2022-23

PRAIRIE WINGS

Advancing Conservation in the Great Plains

CELEBRATION OF CRANES FESTIVAL celebrates five year anniversary

CROSS TIMBERS ecoregion in Kansas

NEONICOTINOIDS a hazard to insects, birds, and ecosystems

STANDING GROUND WITH PRAIRIE DOGS in Lane County

EXTREME WEATHER AND GRASSHOPPER SPARROWS

Letter from the Chair

Gary Haden

Considerations from two different points of view occupy my mind as I think about drafting my "Letter from the Chair" for this issue of *Prairie Wings*. As Chairman of the Board of AOK, I am tasked with assuring that the organization realizes its mission while maintaining its financial stability; as a potential donor of property to the AOK sanctuary program, I am interested in seeing that the realization of my wishes for the preservation and management of my property in perpetuity are assured.

Sanctuaries contribute to the conservation goal of AOK's three-pronged mission of defending wildlife and habitat through environmental advocacy, conservation, and education.

We envision AOK sanctuaries throughout the state - All Over Kansas. That way, people can connect with nature in their local area and be inspired to help AOK protect natural areas throughout the state.

Our sanctuary program also demonstrates how people and wildlife can coexist. For example, the Achterberg Wildlife-Friendly Demonstration Farm shows how prairie buffer strips along agricultural fields protect riparian woods and provide habitat for bobwhite quail.

As readers may recall, the property my wife Carolyn and I call Far West Farm in western Morris County is an Audubon of Kansas legacy sanctuary, which means it is in the pipeline to become an AOK sanctuary.

Generally, the first criterion for determining whether AOK would accept land as a permanent sanctuary is whether the property fits the AOK mission. Ideally, any land AOK accepts should offer benefits to wildlife, opportunities for education and recreation, and maybe even contributions to science. Once AOK's board has determined that a property would enhance AOK, the next step is to determine how much time, effort and money are going to be needed to manage the property in perpetuity in accord with the donors' wishes. Donors could, of course, voluntarily donate an unrealistic amount to assure that AOK accepts the property, or AOK could determine that the property is so valuable that it would accept the property with an obviously inadequate endowment, but the former is unlikely and the latter risky for AOK.

Property owners approach AOK for various reasons. While Carolyn and I want to know that our majestic bur oaks and their successors will be available for the public's enjoyment and appreciation in the future, others want to see a family name preserved, wish to see the environmental improvements they have made to their property recognized and retained, or wish to make property available in the future for educational or recreational endeavors.

In negotiations over possible property donations, AOK's interests, on the other hand, are assuring that we have the financial wherewithal to manage a future acquisition, for which we may inherit the financial responsibility relatively sooner or at some time in the

Cover image of Whooping Cranes (*Grus americana*) by Bob Gress, BirdsInFocus
Back cover of male Monarch Butterfly *(Danaus plexippus)* by Dave Rintoul

more distant prospect. Also, we must be able to make legal arrangements that would allow donors to sell some of the property they wish to transfer to AOK if in the future some unforeseen financial emergency should arise for them.

AOK cannot make management commitments it cannot keep. While there is no house or other lodging on Far West Farm, some of the properties brought forth as potential sanctuaries for AOK have attractive modern homes that would come with the property. Some of those homes would be ideal for visitors to the sanctuaries, but managing lodging adds a whole new element to the process.

If the issues I have described haven't convinced you of the complexities involved in AOK's evolving sanctuary program from both the donor's and AOK's points of view, consider that AOK doesn't get to choose where potential properties are located, so that AOK could easily have properties scattered throughout the state requiring staff to manage them. In fact, that is exactly the ultimate goal of AOK's Sanctuary Initiative: to have sanctuaries located throughout the state and staff to manage them.

It is an ambitious commitment, but as complicated as it might be, we at AOK think it is a worthwhile validation of the conservation goal in our mission statement. AOK's 5,000-acre Hutton Niobrara Ranch Wildlife Sanctuary along Nebraska's northern border hosts nesting Bobolinks and a pair of Sandhill Cranes, affords viewers opportunities to see elk or performing Greater Prairie-Chickens and Sharp-tailed Grouse, and currently is part of the range of a collared mountain lion that is being tracked by Nebraska Game and Parks. So, yes, our commitment has definitely shown that the results can be worth the effort.

Among AOK's goals in the near future is to have enough sanctuaries and enough accompanying endowments to allow us to hire a full-time property manager. That individual and future staff would not only manage current and future sanctuaries but would also be able to advise and assist property owners who might want to consider AOK as a landing site for their properties.

If you don't have property but believe in our vision and wish to help, you can designate that a donation you make be directed to AOK's Sanctuary Initiative where it will be included in an endowment fund that will go towards hiring and supporting a full-time AOK property manager to improve and maintain habitat on our sanctuaries. That will help AOK and the natural environment and will eventually make more land available in Kansas for public recreation.

Prairie Wings *is a publication of Audubon of Kansas, Inc. — the only widely distributed magazine devoted specifically to statewide conservation and wildlife advocacy initiatives. It is made possible by your generous support and contributions. We encourage you to share this publication with friends, family, and other organizations. Please feel free to leave copies in reception areas, hospitals and other business locations to help spread awareness about critical wildlife issues.*

Support AOK and Prairie Wings *today! Please consider becoming a sustaining member by signing up for monthly giving at audubonofkansas.org. This is convenient and secure for you, and helps us to stabilize our operations all year long. By giving a gift membership and/or contributing to the vital work of Audubon of Kansas, you can help promote the appreciation and proper stewardship of our natural world.*

Ensure the future of AOK and Prairie Wings*! Legacy Gifts ensure the future success of AOK and the continuation of important initiatives such as* Prairie Wings*. AOK gratefully accepts gifts in the form of stocks, bonds, charitable gift annuities, trusts, and bequests, as well as assets to be sold such as gifts of land, real estate, and vehicles. Gifts of land to be preserved as wildlife sanctuaries require an adequate endowment to fund future operations and taxes; property must meet requirements stated in AOK's property acceptance policy. See the AOK brochure,* Your Land, Your Legacy*, copies of which can be obtained from the AOK office on request.*

To learn more about AOK or ways to support our mission, please contact (785) 537-4385 or aok@audubonofkansas.org. Audubon of Kansas, Inc. is an independent 501(c)(3) organization that is neither administered nor funded by the National Audubon Society. Contributions are fully tax-deductible to the extent allowable by the IRS. Contributions can be sent to Audubon of Kansas, PO Box 1106, Manhattan, KS 66505 or visit our secure website: www.audubonofkansas.org

TABLE OF **CONTENTS**

The Mission of Audubon of Kansas includes promoting the enjoyment, understanding, protection, and restoration of natural ecosystems. We seek to establish a culture of conservation and an environmental ethic.

Prairie Wings is a publication of Audubon of Kansas, Inc. Additional newsletters and AOK E-News are published periodically. See our website at www.audubonofkansas.org and www.niobrarasanctuary.org.

AOK is an independent grassroots organization that is not administered or funded by the National Audubon Society. All funding is dedicated to our work in the Central Plains and Prairie states.

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A Note from the Editor

Michael L. Donnelly, Editor-in-Chief

If there is a theme for this year's issue of *Prairie Wings*, it is "the Old and the New:" here we record a deluge of transitions: memorials to active supporters of AOK and conservation in Kansas who are no longer with us, and welcomes extended to new Board members. We also summarize some of AOK's new initiatives in its **three cornerstones of mission—Advocacy, Conservation, and Education.** We have some exciting new ventures to report in all three.

An article on **Advocacy** highlights some of the things AOK does in championing wildlife, habitat, and quality of life in the face of both inherited issues of law and land and water use, and new issues, both good and bad, posed by 21st century technology. AOK has continued to push for repeal of statutes that are over 100 years old mandating eradication of prairie dogs. We have supported efforts to confront misapplication of new technology by attempting to give legal protection to undisturbed prairie landscapes threatened with wind turbine development in unsuitable locations. While both efforts have so far proved unsuccessful, these battles are not done, and AOK will continue to press for sound conservation practices on both fronts as occasions arise. We do note at least one instance in which the prairie dog issue has recently reached a peaceful and satisfactory settlement: see Mike Corn's article on the visit of Lane County Commissioners to the Greenwald Ranch last August.

Another article highlighting **Advocacy** reproduces, expands, and updates my article from *The Kansas Reflector* on the Recovering America's Wildlife Act, under consideration in the U.S. Senate as this is written. And of course, you will want to review the international importance of the Quivira National Wildlife Refuge and the background of AOK's intervention with a lawsuit to guarantee Quivira's senior water right—AOK's single most important and challenging involvement in conservation advocacy right now, treated in an article compiled with the assistance of new Board member Dylan Wheeler, one of the attorneys trying the case for AOK.

