

Honoring Nature and Tradition | Cranes, Plains, and Astro Vans | Inquiry-Based Education



Audubon | GREAT PLAINS

2024 Spring Newsletter



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Above: The Larks birding group in Fargo celebrated their one-year anniversary in March! Photo: Amanda Booher.

Crane Season Staff Exchange

This crane season we tried something new and brought in staff from across the country to assist with crane season here at Rowe! One of those staff members was Lianne D'Arcy, who works with Audubon New York as a Senior Coordinator with Education and Volunteer Outreach. She had this to say about her experience in Nebraska:

“Witnessing the Sandhill Cranes on their grand journey was one of the most magical, dizzying things I’ve ever experienced! Seeing them silhouetted against a setting sun and watching them take to a dawning sky for morning liftoff was simply captivating, time and time again. Hearing from fellow Audubon staff, crane season volunteers, and center visitors was also just as touching as seeing the cranes themselves. The threads of their stories wove a vibrant tapestry of springtime in Nebraska, and I’ll be carrying our conversations in my heart for years to come.”

Read about Lindsey Lee’s trip in “Cranes, Plains, and Astro Vans” on page 7.

Letter from the Executive Director, Kristal Stoner



It was a so-called “warm winter,” so cranes, warblers, and American Robins were ready for their spring break trip earlier than usual. We got our first report of Whooping Cranes on the Platte River in mid-February, and flocks of Sandhill Cranes were not far behind. The warmer weather also offered us a chance to get a head start on habitat conservation and work across our three states.

In Fargo, North Dakota, our Larks Women’s Birding Group celebrated our 1-year anniversary. The Fargo-Moorhead chapter hosted their first Birds and Brews event with 65 participants. In Lincoln, we hosted the third-annual Return of the Thunderbirds with Lincoln’s Indian Center, Inc., and a new partnership with NASA’s DEVELOP program will use remote sensing and mapping to identify vulnerable areas along the Platte River.

In Kearney, the Sandhill Crane migration is the highlight of the year, as many as 200,000 cranes can be present at a given time right on the river at Audubon’s Rowe Sanctuary. Our habitat work there has clear, astounding results: Rowe is the place to spend spring break if you’re a Sandhill or Whooping Crane. They mostly came from Texas – along the Gulf Coast, the Edwards Plateau, and the Llano Estacado in west Texas. But as they do every year, Cranes reunited in the Central Platte River Valley of Nebraska for three or four weeks of rest, relaxation, and filling their bellies with waste grain, river grasses, and amphibians.

But Mexico, Texas, and Florida are where they spend their winters and in the summer they raise their colts across Canada and Alaska. We have to plan globally to take care of these guests. This is arguably Audubon’s greatest strength: for more than 100 years, we have been working across borders and ecosystems.

As a national organization, we have set specific goals for the next five years, all with the objective of creating healthy and safe places for birds. The Healthy Birds, Healthy Planet policy agenda includes funding for natural solutions like wildlife corridors and programs for agricultural producers to adapt sustainable practices; accelerating renewable energy technology; and strengthening core bird protections like Recovering America’s Wildlife Act.

Our Working Lands team is proposing a multi-state NFWF grant that would provide for habitat restoration and improved management practices directly impact a minimum of 172,400 acres of grasslands over three years through the expansion of the Audubon Conservation Ranching program and the Conservation Forage Program. Habitat management plans and restoration on private working lands will improve the habitat quality, connectivity, and extent of grasslands using Audubon’s suite of rangeland management tools. Project leads will work with ranchers to establish protection agreements to ensure that project acres remain as healthy working grasslands. As projects are implemented, avian surveys and MOTUS towers will capture response from the avian community, our team will evaluate the data and report on grassland bird response: this science will be used to refine habitat management on certified ranches.

- Kristal Stoner

The Big Numbers National Audubon Society Flight Plan Goals

300 million acres
of quality, connected, and climate-resilient bird habitat conserved

100 gigawatts
of new renewable generation and transmission infrastructure sited

30 billion tons
of carbon kept stored in forests, wetlands, and grasslands, with additional carbon sequestered each year

