting research, and Nebraska species are benefiting directly from the work the lab does,” she says. “I have a lot more confidence and I feel that I’m a better scientist because I’ve worked with them.”



BRINGING AWARENESS

Some research involves the impact of man on birds.

That relationship is what Heather Leas wanted to examine with her research on male greater prairie chickens near the NPPD Ainsworth Wind Energy Facility in the Sandhills.

The question: Do wind turbines have a physiological impact on these birds?

"We wanted to make informed decisions, both from a wildlife management perspective and for energy users and builders," she says. "It wasn't just about any negative effects — it was to see if there are any effects at all."

Leas and the lab collaborated with UNL researchers on the study, collecting more than 200 samples of droppings from 15 display sites near the wind farm. She analyzed the birds' corticosterone, a stress hormone, and testosterone at UNO's Endocrine Bioservices Lab.

"The stress hormone, if they were more stressed out, would have been elevated," Leas says. "We were looking at variations and levels of the hormones in relation to the distance from the wind farm."

Ultimately, she didn't detect any effects of the wind turbines or distance from the wind turbines on either the corticosterone or testosterone — a finding that indicates the birds aren't more stressed in relationship to the wind turbines.

Leas says her experience underscores how important the work of the lab is to people across the state.

"We have to coexist more and more — agriculture and environment and urbanization. A lot of it isn't a lack of care, it's a lack of knowledge. Bringing more awareness to how human-caused factors are impacting the environment and how that can come back to us, it's important."



THE BIRD MAN OF NEBRASKA

For birders like Joel Jorgensen, the promise of a new sighting is always around the corner.

This spring, he added his 407th — a Swainson's warbler, last reported in the state in 1977 — to his list.

As program manager of nongame birds for the Nebraska Game & Parks Commission, the 1997 (BS) and 2007 (MS) biology grad's normal day at the office can include fielding calls from the public about backyard sightings or presenting at an ecotourism conference.

He's seen a growing interest in birds and birding and says it's somewhat different than other fields. The lines are more blurred between who's involved.

"You have this mix of people who are employed professionally like me, but also a robust community of amateurs who are very serious about birding. Those people are valuable to

our overall understanding of knowledge of bird distribution in the state."

This summer, he and co-author W. Ross Silcock will publish an updated version of 2001's "Birds of Nebraska: Their Distribution and Temporal Occurrence." The new online edition — available at birdsofnebraska.org — now features maps. Each species has its own page with an overview of their status and distribution in the state.





WANT TO ATTRACT MORE BIRDS TO YOUR YARD? HERE ARE SOME WAYS TO DO IT:

- Plant a diversity of plants and select native species, says Joel Jorgensen. “Many people may think about trees and shrubs, but also include flowers for pollinators since most birds eat insects. Having a robust insect community should attract more birds. Avoid plants treated with neonicotinoids and also avoid or limit use of chemicals. And provide a water source.”
- LaReesa Wolfenbarger recommends these websites:
 - audubon.org
Find the “Native Plants” page then enter your ZIP code for a list of plants (trees, shrubs, flowers), what type of food or habitat you want to provide and what type of bird you’d like to attract.
 - plantnebraska.org
offers a guide to Trees & Shrubs for Wildlife from the Nebraska Statewide Arboretum.
- Keep in mind that not all birds migrate in winter. Diana Failla, executive director of the Urban Bird & Nature Alliance and a 1984 grad, recommends these plants and trees for food and shelter: American bittersweet, American cranberry bush viburnum, arborvitae, blue spruce, black chokeberry, hawthorn, boxwood, firethorn, winterberry, serviceberry, sumac, holly, red chokecherry; bachelor buttons (cornflower), baptista, buckeye shrub, butterfly weed, camelia, columbine, lupine, foxglove, fuchsia, phlox, rhododendron and viburnum.
- For ways to live peacefully with our feathered friends, John McCarty suggests this site from The American Bird Conservancy:
 - abcbirds.org/get-involved/bird-friendly-life/
- Bookmark eBird.org, a site from the Cornell Lab of Ornithology, to explore birds in your neighborhood, share sightings or create a list to track what you see.



BIRDS, BEES, BUTTERFLIES AND ... BOERSMA



How will you spend your 86th birthday? UNO Graduate Larry Boersma (BA, 1953; MA, 1955) spent it defending birds, bees and butterflies.

An award-winning wildlife photographer (under the pen name Larry Allan), Boersma traveled to Washington, D.C., in early May to lobby congressmen to oppose changes to the Endangered Species Act, Marine Mammal Protection Act and Migratory Bird Treaty Act. He was among nearly two dozen volunteers from 10 states doing so under the auspices of Defenders of Wildlife.

Boersma was particularly concerned with provisions in a Farm Bill that he says would allow pesticides to imperil pollinators. Boersma wrote about the lobbying effort in the Sarasota (Florida) Herald-Tribune, his hometown paper.