On **Conservation**, the centerpiece of AOK's efforts are our sanctuaries: the Hutton Niobrara Ranch in Nebraska, the Connie Achterberg Wildlife-Friendly Farm near Lincoln, Kansas, and Mount Mitchell near Wamego. Read about the process of vetting potential donations of land for AOK sanctuaries from the dual perspectives of a potential donor of property, and the AOK Chair of the Board and member of the Sanctuaries Committee, in Gary Haden's Letter from the Chair. Then see Executive Director Dr. Jackie Augustine's update on exciting new developments in AOK's sanctuaries: obtaining a Federal easement for the Hutton wetlands, an effort begun awhile back by Ron Klataske that has finally achieved realization; the placement of a Motus tower on a disused windmill at Hutton, to enable electronic tracking of wildlife movements; expanding public use of the iNaturalist app to census wildlife and plants at Mount Mitchell and the Achterberg Wildlife-Friendly Demonstration Farm; in cooperation with federal and state authorities, tracking a couple of mountain lions picked up by game cams at Hutton. We should also note here, thanks to the efforts of the Prairie Guards, endorsed by AOK, the successful listing of Mount Mitchell and the Mitchell homestead and underground railroad site on the National Register of

Historic Places. Congratulations to the Prairie Guards for thus further securing public recognition and public use of this site of historical and environmental interest.

Behind the scenes, in cooperation with Director of Philanthropy Kelley Hurst, Dr. Augustine has been actively engaged in rationalizing procedures, laying out concrete plans for sanctuary acquisition and management, and communicating with donors and potential donors. But we want to highlight her new efforts in *public* outreach and **Education**. Read Executive Director Dr. Jackie Augustine's account, looking back on the achievements of her second year applying her considerable energies and talents on multiple fronts. Our efforts to educate and inspire Kansans in the understanding and appreciation of their natural heritage include the fifth annual event at Quivira, the Celebration of Cranes—a success this year for the thirty some participants, registered and drop-ins, who came despite the drought that had left the marsh virtually dried-up. Fortunately, we did not cancel, and providential rains (and sleet, and wind, and icy temperatures) on Friday miraculously provided water (even if only inches deep) for thousands of geese and Sandlhill Cranes and over 20 Whooping Cranes, the highlight for just about all the participants. Read about it in organizer Cindy Jeffrey's report in this issue.

If AOK's signature educational event in the Fall is the Celebration of Cranes, the second annual Lek Treks will join it as the sister big event in the Spring. Jackie reports on last year's first ever event, centered on Hays, Kansas, to see both species of prairie-chicken, and with sponsored trips to Cheyenne Bottoms, Quivira, the Hutton Ranch (for Sharp-tailed Grouse), a winery, and the Sternberg Museum of Natural History in Hays. Reserve your place in a blind or a van now!

In this issue of *Prairie Wings*, we feature a biographical sketch of the distinguished career of one of our founding members, Dr. Robert McElroy. Director of Philanthropy Kelley Hurst discusses that origin story in her piece answering a recurrent question we get because of our shared name, "Audubon:" what exactly is the relationship of AOK to the National Audubon Society, and to the regional Audubon chapters in Kansas?

Feature articles also address urgent threats to the environment. The more general article, by Professor J. P. Michaud, Professor of Entomology at Kansas State University, treats the increasing peril to the environment produced by the commercialized spread of the use of neonicotinoids in seed treatments—a threat that can on Professor Michaud's testimony scarcely be underestimated. The second feature on environmental threat, by Dr. Koley Freeman, who studies Grasshopper Sparrows under the supervision of Dr. Alice Boyle at K-State, examines the effect of climate change, with its drought and summer heat, and increased frequency and violence of storms, on one grassland passerine whose populations are shrinking.

Finally, Dr. Elizabeth Dodd, Distinguished Professor of English at K-State and a noted poet and writer on nature and the environment, offers us classic piece of "writing about nature" in her treatment of her visit to a critically imperiled ecosystem of very limited range in Kansas, the Central Tallgrass Bur Oak Bottomland Woodland in southeastern Kansas, a unique forest type historically dominated by tall, fire-resistant *Quercus macrocarpa*, the Bur Oak. The trees at Cross Timbers have survived, some of them, for nearly 300 years, but despite the creation of a park around them, are now threatened, possibly by changes in the water table as a result of proximity to the Toronto Reservoir.

Once again, I hope that reading this issue of *Prairie Wings* will remind you of the manifold and powerful ways nature can engage and enrich—and sober—our minds and emotions, and inspire you to learn more and become more involved in preserving Kansas's rich environmental legacy.

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Southern Plains Bumblebee (Bombus fraternus) on Blazing star (Liatris spicata) at Mount Mitchell Heritage Prairie. Photo by J.K. Augustine.

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John Zempel

AOK WELCOMES

New Board Members

VANESSA AVARA

Manhattan

Originally from Colorado, Vanessa moved to Kansas in 1981 and now lives in Manhattan. Now retired, she was the Assistant Director of Milford Nature Center by Milford Lake. She has been a falconer since 1993, and was the first woman licensed in Kansas, but has not actively flown birds for quite some time. She is still involved in the Kansas Hawking Club and is a strong advocate of the sport. Besides contributing to the success of AOK, she is also on Sunset Zoo's Conservation Board and has been involved in the Black-footed Ferret reintroduction since 2008.

JOHN MALLERY

Overland Park

John has had a lifelong passion for the natural world. He grew up as an only child and spent his free time exploring the large woodland behind his house in Pennsylvania. He went to college at the University of Tampa, where he majored in Marine Science and Biology and minored in Chemistry. He decided to take a year off before going to graduate school so he could "see the world." He drove from Tampa, Florida to Anchorage, Alaska and back - taking eight months. He has now been to all 50 states, and is very close to his goal of watching birds in every county in Kansas. John has held many diverse occupations including comedian, juggler, and knife thrower; a private investigator; and a managing consultant at one of the ten largest accounting firms in the country. He currently works as a testifying expert in computer forensics. Besides contributing to AOK, he has also co-authored the book, *Birds and Beyond: The Prints of Maurice R. Bebb.* John knows that "birds don't exist in a vacuum" and AOK joins him in recognizing that if we want to continue to see birds, we have to be better stewards of the environment.

ALEXIS POWELL
Emporia

Alexis is a natural history enthusiast and biologist with research interests in organismal, evolutionary, and conservation biology. Most of his formal work has involved birds, but he also studies mudpuppy salamanders and turtles in rivers of eastern Kansas, experimental evolution of a species of filamentous fungus, and has a passion for prairie-obligate butterflies. He also enjoys travel, photography, birding, bicycling, reading, and politics. His background spans seven generations in rural Lawrence, where he became involved with Jayhawk Audubon Society. Since 2015, he has lived in Emporia, where he aims to remain and where he is a Biology Professor at Emporia State University.

MICHELLE WORRALL TITON
Prairie Village

Michelle holds degrees in both journalism and law from the University of Kansas. She is also a licensed property and casualty insurance agent and is a frequent speaker on cyber, media and intellectual property insurance, insurance coverage issues and risk management. Michelle is a remote cyber product counsel for Zurich NA. She has two sons, two dogs, a cat and a horse. An equal opportunity employer, Michelle feeds both the birds and squirrels at her suburban home. Animals and their well-being have always been important to Michelle as she grew up in a home where spiders and mice were trapped and carried outside. Michelle has been a vegetarian for more than thirty years because of health, animal, and environmental concerns.

DYLAN WHEELER
Wichita

Dylan is presently an attorney focusing on general civil litigation with a law firm in his hometown of Wichita, KS. He earned a bachelor's degree in English from Kansas State University and his Juris Doctorate from the Washburn University School of Law. He started advocating on behalf of AOK while still in law school. He dedicated an entire semester during his last year of law school to researching and understanding the variety of federal and state environmental and administrative statutes/regulations directly related to the conflict over the senior water rights held by the Quivira National Wildlife Refuge. He is currently one of the attorneys assisting in AOK's case originally brought against the USFWS and its Director, the US Department of the Interior, the Kansas Secretary of Agriculture, and the Chief Engineer of the Kansas Division of Water Resources for their failure to enforce Quivira's senior water right.

JIM BRESNAHAN
Lawrence

Chapter Representative for Jayhawk Audubon Society

Jim received a B.A. in Biology from Southern Illinois University, a D.V.M. degree from the University of Illinois and a post-doctoral M.S. from the University of Missouri. In addition to three years of small animal veterinary practice in his hometown of Granite City, Illinois, he was University Veterinarian and Director of Veterinary Services at Duke University for five years and University Veterinarian and Director of the Animal Care Unit at the University of Kansas for 25 years before his retirement in 2009. He was privileged to have been the veterinarian for a rare prosimian primate center while at Duke and a wildlife rehabilitation program while at KU.