Double our chapter membership and volunteer communities

Pass the **Healthy Birds, Healthy Planet** policy agenda

Increase our impact with conservation coalitions

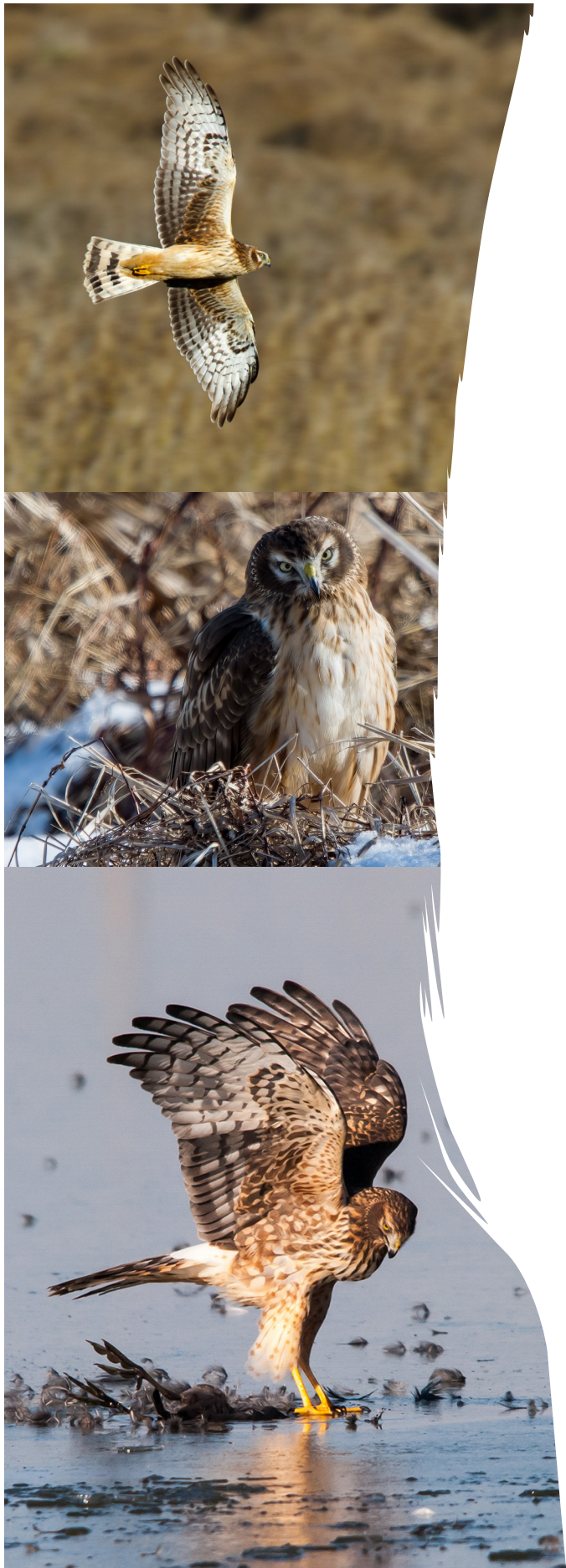
Audubon Great Plains Flight Plan Goals

1 million acres
Guide the restoration or improved management with training and technical support for **1,000 landowners on 1 million acres** of working agricultural land

50 UWP Parks on 2,000 acres
Double the number of urban conservation sites

15 new Motus towers
Three Motus towers are being installed in 2024 – at Brigham Sanctuary, Rowe Sanctuary, and Spring Creek Prairie

30% of Platte River habitat
in and around the Central Platte River Valley restored and protected



Bird Feature: Northern Harrier

Circus hudsonius

Family: Hawks

How to Identify a Northern Harrier:

Parts of Europe and Asia have several kinds of harriers, but North America has only one.

Best known by shape and by low, slow flight, wings angled up in shallow V. Contrasting white rump is conspicuous. Adult males gray with black wingtips. Female and juvenile brown; juvenile is rusty orange below, female whiter with more streaks.

At close range, the face of our Northern Harrier looks rather like that of an owl. Like an owl – and unlike most other hawks – it may rely on its keen hearing to help it locate prey as it courses low over the fields.

Size: About the size of a Crow, Mallard, or Herring Gull

Colors: Black, Brown, Gray, Red, White, Yellow

Wing Shape: Fingered, Long, Rounded

Tail Shape: Long, Notched, Rounded, Square-tipped

Habitat:

Marshes, fields, prairies. Found in many kinds of open terrain, both wet and dry habitats, where there is good ground cover. Often found in marshes, especially in nesting season, but sometimes will nest in dry open fields.

Conservation status:

Low Concern

Top: Gail Jackson.

Middle: Evan Brzeczowski.

Bottom: Daniel O'Donnell.

ACR certifies two new ranches, partners with nation-wide producer

Josh Lefers

With the coming of spring and the return of our nesting birds, Audubon Great Plains' working lands team is hard at work assisting landowners with habitat enhancement and restoration throughout the Northern Great Plains. Our working lands work aligns with the National Audubon Society Flight Plan in two key areas: habitat conservation and natural climate solutions, as healthy grasslands are a critical part of providing passage and safe havens for migratory and resting birds, but also excellent at storing greenhouse gases in the soils beneath them.

Our working lands work is broken down into five primary activities: market-based conservation, financial assistance for enhancement, financial assistance for restoration, migratory habitat protection programs, and educational and outreach work to showcase enhanced management. These actions help Audubon Great Plains address the variety of challenges that face grasslands and grassland managers today, and provide a brighter future for our grassland dependent birds.

Audubon's largest grassland program focuses on market-based conservation. Audubon Conservation Ranching (ACR) represents more than 100 ranches and 3 million acres nationwide of land that provides improved habitat conditions for birds through the technical assistance provided by Audubon Range Ecologists. Audubon Great Plains, is assisting 25 ranches representing over 220,000 acres of grasslands with habitat planning, conservation, restoration, and enhancement.

This year, we have engaged with Cheyenne River Ranch and Wild Idea Buffalo's (wildideabuffalo.com) home ranch, and both have been certified as bird friendly. Wild Idea Buffalo is a South Dakota based grass-fed, field harvested buffalo meat company. We are working with source ranches for Wild Idea to get more of their supply chain certified. The next exciting partnership is with Thousand Hills Lifetime Grazed (thousandhillslifetimegrazed.com).

Thousand Hills, one of the nation's largest grass-fed beef companies, is based in Minnesota and has ranches spread throughout the Northern Great Plains. Excitingly, they have beef in retail stores in all 50 states, which will be a huge milestone for ACR once all ranches are certified within the next couple years.

In addition, our Prairie Management Toolbox programs provide financial assistance to help us manage the grasslands our birds rely on. Our Range Ecologists develop project-specific management plans for producers and the financial assistance allows the producer to implement the project at less risk to their own operation. Over the last 7 years, Audubon Great Plains has impacted over 45,000 acres.