“Bees have already been hit hard by pesticides, leading to significant declines in bee populations,” he wrote. “The issue is so serious that seven bee species were added to the endangered species list in 2016, and one in four bees faces extinction. Butterflies are also at risk and are one of the fastest-declining of all endangered species. In 2015, two additional butterflies required protection under the ESA due in part to pesticides. Overall, more than 270 recovery plans covering over 300 endangered species list pesticides as a threat to recovery.

“Undermining protections for pollinators also harms farmers who depend upon pollination and intact natural systems for sound food production. Florida’s farmers will surely be affected by this lack of oversight.”

Boersma is no newcomer to wildlife protection. He has authored and/or illustrated more than a dozen books about the wildlife of North America. In 2005, the Sierra Club awarded him its Ansel Adams award “for superlative use of still photography to further a conservation cause.”

That includes recent photos of sandhill cranes (pictured) taken at the Nature Conservancy’s Platte River Prairies located between Grand Island and Kearney, Nebraska.

See more about Boersma and his work at larry-allan.pixels.com



SONGBIRDS ON THE PRAIRIE

When UNO biology graduate student **Conor Gearin** imagines the untamed Nebraska prairie, he hears the song of a sparrow-like bird called the dickcissel.

“When you think of Nebraska pre-European settlement, who doesn’t think of the prairie stretching on endlessly and the distinctive fauna of that prairie,” Gearin says. “For me, it’s these birds. In the summer, their songs are everywhere. They let you know where you are. You’re in a grassland.”

Gearin has been studying grassland songbirds such as the dickcissel in 30 fields in five central-Nebraska counties: Howard, Greeley, Merrick, Nance and Sherman. Nebraska serves as a breeding ground for these migratory birds from May through late July and early August.

This summer is Gearin’s second working in the field, studying the birds and how they interact with their habitat. He works with private landowners; government agencies, such as the U.S. Department of Agriculture and the Nebraska Game and Parks Commission; and nonprofit organizations, such as Pheasants Forever, to explore questions of land management practices.

“Landowners and farmers can take a field out of production by signing up for the USDA’s Conservation Reserve Program,” Gearin says. “And the USDA will help them manage that habitat.”

Increasingly, private lands in Nebraska are managed for game birds, such as bobwhites and pheasants, and for the conservation of pollinator insects.

“These game birds share a lot of the same habitat needs as these other native grassland birds, which are in decline,” Gearin says. “So it could be good news for everyone.”

The dickcissel is a relative of the cardinal, though it bears little resemblance. Its typical colors are yellow, black and brown, and it’s named for the sound it makes when it sings.

“This is a typical bird you would hope to see in a Nebraska prairie,” Gearin says.

Gearin earned his undergraduate degree in biology from Truman State University and holds a master’s degree in science writing from MIT. He will earn his master’s degree in biology from UNO this December. A native of St. Louis, he loves the image of the Midwestern prairie.

“It’s a big part of our natural legacy,” he says. “Whenever you conserve grassland habitat, it feels like you’re giving back and paying respect to that natural legacy.”



SHORING UP SHOREBIRDS

Lindsay Ann Brown of Omaha earned her undergraduate degree in environmental studies from UNO in 2013 and a master’s degree in biology this May. She studied plant ecology as an undergraduate, but an ornithology class her final semester gave wings to a new research interest.

“I became so interested in birds after this class,” Brown says. “My professor told us about how these tiny, little shorebirds travel halfway around the world. That’s when I really got interested in migration.”

As a graduate student, Brown has studied three long-distance migrating shorebird species — the American golden-plover, the buff-breasted sandpiper and the upland sandpiper. These birds winter in southern South America and migrate across the Great Plains to breeding grounds in the Arctic. The agricultural fields of south-central Nebraska’s Rainwater Basin are a favorite April and May stopover.

Brown visited about 100 sites, observing the birds and their interaction with the habitat. To the untrained eye, the fields appeared the same — flat and, in early spring, bare. But Brown began to notice subtle differences.

“Even though, looking at it, you would say an ag field is an ag field,” Brown says, “these birds don’t see it that way. They are selecting specific features in these fields.”

The buff-breasted sandpiper, for instance, prefers raised elevations — which might aid in courtship. “We’re thinking that they are using these higher spots to attract other ‘buffys’ in the nearby fields,” Brown says. These are also favored locations for increasing numbers of wind turbines, creating a potential conflict.

“A lot of the shorebirds are declining, especially these migrants, as their stopover sites are being changed,” Brown says. “This could help us identify areas that are really important to migrating birds, and maybe move turbines.”

Brown has presented at conferences in Nebraska and Michigan, and addressed a working group in Peru that is developing a conservation plan for the buff-breasted sandpiper.

She currently is working as a conservation biologist at Coastal Bend Bays and Estuaries Program in Corpus Christi, Texas, trying to improve the nesting conditions for waterbirds and the black skimmer, whose habitat was upset by Hurricane Harvey.

“My graduate degree prepared me well,” Brown says. “I feel like I have a good grasp of how to develop a research question and how to get the answers.”