ANN TANNER
Leawood

Chapter Representative for Burroughs Audubon Society

Ann Tanner is a pharmacist by training and a naturalist at heart. She is originally from Mississippi but has lived in Kansas for many years. Ann serves on the Board of Directors for the Burroughs Audubon Society of Greater Kansas City, is on the Advisory Board for Kansas Master Naturalists, and is on the Board of Directors for Delta Wind Birds in Mississippi.

DAN HOUSEHOLDER
Wichita

Chapter Representative for Wichita Audubon Society

Dan is a retired physician, currently (2021-2023) President of Wichita Audubon Society and an observer of AOK Chapter meetup.

MEMORIAL FOR

JOHN AND LINDA ZEMPEL

John Zempel's last photo posted on Facebook: Teter Rock with night sky in the Flint Hills

We were shocked and saddened at the deaths of John and Linda Vidosh Zempel, part of our AOK family, on March 21, 2022. Board Member John and Linda, his wife of 42 years and Honorary Board Member, were a cherished part of Topeka Audubon for more than a decade. John was a dedicated Audubon of Kansas board member for ten years and a member of Jayhawk Audubon in the 1980s.

We wanted to share a bit of what the Zempels meant to our conservation community. They were active birders and contributed sightings and photographs of birds throughout their home county and the State of Kansas, documenting sightings with friends, new birders and on eBird. They loved discovering new birds and also were generous in helping others enjoy the gift of seeing birds. In November of 2021, they were living their love of birds by acting as expert guides during the Celebration of Cranes at Quivira National Wildlife Refuge.

Linda's posts of their backyard birds were lively and her Facebook bird-debating banter with friends engaging. John loved photography of birds and other wildlife, had taken classes in night-sky photography, and also documented his latest culinary creations. After retirement, John served as a docent for the Topeka Zoo and was an Amateur Radio Operator. John and Linda tended their beloved property outside of Topeka, keeping friends up-to-date with the health of the pollinator habitat and the wildlife denizens of the property that they would encounter there.

In an interview with AOK Executive Director Jackie Augustine in the summer of 2020, John said, **"People who appreciate the prairie have a long-term view." Exemplifying that idea, John's final photograph on Facebook was of the night sky at Teter Rock in the Flint Hills.**

We will remember and cherish our memories of you, John and Linda.

Message from the Executive Director:

AOK Is Ready for Growth

As I am closing in on the end of my second year as Executive Director, I am proud of what we have been able to accomplish, **but I am even more excited over what is to come.**

This past year, we held our fifth Celebration of Cranes Festival and our first Kansas Lek Treks Prairie-Chicken Festival. We kicked off our "Nature Adventurepack" program to provide in-person seminars, binoculars, and information to library patrons throughout Kansas. We connected with new members through guided hikes at our sanctuaries. **With your generous support, we purchased a new-to-us vehicle and had it wrapped with images of the major habitat types in Kansas (prairie, wetlands, and forests) so that people can see how AOK works All Over Kansas for the benefit of wildlife.** We set up protocols to document the animals using our sanctuaries so that we can better determine the success of our habitat management. We expanded the ways our supporters can give through work days, a capital campaign for Nature Adventurepacks, and estate planning seminars. We connect with our members and followers through monthly emailed newsletters. We meet monthly with Audubon chapter leaders throughout the state. All these things would not be possible if it weren't for AOK's enthusiastic board, dedicated staff, and loyal supporters like you.

Any one of these things would make an Executive Director proud, but I am equally proud of what we are doing behind-the-scenes. We are reviewing all our procedures so that AOK makes informed decisions about our finances, endowments, and resources. We are building relationships with donors through personalized communication. We are preparing management plans for all our sanctuaries that not only describe the intentions of the donors and past management practices, but also lay out goals and priorities for the future. We are setting up a system of organizing documents and photos so that information is safely stored, easily retrieved, and accessible to incoming board members and staff.

I have a feeling that all the work we are doing in house and in our Kansas community is laying the foundation for expansion. I don't want to jinx myself by putting in writing how we might expand, but I hope by this time next year, I can tell you about even more new things AOK is doing to "Defend Wildlife and Habitat in the Great Plains through Advocacy, Conservation, and Education."

AOK's Bronco displays prairie, wetland, and forest habitats.

AOK IS HELPING KANSANS

TURN HIKES INTO ADVENTURES

WITH NATURE ADVENTUREPACKS

JACKIE AUGUSTINE

When COVID closed many concerts, theaters, and sporting events, people turned to nature for recreation. The popularity of bird watching grew, getting the attention of national media outlets.

Even though the popularity of bird watching is growing, there are still barriers for people experiencing poverty. Access to binoculars and field guides may be limiting. Second, people may not know the best bird watching sites locally, especially when most of Kansas is privately owned. Third, they might not know where to reach out for assistance identifying the birds they see.

This project seeks to help eliminate many of these barriers, not only to promote nature appreciation as a method for improving health, but also to connect disadvantaged groups with physical and social resources. Nature Adventurepacks will be distributed to libraries so patrons have access to both equipment and information in a location where they are already accustomed to finding information. Libraries were chosen because that is where communities gather, but especially people who need the various resources offered by libraries (a safe place, free access to computers to those who cannot afford their own, after school programs, and other social programs.)

Audubon of Kansas' Nature Adventurepack Program seeks to make nature appreciation more accessible so Kansans can "check out" animals and insects close to home. The program consists of three main components: a binocular backpack to be available for check-out through libraries, in-person programming about how to use the backpack to identify birds and butterflies, and a social media/marketing campaign to foster a community of bird and butterfly watchers in Kansas. **Our Nature Adventurepacks include a backpack with one adult pair of binoculars, two children's pairs of binoculars, guides for identifying birds and butterflies, and a map showing where to find wildlife in the library's county.** But it's not just a backpack! Libraries will also get advertising materials and in-person programming to promote the Adventurepack and nature appreciation. Patrons will get links to AOK-created YouTube videos on topics such as how to use binoculars, identifying birds by song, information about species

Executive Director Dr. Jackie Augustine promoting the Adventurepack program at the Kansas State Libraries Conference in October.

in need of conservation in Kansas, using free online apps to identify birds and butterflies and report their sightings, introducing people to places to see birds and butterflies, helpful hints about common identification challenges, and other topics. Patrons can also join an Adventurepack Facebook group to connect with experts and other library patrons enjoying the packs. Marketing campaigns will not only direct patrons to the birding backpack resource, but also increase the visibility of bird and butterfly watching generally as a hobby to improve mental and physical health.

Through in-person programming and social media platforms, this program will work toward developing bird-friendly communities throughout the state.

Libraries are excited to partner with us! Jackie Augustine, AOK's Executive Director, attended the Kansas Library Association Conference in Wichita in October. At a table in the vendor's area, she had an Adventurepack available and described the program to attendees. They enthusiastically signed up for more information and told others to come visit our table. When Jackie gave a presentation, the room was full and we had a great discussion about how to promote the Adventurepack, how to prevent theft, check out policies and procedures, and other strategies for a successful kickoff.

Fund-raising is off to a great start! A $10,000 grant from Chickadee Checkoff supports the dissemination of backpacks in southwest Kansas (Barber, Clark, Comanche, Finney, Grant, Gray, Greeley, Hamilton, Haskell, Kearney, Lane, Meade, Morton, Scott, Seward, Stanton, Stevens, and Wichita Counties). **Audubon Chapters throughout the state are teaming up with AOK to bring backpacks to their areas.** An additional $10,000 has been raised or pledged to roll out the program in the greater Kansas City area. Each Adventurepack costs about $250 to purchase and distribute, as well as to provide in-person programming and other support materials. With 328 libraries throughout Kansas, we need to raise an additional $62,000 before every library will have access to an Adventurepack. Go to https://www.audubonofkansas.org/aok-nature-adventurepacks.cfm to add your support to this program.

We could also use help with preparing and distributing backpacks, and in-person programming associated with the kick-off of an Adventurepack becoming available in aparticular library. Contact Jackie (jackie@audubonofkansas.org) if you are interested in sharing your passion for watching birds or butterflies and other ways you can make this project a success.

A Letter from Kelley Hurst

Director of Philanthropy for AOK

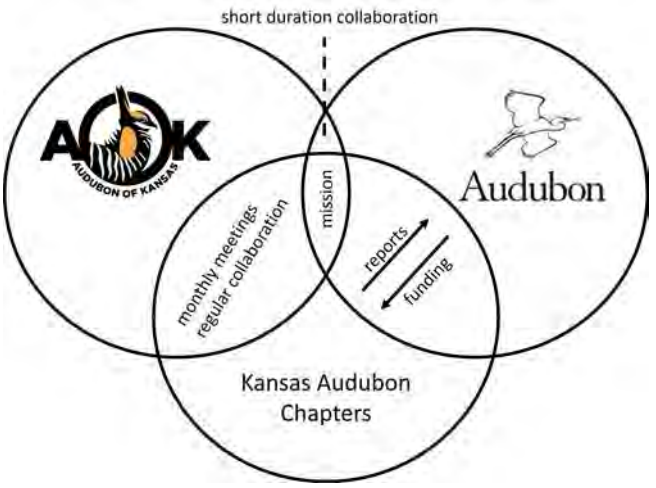
You have heard us say many times that Audubon of Kansas (AOK) is an independent, state-wide organization. I want to talk about what that means.