Grasslands continue to face an existential threat by their ongoing conversion to cropland, forests, and urban development. Audubon Great Plains provides financial assistance for grassland restoration through seeding marginal croplands back to grassland through the Conservation Forage Program (CFP) and removal of invasive woody species, often under the umbrella of the Toolbox programs. CFP was innovated in North Dakota to bridge a gap on traditional grassland restoration programs and focus on creating working grasslands. The model has been identified as an excellent alternative to traditional grassland restoration programs, and was recently expanded to South Dakota in partnership with Ducks Unlimited through a \$25 million Natural Resources Conservation Service Regional Conservation Partnership Program award. Together these programs aim to restore 43,000 acres of marginal croplands to grasslands in the Dakotas and provide a model that is ultimately available nationwide through federal financial assistance programs.

As we address the existential threat to grassland through restoration, we also work with US

Fish and Wildlife Service (USFWS) to provide protection through our migratory habitat protection programs. Historically we focused on securing North American Wetland Conservation Act (NAWCA) dollars directly, or with partners, to provide permanent protection for grasslands through easements held by USFWS. Today, we focus on assisting the USFWS in prioritizing easement locations and soliciting interest, with a particular focus on habitat used by migrating sandhill cranes in the Dakotas.

Finally, we implement grassland conservation activities on Audubon owned lands and provide educational events focused on landowners, producers, and grassland managers. At Spring Creek Prairie Audubon Center, the staff works to implement a variety of conservation activities focused on maintaining the diversity and function of one of the largest continuous tallgrass prairies left in eastern Nebraska. At Audubon's Rowe Sanctuary, staff implement habitat improvement projects aimed at providing habitat for staging sandhill cranes, by maintaining an open river channel for roosting and managing grasslands to provide important foraging areas and secondary roost sites. At the Edward M. Brigham III Alkali Lake Sanctuary and the Frederick L. Wicks Prairie Sanctuary in North Dakota, Audubon implements rotational grazing systems on native and restored grasslands to provide the heterogeneity needed by migrating and nesting grassland birds.

If you have the privilege of crossing paths with one of our working lands team, ask them about some of their projects and some of the interesting things they've been seeing lately. We love what we do for the resource, and hope to inspire others to care as much about grasslands and we do.

Return of the THUNDERBIRDS

Jason “The Birdnerd” St. Sauver

Saturday, April 13 was a beautiful sunny day to celebrate the return of spring, the return of sprouting native plants, and the return of migratory birds at the 3rd annual RETURN OF THE THUNDERBIRDS event!

This cross-cultural community event, held at Lincoln’s Indian Center, Inc. was conceived by Spring Creek Prairie and cultural consultant, Renee Sans Souci, as a way to bring the community together and learn more about native culture and connect it to this important time of year through celebration and conversation.

This year’s event grew to over 500 attendees visiting over 30 vendor booths consisting of indigenous artists, local conservation partners, and community organizations. Highlights and new and exciting activities at the event were an amazing performance by the Many Moccasins Dance Troupe, live bird shows from Raptor Conservation Alliance, music of South America from Oscar Rios, special guest speakers like local author Thomas C. Gannon, and a community collaborative art piece about our climate with local native artist Colleen New Holy, sponsored by the Lincoln Arts Council.



Honoring Nature and Tradition

Groundbreaking Ceremony for Urban Woods and Prairie Site at the 34th Annual Powwow
Amanda Booher

In a world where urbanization often feels synonymous with the encroachment upon nature, there are rare moments where we get to take a step back to honor and improve the land we inhabit. Such an experience was illustrated beautifully in Minot North Dakota’s 34th Annual Powwow Celebration. Given the perseverance of organizations and individuals securing use for the unmanaged land, the groundbreaking ceremony marked the beginning of a transformative project: the establishment of an Urban Woods and Prairie Nature site at Plum River Native Prairie.

The ceremony commenced with a land acknowledgment, honoring the Indigenous peoples who have stewarded the lands for generations, setting the tone of respect and reverence. The event was infused with cultural significance, featuring drum songs and the presentation of red and green star quilts to project partners. As a project partner it was my honor and privilege to receive a Star Quilt on behalf of Audubon Great Plains. Dressed in vibrant regalia Ruth Plenty Sweet Grass She-Kills, Native American Studies Director at Nueta Hidatsa Sahnish College, delivered a keynote address, adding depth and insight to our celebration. She articulated the significance of the land as a place once full of gardens so abundant tribal nations from around the world would come to trade with her tribe. We shared a moment to reflect on the deep

history of the land, the traditions of those who have walked its path long before the city was developed. There was a sense of unity, and shared understanding that we are all stewards of our earth, entrusted with the responsibility to nurture and protect it.

The 14-acre site chosen for the newest Urban Woods and Prairies project sat unmanaged since flooding that occurred in 2011 that destroyed the Erik Ramstad Middle School previously located on the property. Near Minot State University (MSU), the location is in an urban setting within walking distance of residential neighborhoods and offers educational opportunities for the community and research opportunities for students. Specific sections will provide pollinator habitat with others focusing on short grass prairie plants.

The groundbreaking ceremony at the 34th Annual Powwow was more than just a celebration; it was a testament to the power of community, the resilience of nature, and the enduring spirit of tradition.

Top right: Keynote Speaker Ruth Plenty Sweet Grass She-Kills, Native American Studies director at Nueta Hidatsa Sahnish College in New Town.
Middle: Project partners with their Red and Green Star Quilts.
Bottom: Indigenous Blessing over the land from a Turtle Mountain Community elder.
Photos: Amanda Booher/Audubon.

Opposite Page
Top: Rae Powers and young guests learning about insects at the Xerces Society booth.
Right: Doug Finch of the Raptor Conservation Alliance with a Peregrine falcon.
Inset: Two members of the Many Moccasins Dance Troupe perform to an enraptured crowd.
Bottom: Eagle dancers with Many Moccasins Dance Troupe.
Photos: Brady Karg and Jason St. Sauver/Audubon.



Cranes, Plains, and Astro Vans

Lindsey Lee

This March, I loaded up my outfitted 2004 Chevy Astro Van, lovingly named the AstroLoon, and made the journey from my home in Fargo, North Dakota, 516 miles to Audubon's Rowe Sanctuary in Buffalo County, Nebraska. I was able to park my van close enough to the river that my mornings and evenings were filled with the sounds of cranes during my time in Nebraska. As one of 19 Audubon employees participating in a staff exchange at Rowe Sanctuary, I experienced crane season as both a first-time visitor and volunteer.

My first real experience seeing the cranes was a frigid morning guided tour to the East Blind. As our guide told us we were about to witness one of the last great migrations left in North America, I could sense the anticipation around me. Wintery weather had settled in the previous day, but was no match for the bundled thrill-seekers piling into the blind with our red flashlights pointing towards our feet, binoculars at the ready for the sun to show us the hundreds of Cranes roosting on the Platte River. We could hear the Cranes before we could see them. The variety of calls and trumpets, whistles from the juveniles and flaps of wings, made for a cacophony of noise that pulled your attention to the river.

As the sun began to rise, silhouettes of black stood stark against the indigo sky. More light revealed a swath of cranes moving, swishing through the water, occasionally dancing, and always chattering to each other.

The frigid air only made the sounds feel closer, like we were all a part of these birds' conversations about where they had been, wintering in places like New Mexico and parts of Texas, and where they were headed to next, northern Canada and Siberia.

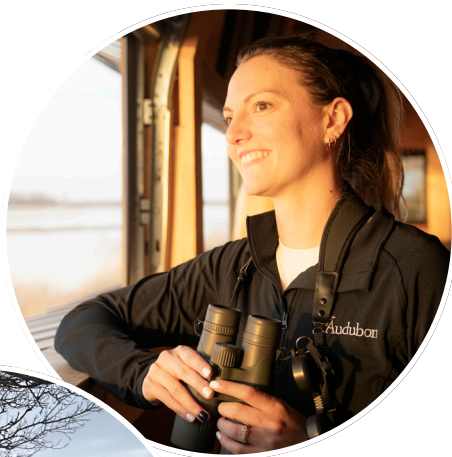
All at once, an east flank of birds rose into the air, swirling around and seemingly calling out in one voice. Like cheers from a thousand-fold crowd, the sound rose and fell as a crowd of cranes flew towards the fields to find forage for the day, and

others whirled back to the river, floating ever so gracefully like a parachutist finding the perfect landing among the sandbars.

After seeing it for the first time, I couldn't get enough. Every tour, whether I was assisting with the guiding or not, was so unique; it is so special to see these beautiful birds chattering, swirling in the skies, or touching down to the sandbars in their nighttime routine.

Volunteering at Rowe involved taking tours out to one of four viewing blinds along the Platte River with a co-guide in the mornings and evenings. My fellow guides and I would talk through viewing blind etiquette to ensure the safety of the birds and a good experience for our guests, explaining some crane facts and what to watch for on the river, and answering any questions that the guests had about the cranes, their habitat along the Platte River, and Rowe Sanctuary. I also worked with guests from the four overnight photo blinds that were booked by enthusiastic birders looking to have a more up-close and personal experience with the birds on the river.

We welcomed folks from behind the information table in the large white tent that had become the command center for this year's crane season while Rowe's permanent Center building is under construction. A larger and more accommodating building for all of Rowe's activities will be completed this fall. Even with the temporary changes that occurred this Rowe's crane season due to the construction, the visitors and volunteers were ready to enjoy and experience everything that came their way.



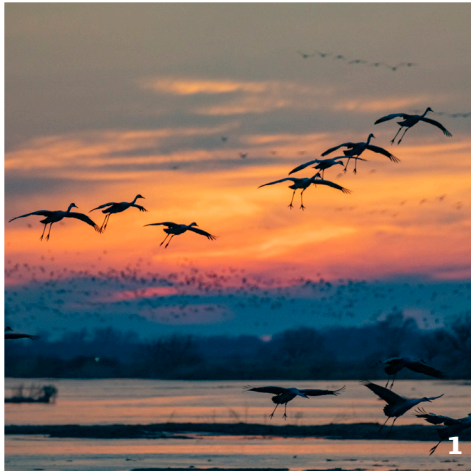
It seemed I was always in the right place at the wrong time so see Whooping Cranes, but they did make an appearance several times around the area while I was in Nebraska. However, as rare as it is to find a flock of kettling Whooping Cranes, it's rarer still to find a group of people so dedicated to a single mission that they travel hundreds of miles to volunteer for days on end, year after year just to share their experience with people who love the Sandhill Cranes and their habitat.

After speaking to several volunteers, I found that not only had they been coming back to Rowe annually, but a few volunteers also coordinated together so that their schedules would align for the same week so they could work with the same group of friends. The ownership, care, and passion of the volunteers at Rowe is invaluable to the experiences that I and the other guests have had here. My time guiding tours, visiting with volunteers and the full-time staff at Rowe Sanctuary, has been highlight of my year.

Top: Lindsey Lee in a Rowe viewing blind. Photo: Sydney Walsh/Audubon. Bottom: Amanda Booher and Lindsey Lee, both volunteering from Fargo, North Dakota. Photo: Amanda Booher.



Cranestagram
@RoweSanctuary



1) Sydney Walsh/Audubon.
2) Sydney Walsh/Audubon.
3) Don Brockmeier.
4) Don Brockmeier.