First, it means that AOK serves the entire state of Kansas. We are proud to have donors and board members from all parts of the state as well as Nebraska. We have a secondary (unofficial) slogan for AOK, which is All Over Kansas, to emphasize the commitment to our entire state.

Second, I hear from members that they are confused about AOK's relationship or connection to other Audubon organizations. We share part of a name, which makes us feel like family, but sometimes the shared name leads members to believe that our memberships and organizations overlap in ways that they do not. I believe that some of the confusion is also connected to the history of our organization.

The Kansas Audubon Council was a consortium of 10 local chapters of the National Audubon Society (NAS), which previously had a regional office covering Kansas and Nebraska. In 1999, when National Audubon closed its regional office, Audubon of Kansas became the successor organization to the Kansas Audubon Council, and NAS' former regional director, Ron Klataske, was hired as AOK's first Executive Director. Dr. Jackie Augustine succeeded Ron when he retired in 2021. Although AOK has a mission that is complementary to NAS, we are entirely independent and receive no funding from the national organization. Occasionally, AOK may work with NAS on a specific issue that affects the Great Plains, but has national importance. These interactions between AOK and NAS are temporary in nature.

When a member joins NAS, they also become a local chapter member, determined by their zip code. Local chapters report to and receive funding from National Audubon. AOK is not part of that relationship. AOK was founded by local chapters, and we meet with chapter leaders monthly to discuss chapter successes and issues facing chapters. Chapters also designate a representative to be a member of AOK's Board of Trustees. Although the relationship between AOK and chapters is voluntary, AOK remains committed to networking with chapters as they are the eyes, ears, and voice of wildlife in their local communities.



Memberships in AOK, donations from members, income from sanctuaries, and grants supply the funding for Audubon of Kansas to do our work. Our members appreciate what makes AOK different, both from NAS and from the local chapters:

- we are statewide
- we do not side-step controversial issues
- we are strong defenders of the environment, taking agencies to court when necessary
- we focus on Kansas and the Great Plains

- we pursue three missions in one organization: advocacy, conservation, education

That brings us to today. All of us know that we have a myriad of interests and concerns in our great state, and that we must all work together to manage and solve the complex issues that we face. AOK steadfastly maintains a place at the decision-making table advocating science-backed support for conservation and the environment wherever those decisions are being made.

Your membership and donation to AOK means that you stand with us when we defend wildlife and habitat through our three pillars: Advocacy, Conservation, and Education.

Advocacy – that AOK will speak up and speak out for conservation in Kansas and the Great Plains. We advocate for wildlife and wildlands at the local, state and federal levels. Whether we are at a county commission meeting or writing a letter to a national body, the collective of AOK members is stronger than any one person.

Conservation – that AOK will manage its properties for the good of people AND the plants and animals that live there.

Education – that AOK will take every opportunity to connect people with animals and habitat, through birding festivals, seminars on topics from plants that benefit birds to controlled burns, and teaching about birding by ear. Just this year, we have launched a new effort, designed to go All Over Kansas, providing Nature Adventurepacks that will be available to "check out" from our Kansas libraries.

You are reading this letter from me in *Prairie Wings Magazine* – a yearly undertaking of the board and staff to bring you coverage and top thinking about issues important to all of us in Kansas and the Great Plains.

We are a conservation organization that runs on a lean budget. A major goal this year was to strengthen AOK's organizational systems in order to maximize our use of that budget. We have worked hard to implement best practices inside of AOK, to standardize systems, and to create transparency with our larger AOK community. From internal auditing to communicating with all of you, we have examined and invigorated our methods. We have closely examined our costs and budgeted our spending in order to make the best use of every dollar that is entrusted to us. Our monthly newsletter (via email) lets you know what we are doing on a regular basis, showcases our local chapter partners, and lets you know how to get involved.

In this past year, I have heard from many of you that you appreciate and share these values. In my regular contact with donors and the larger AOK community, I get asked questions about how to address your own charitable processes and planning, such as taking mandatory IRA distributions, structuring legacy gifts and finding out about what is involved with donating property and land to Audubon of Kansas. In order to get information to our community, we started a series of informational seminars about topics related to these and other charitable giving issues. These are free sessions where there is never an obligation nor "sales-pitch." They are simply meant to help our community connect with information and resources to address financial and charitable questions. This year, we had two such meetings - one in Manhattan that addressed donations of land and one in Lawrence that concerned general estate planning. We anticipate scheduling more of these sessions in the coming year. If you are interested in particular topics, please let me know - you can email them to me at khurst@audubonofkansas.org or call me 785.917.0400.

Your membership and donation to AOK means that you are committed to the wildlife and wild lands of Kansas and the Great Plains, and that you appreciate and support AOK's three-fold mission. Your membership and donation mean the world to us. Please renew your membership and make a donation today.

Med School Grad Photo

Zest for Life, a Life of Service:

DOCTOR ROBERT MCELROY, A FOUNDING MEMBER OF AOK

MICHAEL L. DONNELLY

A cursory glance at his vita up through medical school suggests that Bob McElroy is just a regular guy. A native Kansan, the son of a high school principal and later school superintendent (Washburn Rural in Topeka), Bob attended Wanamaker Grade School and Washburn Rural, where he played football; his religious faith played a major role in his life, taking him, along with his twin brother, William "Bill" J McElroy, to Geneva College, in Beaver Falls, Pennsylvania (later famous as the birthplace of "Broadway Joe" Namath). Geneva College is the only undergraduate institution in the U.S. affiliated with the Reformed Presbyterian Church of North America, which traces its roots back to the Scottish Covenanters of the seventeenth century. It was through their Geneva College connection that Bob met his future wife, Katharine Jean Finlay, a native of New Jersey, who while attending Geneva College traveled with her roommate, who happened to be Bob's sister, back to Topeka on semester breaks. There she met Bob and his brother, Bill, after Bob had moved to K-State after one year.

After transferring to Kansas State University in 1954, Bob received his Bachelor of Science in Premedicine in June 1957. Both brothers went on to KU Medical School, both graduating with the M.D. in June 1961, Bill specializing in ophthalmology, Bob in surgery. Both did internships in California, but Bob continued his residency at Highland Alameda County Hospital and Oakland Veterans Hospital in Oakland, California, while Bill went on to become a resident and fellow in ophthalmology at Georgetown University in Washington, D.C. from 1966 to 1970.

At this point in his career, however, Bob's path diverged from the normal pattern of career advancement. He followed that path, indeed, but he was able to combine

it with an extraordinary commitment to service to neglected populations. Inspired by their religious tradition, both brothers developed a deep interest in medicine in the developing world. Bob interrupted his surgical residency in Oakland after three years and embarked with his new wife, Katharine Jean, for a stint at a remote Presbyterian mission hospital in Ethiopia, 700 kilometers from Addis Ababa. He recalls that "I was one of two physicians for a very large area and over nearly two years saw patients and performed surgery," while Jean taught science in the local school. While this was the first of several ventures as a medical missionary bringing his skills to remote third-world locations, Bob came back to the States to complete his surgical training and practice for five years in the Santa Cruz Watsonville area of California. He returned to Topeka in 1973, and entered a practice with Dr. Charles Joss, where they pioneered a number of procedures in abdominal and colorectal surgery that had not previously been done in Topeka, or had been attempted only on a very limited basis. He was one of the first two surgeons to perform laparoscopic surgery in Topeka. The contrast between working on the cutting edge of late twentieth-century medical techniques and what he had been confronted with in Ethiopia must have been mind-boggling.

Nevertheless, as he recounts, **"My interest in the developing world continued after coming to Topeka and I have served for one to four weeks in Ethiopia, Zaire, Honduras, and Ecuador. I established a relationship on the north coast of Haiti where I would do surgery for one to two weeks several times a year.** Since 1980 I have been to the Bon Samaritan Hospital in Limbe, Haiti over thirty times, sometimes going during periods of considerable civil unrest when the hospital was the only functioning medical institution in the north of Haiti. The crush of patients needing surgery could be overwhelming, and I often had to turn aside patients with tragic conditions for which I could do little or nothing." Committed to doing tropical medicine, Bob found it meant usually going from one tragedy to another, one impossible situation to another. In Haiti, he remembers being asked to see a late-teenage girl who was obviously quite pregnant; when he examined her, "she's late-term, and her belly is rock-hard—which means placenta previa, which causes the uterus to go into spasm—DIC, disseminated intervascular coagulation, requiring immediate surgery. When I asked the nurse what her hemoglobin was, the answer was '3' (NORMALLY UP TO 10)." This turned out one of the success stories: the patient did not die. There was the father who brought in his young daughter whose eye was hanging out of the socket, and asked if Bob could operate on it. Frequently in third world medicine, says Bob, you get hardened, but you think, can I do this, and you think "I can" —but if you penetrate the eye capsule, there's a very great danger of meningitis, and a likely fatality. A grim situation. But Bob's sometimes gruff manner belies his fundamentally positive attitude toward life: "Nevertheless, there were many patients that I was able to make a real or even life-saving difference for." When I said, "Bob, you must be a native optimist to work in such circumstances," his response was, "'Native' or 'naive.'"