5) Construction continues on the east and west wings of the Visitor's Center. Sydney Walsh/Audubon.
6) Don Brockmeier.
7) Don Brockmeier.

Exploring the Tallgrass Prairie: Inquiry-Based Education

Brady Karg

Aside from the wind in the grass and the playful chirping of birds, visitors to Spring Creek Prairie Audubon Center often hear something the staff has come to expect – very specific questions from children that are answered with another question.

In all SCPAC’s programs, students are encouraged to explore, observe, and analyze their surroundings, mirroring the process of authentic scientific inquiry. Fostering a spirit of curiosity and exploration, the program ignites a passion for learning and instills a sense of stewardship for the natural world.

Students embark on a journey through the prairie, wetland, and woodland habitats through a series of engaging activities. They may conduct a sound map bird survey by watching and listening for different species of birds, explore the food web and decomposition in the woodlands, compare insect diversity in the tallgrass, and test the quality of our wetlands through macroinvertebrate sampling.

Our spring educational programs are a testament to the center’s commitment to environmental education. Designed to immerse students in the wonders of the tallgrass prairie and other habitats present at our center, the program seamlessly integrates hands-on activities with inquiry-based learning approaches. We work with pre-schools, day cares, and public, parochial, and home schools.

The programs are facilitated with the assistance of volunteer Discovery Leaders. Special care is taken to create enough structure so that the leaders feel confident in leading the program, but the individual outcomes remain open-ended for the students. The ratio of learners to Discovery Leader does not exceed 12 to 1 for the programs to be successfully facilitated.

Spring Creek Prairie’s education programming offers a rewarding blend of exploration and investigation aimed at fostering a connection and deeper understanding of our natural world.

As spring transitions to summer, the education team prepares for the Summer Camp programming. Developed in partnership with the Lincoln Community Learning Centers, our summer camps give students a more in-depth, week-long program focused on the importance of birds and the places they need.

Summer Camp kicks off by pinpointing the defining characteristics that distinguish birds from other creatures. Each day, the program delves deeper into this theme, offering a diverse range of activities. From creating birds that showcase their unique adaptations to venturing into the tallgrass prairie habitat, the week is packed with exploration.

Participants will engage in activities such as searching for bird nests, studying the various habitats birds inhabit, capturing and comparing the insects that constitute their diets, and even completing a community service project by helping to manage the habitat for the birds. Throughout the week, students will also maintain journals to chronicle their adventures and craft their own narratives from their experiences.

Shaping these programs to childhood’s natural curiosity will hopefully stay with them as they navigate the world around them. Wherever their path may take them, we hope the impact leads to inquiring minds that begin many new journeys with “What’s that?”



Power and Purpose: Solar Power at SCPAC and Rowe

Melissa Amarawardana

The next total solar eclipse visible in North America will be in 2033, its path only visible in Alaska. If solar power continues its trajectory, as much as 30% of our energy needs could be coming from solar by then. This may be an ambitious goal, but the energy industry is calling 2030 the “solar decade.” Thanks to a generous grant from the Nebraska Environmental Trust, both Spring Creek Prairie Audubon Center and Audubon’s Rowe Sanctuary will install solar energy systems that accommodate their annual energy use.

SCPAC will install a new solar-powered electrical system on the roof of the visitor center this summer, and Rowe Sanctuary will install their system as part of the building additions currently underway. New exhibits will demonstrate energy production, savings, and its impact on air quality and our climate in real

time. SCPAC’s system will include 44 photovoltaic (PV) panels and will produce an estimated 35,000 kWh (kilowatt hours) per year. For comparison, the average household uses around 11,000 kWh annually, according to the US Energy Information Administration. Inside the visitor center will be a large monitor that can be used to display system functions and educational information. SCPAC currently hosts a weather station operated by the National Oceanic and Atmospheric Administration (NOAA) that records precipitation, wind, and solar radiation, so we will be able to include that data for research on the effect of different conditions on efficiency and production.

The system at Rowe will include 86 PV panels on the roofs of the two new wings of the visitor center, producing approximately 48,000

kWh annually. Rowe will also be a demonstration site for data gathering and education, just as it will be for the other sustainable building strategies used, such as geothermal heating and cooling, local materials, skylights, and reflective glass.

Not only will this save us a hefty amount on the monthly bills, but weaving sustainability into everything we do is a long-term commitment to our values. As a national organization, Audubon taking responsibility for our own carbon footprint and showing others how it can be done. In 2044, a total solar eclipse will be visible only in Montana, North Dakota, and South Dakota – we can only imagine where we will be by then.

South Platte River Knowledge Exchange

Melissa Mosier

In January 2021, the State of Nebraska resurfaced plans outlined in a 100-year-old agreement that allows Nebraska to build a new canal to divert water from the South Platte River in Colorado and carry it east across the state line. This announcement sparked many questions in both states. What would be the impacts to the birds, wildlife, and the ecosystem along the South Platte that depend on this water?

To answer these questions in light of both current and future projects, Audubon began conversations with those who know best – the people who are doing conservation work on-the-ground along the South Platte River in northeast Colorado and western Nebraska. Through discussions, conservation staff on both sides of the state line recognized that we not only share curiosity about how conservation work and water policy differ from one state to the next, but that increased coordination between partners is necessary to protect how the South Platte functions and

the benefits it provides to wildlife that don’t recognize political boundaries.

Inquisitive participants from both Colorado and Nebraska got together in the Sterling, CO, area at the end of April to continue building partnerships and shared understanding around the South Platte River ecosystem. Those who attended the “South Platte Knowledge Exchange” visited key sites along the River and heard from area experts about how water management combined with habitat restoration along the South Platte is supporting numerous demands.

Over the 2-day event, partners saw the infrastructure already in place along the South Platte that diverts and re-times streamflow – artifacts still in place after over a century of redirecting streamflow as additional human needs arose. These modifications to the Basin’s hydrology have had obvious impacts

on the surrounding ecosystem, and the group also toured sites where conservation partners have utilized restoration and water management techniques to mimic more natural processes on the landscape. At the forefront are the wetland areas that partners have built and restored to provide habitat and energy for migrating waterfowl.

The South Platte River is already a highly managed system – it is estimated that water in this river is used 6 to 7 times over before it crosses into Nebraska – benefiting communities, industry, agriculture, and habitat along its route. As future proposals arise to store and divert additional streamflow, and as climate change continues to alter when and how much water is available, conservation partners will need to work together to ensure that the ecological integrity of the South Platte River, both upstream and downstream from the state line, are preserved.

Natural Climate Solutions: native plants and healthy soil

Melissa Amarawardana

During World War II, victory gardens were a novel solution to food shortages, as resources were diverted to the war effort. Although they are not likely to be called victory gardens nowadays, Americans are increasingly looking to the past for solutions to the catastrophic issues of our own time. Social media is filled with content about growing your own food, composting food waste, reducing use of single-use plastics, thrifting clothes, and generally consuming long-lasting goods rather than cheap trendy items that will end up in the garbage – all of which could be considered “old school,” the kind of thing your parents and grandparents grew up doing.

On a much larger scale, natural climate solutions are gaining traction as a cost- effective way to decrease greenhouse gas pollution. After all, the simplest solution is just to leave natural areas as they are. The second most effective solution is to restore places that have been polluted or damaged. Although there is a lot of hype around ‘carbon capture and storage,’ filtering carbon out of the atmosphere directly, the technology is not affordable on a large scale. Nature’s chemistry is still more potent.

In 2017, The Nature Conservancy released research with multiple academic partners finding that “Natural climate solutions can provide up to 37% of the emission reductions needed by 2030 to keep global temperature increases under 2 degrees Celsius. Additionally, using only cost-effective solutions [costing less than the future impacts of climate change, expected to cost more than \$100 per ton of CO2 in the atmosphere], nature’s mitigation potential is estimated at 11.3 billion tons in 2030—the equivalent of stopping burning oil globally.” (Natural climate solutions. Griscom, et al. 2017. PNAS. Vol. 114, No. 44.)

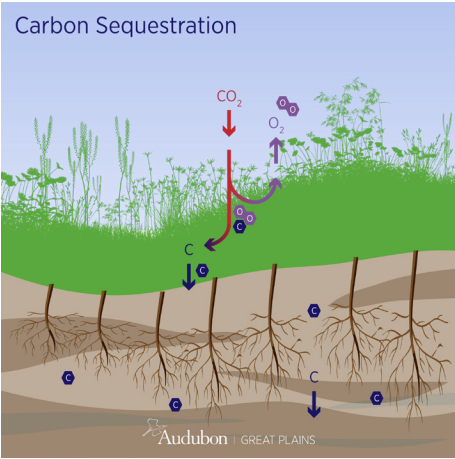
The carbon cycle and grasslands
Carbon sinks are ecosystems that absorb more carbon than they produce. Most natural spaces are carbon sinks, but some are much

more effective than others. Plant life absorbs carbon dioxide from the air, pushes carbon down into the soil through its roots, and releases oxygen. Decomposing plants and animal waste provide more carbon and nitrogen to soil microbes. Prairie native grasses and forbs have extremely deep root systems that can carry carbon meters down into the soil. More carbon is more food for microorganisms, which enriches the soil and strengthens plant life. Carbon rich soil also holds more water, making lands more resilient to floods and drought.

When we build on grasslands, the carbon stored in the soil is released into the atmosphere. Audubon’s 2021 Natural Climate Solution Report found that grassland development releases more carbon than any other ecosystem. Preventing the disruption of the soil keeps carbon in the ground, so the most effective way we can mitigate carbon levels is to protect those ecosystems from development. Of course, the second most effective way is to expand their footprint and restore areas that have been disrupted.

In the US, forests sequester more carbon than any other ecosystem, but native grasslands and river wetlands have undeniable potential, because there is so much grazing land: in 2017, the USDA estimated that grassland pasture and range covered 29% of all land in the US. Forests are becoming more vulnerable to fires and droughts, while grasslands are far more resilient because they simply take less water and less time to regrow.

Soil health and agriculture
Land in our three states is almost entirely privately-owned, so political leadership must take advantage of public-private partnerships that support agricultural and rural communities. Privately protected land, such as Audubon’s centers and sanctuaries, have a big role to play. Market-based initiatives like Audubon’s Conservation Ranching Program



and North Dakota’s Conservation Forage Program are particularly important in these ecosystems, finding ways to multiply the benefits to the land and communities. The Conservation Ranching Initiative provides landowners with cost-share funding to implement bird-friendly management, protecting our grasslands and keeping ranches financially sustainable. Since 2009, we have enrolled 23 ranches totaling over 140,000 acres in the Great Plains alone.