More recently, Bob has worked with a group called Provadenic in Managua, Nicaragua, that supervises health clinics in distant rural areas where there are no other medical or government services. The health workers there have an average schooling of three years plus ten weeks of intensive training by Provadenic, but nevertheless have made a profound difference in the state of health for these villages, especially in the case of children. On one visit of two weeks in the month of February, Doctor Bob traveled eight hours by car over mostly unimproved roads, plus a five kilometer walk to the first clinic, followed several days later by a twenty kilometer mule ride to the second clinic. In 2003 he was awarded the Fred and Anne Pillsbury Distinguished Service Award "To Honor His Compassionate Service in Providing Exceptional Surgical Care to Those in Haiti and Nicaragua."

...Bob has worked with a group called Provadenic in Managua, Nicaragua, that supervises health clinics in distant rural areas where there are no other medical or government services.

Doctor Robert McElroy teaching suturing techniques in Nicaragua, using forceps and surgical gloves

Meanwhile, in this country, beginning in 1980 he served on the board of the Mendenhall Ministries of Mendenhall, Mississippi in the south-central part of the state. This is a Black-led self-help group closely associated with a local church that over the years has established an independent school for poor Black children, the only church-related community law office, family service outreach, and vital youth and recreational activities centered on the only gym in that Black community. In a region where segregation had been the norm for many years, Mendenhall Ministries has been very active in reconciliation between the Black and White communities. For twenty plus years, Bob has also been on the board of the Central Baptist Theological Seminary in Kansas City, Kansas, a graduate institution training pastors and church workers with a special interest in working with minority students.

During this same period, his twin brother was serving on the staff of the All African Leprosy Education and Training Center at Addis Abba, Ethiopia, from 1976 to 1977, and on the staff of the Mobile Eye Work of Kijabi Hospital, Kijabi, Kenya, for two years from August 1977 to 1979. He trained nurses in Karawa, Zaire from 1986 to 1990, and worked at the Baptist Eye Hospital and Lunsar Eye Hospital in Lunsar, Sierra Leone in 1992. At the time of his death in August 1998, Bill was associated with Hope Unlimited International of San Francisco, an organization dedicated to directing and establishing orphanages in Brazil.

Like his brother, Doctor Robert McElroy has had a distinguished career in medicine. In this country, he has been Chief of Surgery, Chair of the Credentials Committee, and Chief of Staff at Stormont Vail Regional Medical Center in Topeka; he has held an academic appointment at the Kansas University Medical School as a Clinical Professor of Surgery; he headed the McElroy Surgical Group in Topeka which combined with other surgical groups in Topeka after 1998 as the Tallgrass Surgery Group, the largest independent surgical group in northeast Kansas. He served as their founding president until his retirement. For three years he served on

Characteristically, he was not content merely to rent and sail the craft he'd come to love; he undertook to build wooden boats himself.

Bob working in his shop on one of the wooden boats he built

the board of Kansas Blue Cross and Blue Shield.

In all of this record of career accomplishments and advancement, the elements bespeaking a deep, professional and religious commitment to public service and community involvement loom large. It is in his devotion of his skills and compassion and his adventurous spirit, which have led him to the most remote corners of a needy world, that Doctor Bob has most distinguished himself from the safe, conventional career path. But we are concerned here particularly with his contributions to Audubon of Kansas (AOK), and at first glance, making a connection between the record of relentless commitment to human needs in remote corners of the earth and grassroots conservation initiatives here in the Midwest would seem to be a stretch.

The connection, I think, can be found in the largeness of spirit, the zest for life and experience, revealed in the activities he loved to pursue outside the surgery and the board room. When he began his residency in California, this Kansas boy discovered a passion for wooden boats and sailing. (He said, "Back in those hippie days, though I was never a hippie, reviving folk crafts and getting back to nature became a thing.") Traditional wooden boats became Bob's route to participation in the trend. During his residency, he learned to sail on San Francisco Bay; after residency, he bought a twenty-four foot sailboat and sailed on Monterey Bay. Eventually, he and Katharine and friends would rent larger boats and sail the Maine Trail, for which he has extensive logs, Desolation Sound north of Puget Sound, the Keys off west Florida (where Katherine worried about running into cigarette boats smuggling drugs), and Solomons Island south of Chesapeake—always with his brother's or several other families along. "Bare boat rentals" were his thing—you just rent the boat, and you captain and crew yourself. The challenge of sailing these boats in coastal waters requires both intellectual and manual skills—and also, perhaps, sometimes, a challenge to the nerves. An ideal avocation for a surgeon. It appealed to all aspects of living life to the fullest for Bob.

Being a surgeon of course requires deft hands and intellectual acuity. So does building classic wooden boats. Characteristically, he was not content merely to rent and sail the craft he'd come to love; he undertook to build wooden boats himself (see picture). One, "The Green Bean," was "basically a rowboat," says Katharine, but he went on to build bigger sailboats. Despite his

professional immersion in the latest medical technology and techniques, he's drawn to traditional, old-fashioned things. (In Central America, they were in the "wild west of Nicaragua, where sometimes the steers would come roaring down the main street." Bob really liked that—it made him feel as if he was back in the wild west days of Kansas.) The man of science perhaps finds in traditional things and the "wild" and unspoiled traditional ways a foothold in the "real." One thinks of Henry David Thoreau, in that famous passage in *Walden* beginning, "Let us settle ourselves, and work and wedge our feet downward through the mud and slush of opinion, and prejudice . . . till we come to a hard bottom and rocks in place, which we can call *reality*, and say, This is and no mistake . . . ." There is that element of waving off sham and conventional platitudes and committing to the real in Bob McElroy, too.

The wooden boats are part of this, confronting wind and water and elemental risk, and so is his delight in horseback riding. When he was in the seventh or eighth grade, his father bought a farm of eight to ten acres out on Wanamaker Road—"just big enough to have a cow and a horse or three—that's where my interest in horses came about," he says. When his father retired from Washburn Rural, he bought three or four Tennessee Walkers. Bob loves to ride horses on the prairie. Grown up, he acquired for himself some land south of Lake Shawnee, and he bought three Tennessee Walkers. "If you ride a Tennessee Walker, you'll never ride anything else." The farm aroused in Bob another reverence for old-fashioned, vanishing ways of life: there was an area never cultivated, and Bob became interested in the virgin prairie there, and he set about learning all the wildflowers that grew in unplowed land. He had students from KU come out to study the native plants and ground-based insects there. "They'd come out and put flags out to mark ground-nesting bee and hornet nests and beetles." The native, the unspoiled, but now to be studied and catalogued by science.

He was an avid upland bird hunter—some years ago he passed along to me a wonderful print of an English pointer pointing a covey of quail under a deadfall—though he was never a "life lister" of birds. But it was the bird hunting and the horsemanship that brought about the connection with Audubon of Kansas. Somebody at work, knowing his passions for wildflowers, quail hunting, and horsemanship, asked if he'd like to meet the Regional Vice President of the National Audubon Society, who was based in Manhattan and spearheading an effort to create a Tallgrass Prairie National Preserve. So he said, "Sure," and met Ron Klataske.

Ron wanted Bob to host a group of doctors to hear his pitch about Audubon. Bob figured, "Well, they want to interest doctors because they want to raise some money, but that's okay," so he asked several doctors if they wanted to hear Ron. It happened that all these doctors were avid quail hunters, so after Bob had rounded them up, and they came to his house, Ron talked to them, and "he made a fatal mistake, saying he had quail on his farm; that was immediately snapped up." About six of them went with Bob to Ron's place, and Bob had never seen anything like it; "Ron's property held huge coveys that took off with a roar like a B-29." There are many roads to the celestial city, and let it never be held against Audubon that a passion for upland gamebird hunting can lead to years of loyal commitment to the cause of conservation in Kansas.

Ron was a horseman, too, and they organized a horseback tour of the Spring Hill (Z-Bar) Ranch while it was being considered in Congress as a new unit of the National Park Service. Bob and Ron later took Bob's Tennessee Walkers up to the Hutton Ranch on the Niobrara River, where they inspected on horseback the 5,000-acre property gifted to AOK for the organization's first sanctuary. They shared the perspective that experiencing the land and its features from horseback gives an intimate connection that cannot be obtained

Bob on his Tennessee Walker.

from an ATV or pickup. Bob and Ron repeated those rides on that magnificent landscape several times during a span of fifteen years. They are among Bob's favorite memories.