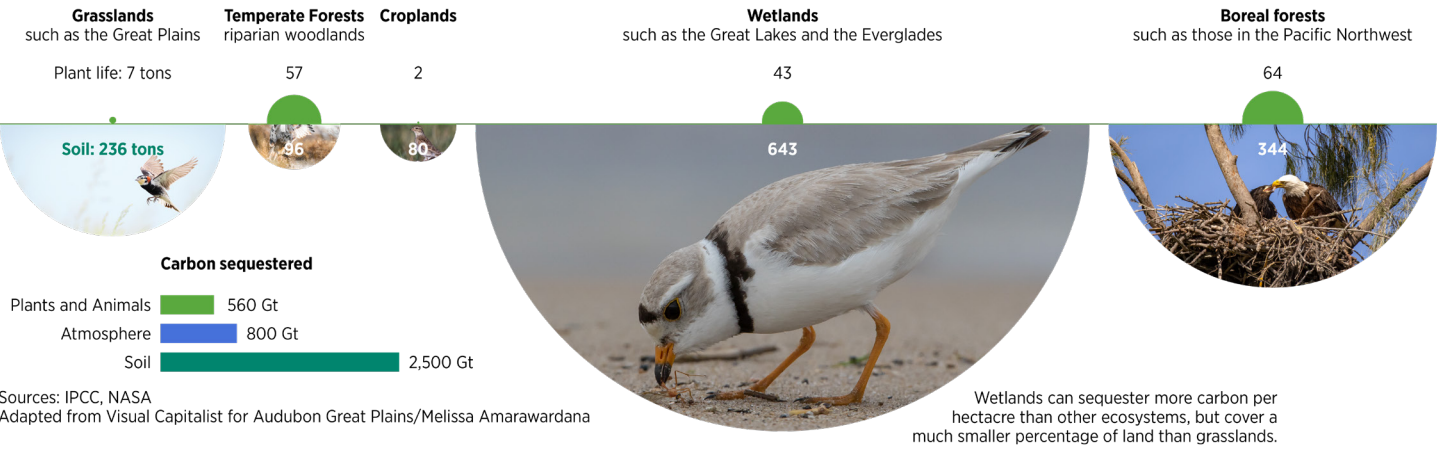
Earlier this year, Audubon Great Plains participated in Nebraska’s workgroups for a state climate action plan. The Priority Climate Action Plan (PCAP) focused on immediate steps: expanding climate-resilient agricultural practices, promoting soil health, adapting the power grid, and investing in renewable energy innovation.

Natural solutions considered by the PCAP included financial incentives for precision agricultural equipment, reduced tillage, cover crops, and nitrogen management, as well as incentives for biochar to reduce organic waste and sequester carbon in soil. The Nebraska PCAP did not include any proposals for restoring critical landscapes, but Audubon Great Plains will be represented in the next phase of planning and will prioritize both large-scale conservation and urban natural climate solutions. North Dakota is also developing a state climate plan, but has so far had only public comment meetings. South Dakota was one of five states that declined

federal IRA funding for CAPs and grants. The caveat to all of this: decreasing our own carbon footprints may be the key to simpler living, but doing that alone will not protect what we’re at risk of losing. We will still need a rapid transition to renewable energy and more strict regulations against pollution. But the more conservation and restoration we do, the less disruptive that transition will be. The cost-benefit analysis could not be more clear.

Carbon Sequestration by Ecosystem

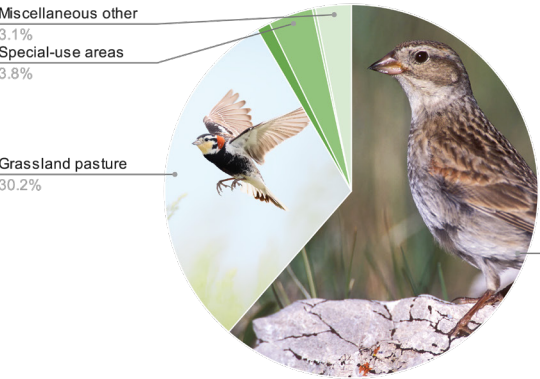
Global average stored carbon in tons per hectare at a ground depth of one meter



Land Use

Grasslands, pasture, grazing lands, and crop lands are underutilized for sustainable carbon sequestration

North Dakota, South Dakota, and Nebraska

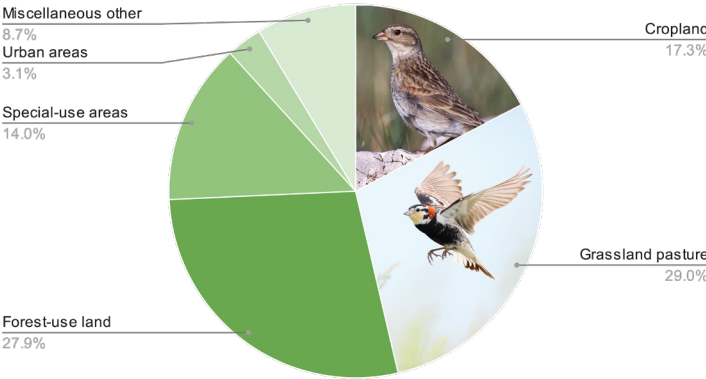


Source: U.S. Geological Survey, USDA.
Grasslands bird photo: Chestnut-collared Longspur. Joshua Galicki.
Temperate Forests photo: Rough-legged Hawk. Gordon Hatusupy.
Croplands bird photo: McCown’s Longspur. Alamy Photo Agency.
Wetlands bird photo: Piping Plover. Merri Lee Metzger.
Boreal Forests photo: Bald Eagle. William Carlos.