They also toured the Haverfield and Barnhardt ranchland in western Kansas, location of the Black-footed Ferret reintroduction into the state in 2007. On one occasion a jackrabbit sprung up from beneath the horses; the Tennessee Walkers went sideways and left both riders dusting themselves off.

Bob McElroy has taken a major role in Audubon of Kansas ever since its founding in 1999. He has contributed five articles to *Prairie Wings* over the years, three of them relating to his interest in preserving the memory of the past: articles on horsehair bridles, the extinction of the Passenger Pigeon, and the near-extinction of the Plains Bison. He has served on the board from the beginning, and held office as Vice-Chair, Chairman of the Board, member of the Sanctuaries Committee, member of the *Prairie Wings* Committee, and Chair of the Development Committee. His has been a steady, sane, practical and moderating voice, as well as sometimes a robust advocate, in board meetings and on other occasions. These are qualities he has shared with numerous other boards to which he has been appointed. In 2003 he was recognized by Audubon of Kansas with the Excellence in Conservation Leadership Award.

A Kansas boy who has lived an extraordinary life, a man of medical science and of passionate religious conviction, equally at ease in the practice of the most advanced surgical techniques and in shaping the hull of a traditional working sailboat, in managing a flourishing independent surgical group and in relaxing in the saddle of a Tennessee Walker surveying the virgin prairie, **Doctor Robert McElroy can count among his many contributions to the enjoyment of a better world his services to AOK over the twenty-three years of its existence as a voice for wildlife and the environment in the Great Plains.**

CELEBRATION OF CRANES 2022

CINDY JEFFREY, ORGANIZER OF THE EVENT

Photo by David Stremme

Every year that we have held this event, we have been confronted by a different set of circumstances. Whether it was weather or Covid, we have met the challenges. And this year (2022) presented another challenge: an extreme drought. There was almost no water at Quivira. Did we expect any cranes to show up? In the weeks leading up to Nov. 4-6, there were only a few sightings of cranes, mostly flying over.

Should we cancel the event? No, it would go on. There would be other birds if not cranes. We saw this as an opportunity to educate people about the importance of water to a wetland. And that wetlands occasionally dry up. But we needed to prepare those who registered for the possibility of not seeing any cranes. An email was sent to all registrants about the situation, but only two canceled. We had a total of 30 registered participants, some from out of state. A few others just showed up, once they heard about the Whooping Cranes.

We hoped for a downpour before the event, but didn't plan on it. A few days before the weekend, three or four Sandhill Cranes and an adult Whooping Crane were spotted in the only area with some water - the Little Salt Marsh where Rattlesnake Creek feeds into the marsh. There was hope.

Friday was cold and rainy. We had all the guides in a group text, so when something was spotted, everyone would know about it. That included me, since I was at home near Manhattan, sick, and disappointed to be absent after weeks and weeks of planning. At least I could follow along by text. Jackie Augustine started with a sighting of a Northern Shrike. Then Tom Ewert, one of the guides, reported ducks and geese on the mud, cranes flying over, and Avocets on a little patch of water. Others started texting – coots and ducks and a Northern Harrier. From the tower 3000-4000 geese, white-fronted and snows, 80 Avocets, and six Wilson's Phalaropes were reported. At the Big Marsh a large group of Northern Pintails were seen. Migrant Mile had juncos, White-crowned and Fox Sparrows. There was sleet, too.

Then three adults and one juvenile Whooping Crane were spotted at Little Salt Marsh along with lots of Sandhill Cranes. Things were looking good! Another

Photo by Bob Gress

AOK leads crane tours for participants. Photo by J. K. Augustine

Whooping Cranes through the scope. Photo by Patty Marlett

text - eight Whooping Cranes - no - thirteen whoopers! Some near the south end of Big Salt Marsh along with pelicans. Friday turned out to be a great day!

Saturday started out with at least 16 whoopers, revised to 17 then 18 at Little Salt Marsh. Next Bob Gress reported 15 adults and 6 juveniles at Little Salt Marsh.

As I sat home sick, following these texts back and forth and the photos I got dizzy with excitement. I was just amazed at the expertise and passion of our volunteers! How lucky we are to have them, and how lucky the participants were to be with them! This has to be one of the best years for Whooping Cranes! And I can't believe we considered canceling!

I must thank all those who made this possible: Jackie Augustine, Vanessa Avara, Levi Beaver, Jonathan Conard, Michael L. Donnelly, Tom Ewert, Bob Gress, Kelley Hurst, Barbara Koester, George Leroux, Patty Marlett. Jackie and Kelley took over my duties at Sterling, making sure everything was set up for our speakers and lunch.

Dawn to Dusk they worked, communicated with each other and the participants to make this year's Celebration of Cranes one to remember!

Barbara Koester, President of the Friends of Quivira, volunteered this year. I think she said it best:

"I am truly impressed with your organization and volunteers. The skill set and dedication they have is awesome! I am so very happy that your event was graced with so many Whooping Cranes. It was almost like the movie, *Field of Dreams*. Build it and they will come.

Your love of nature in all its many faces was evident during the Zoom call I was able to attend. Anyway, kudos to you all. Your organization is one I will recommend to other nature lovers!! You have much to share."

Sharp-tailed Grouse blind participants. Photo by JK Augustine

PARTICIPANTS FLOCK TO THE

FIRST ANNUAL KANSAS LEK TREKS PRAIRIE-CHICKEN FESTIVAL!

JACKIE AUGUSTINE, EXECUTIVE DIRECTOR, AOK

Audubon of Kansas (AOK) held its first annual Kansas Lek Treks Prairie-Chicken Festival from April 7-10, 2022 in Hays, KS. Hays was chosen because opportunities to see both Greater and Lesser Prairie-Chickens are within an hour's drive of Hays. **National advertising attracted 90 participants from 25 different states and one international attendee.** About 25% of attendees were from Kansas. Participants saw both Lesser and Greater Prairie-Chickens on private lands in eastern Gove and western Trego Counties in Kansas, and Sharp-tailed Grouse during pre- and post-festival trips to AOK's Hutton Niobrara Ranch Wildlife Sanctuary in northern Nebraska. We provided two options for viewing. The first was viewing from a blind where participants got close-up looks. The second was viewing from a van, which both provided opportunities to see the prairie-chickens at a distance through spotting scopes, and gave participants with mobility challenges an opportunity to see the birds. Field trips to Cheyenne Bottoms Wildlife Area, Quivira National Wildlife Refuge, Smoky Valley Ranch, Castle Rock, Monument Rocks, and Scott Lake State Park were also offered. Social events included an opening reception, wine tasting at Shiloh Winery, informal chats with prairie-chicken experts, behind-the-scenes tours of the Sternberg Museum, and a closing banquet. The banquet featured a welcome by Brad Loveless, Secretary of Kansas Department of Wildlife and Parks (KDWP), and a presentation by Nate Swick, host of American Birding podcast. Nate Swick discussed how birdwatching is good for mental and physical health. Funding was obtained through registration fees, a Kansas Department of Tourism grant, and sponsorships

from KDWP and The Nature Conservancy in Kansas. Additional partners included the Sternberg Museum of Natural History, Kansas Wetlands Education Center, and "Boomer," the prairie-chicken mascot from the Missouri Department of Conservation.

Next year's festival will be held Apr 13-16, 2023. Tiffany Kersten will speak at our banquet about "Birdie Big Year: Elevating Women Birders." Tiffany Kersten didn't set out to do a big year, but after a series of unanticipated and serendipitous events, she suddenly found herself amidst one. As a sexual assault survivor, she spent 2021 traveling to all corners of the Lower 48 States, tallying birds and gifting personal safety alarms to women she met along the way. Her goal was to see 700 species, and to raise awareness of women's safety in the outdoors. She ended up surpassing her goal and setting a new Lower 48 Big Year record of 726. In her presentation, Tiffany will lead us through the fear, empowerment, struggles and healing that all played vital roles in the personal growth she experienced on this wild adventure.

Get involved! Plan on attending next year's festival if you have never seen prairie-chickens or want an opportunity to experience the thrill of seeing them from a blind (See "Prairie-Chickens: Home on the Range" in the 2021-22 edition of *Prairie Wings* for a description of the blind experience; available at https://www.audubonofkansas.org/prairie-wings.cfm). Volunteers are needed and conservation partners are welcome. More information can be found at https://www.kansaslektreks.org/ or by contacting Jackie Augustine at 785-537-4385 or jackie@audubonofkansas.org.

Sharp-tailed Grouse. Photo by JK Augustine

Behind the scenes tour of Sternberg Museum with Curtis Schmidt. Photo by JK Augustine

Van tour participants. Photo by T. Ewert

AOK'S LAWSUIT ON BEHALF OF QUIVIRA NATIONAL WILDLIFE REFUGE SENIOR WATER RIGHT

DYLAN WHEELER

Quivira National Wildlife Refuge, comprising 22,000 acres in central Kansas, is one of the key stops for migrating waterfowl along the Central Flyway. Each spring thousands of birds—including federally endangered Whooping Cranes—visit the shallow, slightly salty marshes on the refuge to rest and feed on their way north. Each fall, Whooping Cranes and thousands of Sandhill Cranes, shorebirds and waterfowl rest and feed around the refuge as they travel south. The marsh became part of the National Wildlife Refuge System in 1955, but today faces the prospect of vastly reduced water availability.

Much of the water for Quivira comes from surface flow, predominantly inflow from Rattlesnake Creek. But in the past three decades, available water resources for the refuge have has been greatly reduced primarily due to upstream pumping from irrigation wells along the course of Rattlesnake Creek. Those wells take water from the alluvial aquifer that neighbors the creek, thus effectively diminishing streamflow that would otherwise enter the refuge.

In early 2021, Audubon of Kansas initiated a lawsuit in the United States District Court for the District of Kansas centered around the management of the refuge's water resources by responsible federal and state agencies. The lawsuit arose following the execution of an agreement on July 25, 2020 between the United States Fish and Wildlife Service ("USFWS") and the Big Bend Groundwater Management District No. 5 ("GMD5") directed toward addressing the longstanding impairment of the state water right held by the Service for the benefit of Quivira.

That agreement stipulated that USFWS would agree not to request enforcement of its water right in at least 2020 and 2021 to provide GMD5 time to come up with an augmentation plan that would resolve the Refuge's water shortage without having to limit the diversions of water to the junior water right holders. The agreement, however, permitted discretion to USFWS to continually renew its commitment not to enforce its water right for successive years while GMD5 works on developing a streamflow augmentation project.

The augmentation plan envisioned by GMD5 would consist of drilling well fields outside the Rattlesnake Creek basin south of Quivira and delivering water from those wells into Rattlesnake Creek at the point where it flows into the refuge. It is unclear at this point whether adequate water of sufficient quality may be available under this proposed method to cure the refuge's longstanding water problem. Besides the quantity of water available, there is concern whether the water to be brought into the refuge under GMD5's proposed augmentation plan would have levels of salinity analogous to the water historically available from Rattlesnake Creek, which is one of the distinguishing features of the Quivira marsh ecosystem.

Water rights in Kansas are administered by the Kansas Department of Agriculture, Division of Water Resources ("KDA- DWR") in accordance with the provisions of the Kansas Water Appropriation Act ("KWAA"). The administration of state water rights under KWAA is guided by the "prior appropriation" doctrine, a system that follows the basic principle of "first in time, first in right."

Under this system of water management, an application must be submitted to KDA-DWR outlining the proposed source and amount of water an individual or entity seeks to divert for their intended use. The date such an application is granted gives the water right holder senior priority over all other water rights later obtained in the same water resource. Thus, when a particular water source cannot provide adequate quantities of water to all permitted users therein, a senior water right holder has the right to request KDA-DWR to place restrictions on junior water right holders whose diversions are impairing the ability of the senior water right holder to receive its full allotment of water.

USFWS obtained the right to divert surface water from Rattlesnake Creek in 1957. The water right held by USFWS for its mission of federal wildlife management at Quivira is senior in priority to 95% of all water rights held in the Basin.

As deep-well irrigation in the Rattlesnake Creek watershed has proliferated, less and less water has been available to the Little Salt Marsh and the Big Salt Marsh at Quivira, especially in recent years. **Under the law, it is the duty of the USFWS to vindicate the senior water right of Quivira, but political pressure has made the federal agency reluctant to push the marsh's claim.** In fact, it appeared that KDA-DWR was about to move forward with an administrative order to regulate junior water rights in October 2019 when Senator Jerry Moran and Aurelia Skipwith—the Trump administration's nominee to be director of the USFWS—intervened to short-circuit that move and send the issue back for negotiations over "augmentation" of Rattlesnake Creek and "voluntary water conservation efforts" by local stakeholders within GMD5, whose Local Enhanced Management Area proposal had already been rejected by the KDA-DWR as inadequate.

Through its lawsuit, AOK challenged USFWS's July 25, 2020 agreement with GMD5 and its historic management practices as failing to satisfy its duties under a variety of federal environmental legislation—chiefly, the National Wildlife Refuge System and Improvement Act of 1997 ("NWRSIA"). The lawsuit invoked the right to judicial review under the Administrative Procedures Act ("APA") seeking, among other things, a declaration that USFWS's agreement and management practices ran afoul of NWRSIA's mandate to acquire and maintain adequate water resources under state law that are necessary for the purposes of an individual federal wildlife refuge.

On October 20, 2021, Judge Holly Teeter of the District Court of Kansas issued an opinion dismissing AOK's lawsuit after adopting the Service's position that its 2020 agreement with GMD5 did not constitute "final agency action" necessary for review under the APA. Judge Teeter further agreed with the Service's position that the language of NWRSIA's mandates provides broad discretion to the Service in determining whether and how it will satisfy its duties under these provisions.

AOK subsequently appealed the dismissal of its claims to the United States Court of Appeals for the 10th Circuit. Through its appeal, AOK challenges the underlying rationale behind the district court's determination that the case is not yet ripe for judicial review and other related holdings. Oral arguments were held on November 15, 2022 at the Bryon White United States Courthouse in Denver, Colorado. Professor Burke Griggs of Washburn University School of Law argued on behalf of AOK before the 10th Circuit panel of judges assigned to the appeal for decision, which remains pending at this time.

Hutton sunrise with wagon in February. Photo by JK Augustine

ADVOCACY:

AN ESSENTIAL FOCUS IN THE AOK MISSION

Michael L. Donnelly

Audubon of Kansas defines three major components in its organizational mission: **Advocacy, Conservation, and Environmental Education.**

AOK fills an important niche in each of these areas. However, it is in the field of advocacy that AOK's efforts stand out for our willingness to take on hot-button issues that other conservation organizations have avoided or on which they have waffled. Prime examples are AOK's drafting recommended guidelines that consider sound conservation practices for siting wind turbine facilities, and providing counsel and support to local groups opposed to establishment of industrial wind turbine facilities in unspoiled virgin prairie and in major migration corridors. We have testified in the Kansas legislature on bills that would have addressed some of these concerns. Recently, AOK testified before Pottawatomie County Commissioners on behalf of sensible siting requirements for industrial solar energy installations.

Antiquated statutes on the Kansas books since the early years of the last century allow county commissioners either to coerce private landowners into eradicating prairie dogs on their land, or if landowners fail to comply, to proceed with eradication with government agents, and to charge the landowners for the cost, establishing tax liens on their property in case of their failure to comply. AOK has maintained for many years a position that these laws are ecologically unsound, encroach on the private property rights of landowners, encourage the use of poisons that endanger protected

species like Golden Eagles, Swainson's Hawks and other raptors, and ought to be repealed.

AOK Advocacy positions thus range from weighing in on threats to wildlife and the environment posed by thoughtless implementation of new technologies to addressing bad practices inherited from over a century ago. So far AOK's efforts on behalf of sensible wind farm siting and achieving repeal of the antiquated prairie dog statutes have failed to achieve the desired goals, but as our Executive Director Jackie Augustine has written,

> **"Although our work with prairie dogs and siting of industrial wind turbines was ultimately unsuccessful [last year], we were able to build resources and connections with industry, government, and other non-profit organizations so that we increase our chances of success when the next issue arises."**

Many of AOK's initiatives in the realm of advocacy arise as one-off, individual responses to unanticipated urgencies over a specific issue—a request for intervention in a controversy over siting a new landfill, local opposition seeking sound arguments concerning new zoning regulations that would be environmentally damaging, the need for scientifically-informed testimony before a legislative committee concerning proposed new legislation. AOK takes the position that intervention, even in a narrow local cause, and even in cases that are for the time unsuccessful, justifies itself on the grounds that successful advocacy is built on establishing long-term relationships with government agencies, politicians, other conservation advocates, and establishing a reputation as a go-to resource with the public. In line with this principle, the Executive Director has testified on behalf of legislation to protect the endangered Lesser Prairie-Chicken, a species on which she is an expert, having done her Ph.D. research on prairie-chicken behavior and having continued her prairie-chicken research for nearly twenty years.

The USFWS announced on November 17th that the iconic Lesser Prairie Chicken, a umbrella species in the radically diminished short-grass prairie, had been listed as "threatened" across its Kansas habitat, and "endangered" in New Mexico and the southwest Texas panhandle. Executive Director of AOK Jackie Augustine had written to give expert testimony in support of the listing in July of last year, after the Center for Biological Diversity filed suit the previous October, arguing that USFWS was moving too slowly in acting on the proposed listing a year and a half before that. US wildlife officials estimate that only about 32,000 Lesser Prairie Chickens remain in Kansas, Oklahoma, Texas, and New Mexico, with 90 percent of their habitat gone owing to human development. This is a victory for water quality, climate resilience, and recreation, according to Amy Lueders, southwest regional director of the USFWS—and a victory for habitat preservation in southwest Kansas, and for AOK.