Natural solutions in agriculture:

- Rotational grazing: moving livestock to different grazing lands on a schedule, allowing periods of rest for grasses to regrow
- Grazing on public lands: leasing grazing rights (just like we do) on protected lands brings income for the restoration and maintenance of those lands and is cost-effective for ranchers
- Regenerative agriculture: prioritizes long-term soil health, especially water retention and biodiversity
- Crop rotation, cover crops, and reducing tillage
- Using native plants to deter pests and prevent erosion
- Reusing plant waste as compost and/or biochar

United States



Natural solutions in urban and suburban areas:

- Urban tree cover: planting trees along roads and sidewalks provides shade for pedestrians, keeps concrete and asphalt from radiating heat, and filters car emissions
- Urban Woods and Prairies: Restoring native prairie landscapes in under-utilized urban spaces
- Replacing turf grass with native plants: saves money on mowing and maintenance, requires less water, reduces erosion, and increases bird and pollinator diversity
- Habitat connectivity: provides corridors for wildlife to forage and shelter

NASA Team Lends Expertise to Urban Woods & Prairies

Melissa Mosier

For over a century, human development driven by agriculture and urban expansion has led to the loss of a significant amount of wetland and grassland habitat in the Platte River Basin, compromising the ecological connection and function that provides essential wildlife habitats and ecological services. On top of that, local communities and habitats along the Platte River are expected to experience the effects of climate change, including temperature increases, prolonged droughts, and heavy storm events.

In order to build resiliency in Platte River communities and ecosystems facing intensifying climatic events, Audubon Great Plains is expanding its Urban Woods and Prairies Initiative into the Platte River Basin. Through this program, Audubon

works closely with community members to integrate natural and urban landscapes by restoring high-quality habitat for bird and wildlife species, while encouraging community members to explore and learn about local ecosystems. Nature-based solutions and expanding green space are key to this initiative because they aid in flood mitigation while providing wildlife habitat, environmental education, and outdoor recreational opportunities within communities.

In support of the Urban Woods and Prairies Initiative, Audubon Great Plains partnered with NASA's DEVELOP program to assess how land cover – vegetation vs. man-made surfaces – has changed across the Central Platte River Basin and where communities are facing the

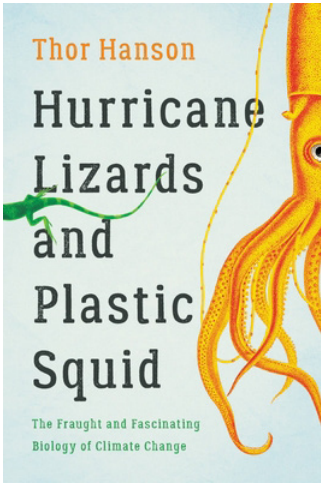
highest risk of flooding. Through NASA's remote sensing capabilities, we can see where decreases in wetland and vegetated areas, increases in hard surface areas, and flooding risk overlap, which allows us to pinpoint where we should target future Urban Woods and Prairies restoration efforts along the Platte.

The NASA DEVELOP team just completed Phase 1 of this project and will conclude with Phase 2 this summer. With these tools, Audubon Great Plains and our partners will be more empowered to expand mitigation and restoration efforts further into the Platte River Basin, improving community resiliency and protecting habitats for the wildlife that rely on them.

Books for Birders

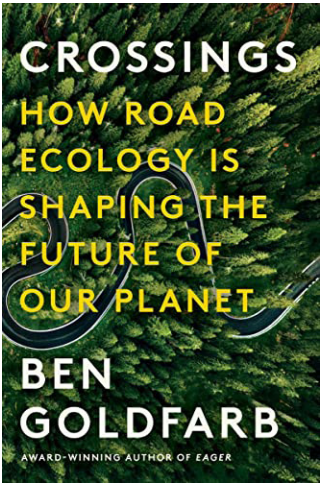
Jason “The Birdnerd” St. Sauver

Along with all their other work, our staff has read some great books on birds and birding, climate, and conservation lately and wanted to share some recommendations. Stop by your local library or find one online and enjoy your outdoors with some great reading from the prairie, the porch or wherever you enjoy the outdoors!



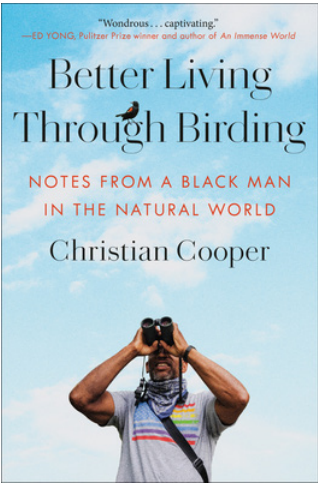
HURRICANE LIZARDS AND PLASTIC SQUID by Thor Hanson

This fun and engaging book shares stories of species from lizards, birds, and the squid of the title and how they are adapting (or not) to our changing climate. Audubon's own Climate Watch is highlighted.



CROSSINGS: How Road Ecology is Shaping the Future of our Planet by Ben Goldfarb

This book takes a close up look at the growing field of conservation along our highways and roads and what it means for migratory species, with a special highlight on research in Nebraska.



BETTER LIVING THROUGH BIRDING: Notes from a Black Man in the Natural World by Christian Cooper

We can't recommend this book enough. Cooper is irreverent, relatable, and moving.

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Get Involved



Make a Cash or Online Donation
Money orders or checks can be mailed to nature centers directly or you can donate online at: www.greatplains.audubon.org | **Support Our Work**
100% of contributions made to Rowe Sanctuary and Spring Creek Prairie stay with them.

Volunteer
There are always opportunities to volunteer with us and/or Audubon Chapters! Find details at: www.greatplains.audubon.org/volunteer

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Audubon offers opportunities to get involved in community science projects. Read more at audubon.org/science

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Audubon Dakotas and Audubon Nebraska are now Audubon Great Plains across social media!



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