The listing was opposed by Kansas Senators Moran and Marshall, and Representative Tracy Mann.

Every effort by AOK is directed toward cementing a reputation as an expert witness and party to environmental issues with an eye to challenges that will arise in the future. We hope that our track record of intervention on the side of wildlife and the environment will make us an automatic choice as advocate for any local bodies or organizations seeking assistance when confronted by measures that would degrade the environment and contribute to further fraying of the web of life.

We endeavor to place op-ed articles and letters to the editor in local and regional news outlets advocating for current environmental legislation, such as the Recovery of American Wildlife Act which recently came before the U.S. Senate. (See the article in this issue of *Prairie Wings* on the RAWA Act.)

As noted above, **in its advocacy role AOK does not shrink from championing sound management of wildlife and the environment even when that stance is seen as swimming against the tide of dominant attitudes or interests.** In the wind facility issue, the categorical assumption that any "green" initiative is "good" and wind farms are "good" wherever they may be established led many other conservation organizations to opt out of taking a stand against environmentally unsound siting, or even to uncritically lend their support to the wind industry's positions. However, AOK's position takes the side of sound environmental science and local concerns, and embodies the best guidelines established by federal and state bodies—guidelines that, unfortunately, do not yet have the status of law.

In its latest and most prominent intervention under the rubric of advocacy, AOK has filed a lawsuit against the USFWS defending the senior water rights of the Quivira National Wildlife Refuge. Quivira comprises 22,135 acres of wetlands and sand prairie in Stafford, Rice, and Reno Counties in Kansas. It is a crucial rest and refueling stop for major portions of the North American populations of waterfowl and shorebirds, including the endangered Whooping Crane. It has been recognized since 2002 by the Ramsar International Convention as a wetland of international significance. In January 2008, Quivira NWR and Cheyenne Bottoms Wildlife Area were jointly designated as one of the 8 Wonders of Kansas.

Under the law, it is the duty of the USFWS to vindicate the senior water right of Quivira, but political pressure has made these bodies reluctant to push the marsh's claim. AOK's lawsuit in federal court this year enjoins the USFWS to act to assert Quivira's senior water right. See the article in this magazine providing further details and an update.

AOK recognizes that sound conservation practices often face well-funded competing interests, and that defending "birds and critters" may attract opposition and ridicule. But AOK also recognizes that our native ecosystems, sadly diminished and eroded as they are, face increasing threats from uninformed or greedy development, and that once gone, these precious elements in our national heritage are gone forever. We will continue to fight the good fight on behalf of wildlife, habitat preservation, and an informed public, and we invite the active support and participation in the fight by everyone who would like to see a viable, functioning natural world passed down to our children and grandchildren.

THE RECOVERING AMERICA'S WILDLIFE ACT:
A MISSED OPPORTUNITY, A GLIMMER OF HOPE?

Michael L. Donnelly

There can still be heard in Kansas some primal sounds that speak to attentive humans the very essence of wildness. One is the clatter of migrating Sandhill Cranes, rising with the sun in their thousands from their roosting areas at Quivira National Wildlife Refuge or Cheyenne Bottoms Wildlife Area and returning at dusk. Another is the marvelously resonant distant booming of prairie-chickens assembling in the spring on their ancestral leks to mate and assure the continuation of the species. People—even people who ordinarily would pay little attention to nature—can be drawn to see the Bald Eagles that come down in the fall with the migrating waterfowl, and now are even staying to nest in Kansas. Many people have their favorite bird: the echoing song of the busy, perky, inquisitive Carolina Wren, the descending notes of the meadowlark in the field by the road or behind the house. There are rarer experiences with guests who turn up briefly in migration—the sweet, fluting call of the Wood Thrush, the essence of the deep deciduous woods, more common in our eastern counties.

You can still hope to hear Wood Thrushes singing in Kansas— you used to hear them every spring. But to do so now, you have to work a lot harder than you used to. The Wood Thrush population nationally fell by 60 per cent between 1970 and 2014, leading Partners in Flight to add this thrush to its Yellow Watch List of declining birds.

That population crash would be appalling even if it were an exception. But it's not an exception. Depressingly, it's become common. In 2019, a report in the journal *Science* showed that over the last five decades, North America has lost 30 percent of its birds.

That's three billion birds. Gone.

As one of the authors of the report, ornithologist Peter Marra of Georgetown University, put it, after a revelation like that, conservationists can't just go back to business as usual.

A bill making its way through Congress last year and this would have provided a chance to avoid going back to business as usual, giving states an extraordinary tool to help bring back birds and other wildlife. While the processes of making legislation may seem to the public excruciatingly slow, H.R. 2773, the Recovering America's Wildlife Act, first introduced April 22, 2021, finally passed the House on a bipartisan vote of 231-190 on the evening of June 14, 2022 (Representative Sharice Davids of Kansas was a sponsor; Representatives Tracy Mann and Jake LaTurner voted nay, and Representative Ron Estes did not vote). In the first week of April 2022, on a bipartisan 15-5 vote, the US Senate Committee on Environment and Public Works advanced RAWA to the Senate floor as S.2372. Senators Jerry Moran and Roger Marshall co-sponsored the revised bill in the Senate. This bill has been called the most significant wildlife conservation bill seen in nearly half a century.

Its beginnings go back to 2006, when Congress mandated that each state must write a Wildlife Action Plan

and submit it for approval to the U.S. Fish and Wildlife Service. Most wildlife conservation money now comes from license fees and taxes paid by hunters and anglers. That money is spent to protect and increase the numbers of game animals. The Recovering America's Wildlife Act would have provided dedicated money that originates in general federal funding to protect *not only wildlife you can hunt, but also non-game species*. At the time, in 2006, Kansas was ahead of the game: the Kansas Department of Wildlife and Parks (KDWP) had adopted the Kansas Comprehensive Wildlife Conservation Plan in 2005. They were able to revise and expand this earlier effort as the Kansas State Wildlife Action Plan (SWAP) in 2015 (see Rohweder, M.R. December 2015. *Kansas Wildlife Action Plan*. Ecological Services Section, Kansas Department of Wildlife, Parks and Tourism in cooperation with the Kansas Biological Survey. 176 pp.).

Through their Crucial Habitat Assessment Tool, part of the state's Wildlife Action Plan, the KDWP had identified fourteen terrestrial habitats, nine of which focus on prairie habitats, three on wetlands, and two on forests. The Kansas wetland habitats so identified are centered on Playa Lakes in western Kansas and on the two large wetlands in central Kansas, Cheyenne Bottoms and the Quivira National Wildlife Refuge. Both Cheyenne Bottoms and Quivira have been designated as Wetlands of International Importance by the Ramsar Convention, with Cheyenne Bottoms also declared a site of hemispheric importance by the Western Hemisphere Shorebird Reserve Network and a Globally Important Bird Area by the National Audubon Society. Approximately 45 percent of shorebird species in North America use these wetlands during migration. The survival of these birds absolutely depends on the continued existence of these habitats for rest and refueling on their long migrations. But drought years and the continued depletion of water available to the wetlands because of excessive irrigation and drought pose an existential threat the very survival of these unique resources.

As for the prairie biomes, the tallgrass prairie once occupied approximately 150 million acres (60 million hectares or 230,000 square miles) of North America. However, conversion to other land uses has made this grassland a globally endangered resource. According to a report from the World Wildlife Foundation, in 2014 alone the Great Plains region lost more acres of grassland than the Brazilian Amazon region lost rainforest. Estimates of remaining tallgrass prairie range from 1% to 18% of its former distribution. But we here in Kansas still have a share in the only expansive and intact remnant of this grassland: the Flint Hills in Oklahoma and Kansas (3.8 million acres).

In view of these statistics, it comes as no surprise that losses of grassland bird species are among the greatest ecological disasters of our time. The World Wildlife Federation has found populations of four key species of grassland birds — Thick-billed Longspur (*Rhynchophanes mccownii*), Chestnut-collared Longspur (*Calcarius ornatus*), Lark Bunting (*Calamospiza melanocorys*), and Sprague's Pipit (*Anthus spragueii*) — have declined as much as 80 percent since the 1960s due to much of their grassland habitat being destroyed. According to a 2007 report by The National Audubon Society, losses of even two of the most familiar, typical Kansas grassland species — the Grasshopper Sparrow (*Ammodramus savarrarum*—subject of another article in this issue of *Prairie Wings*) and Eastern Meadowlark (*Sturnella magna*) — have amounted to 62 percent and 75 percent, respectively, of their global population in the past 40 years.

Surveying the fourteen Kansas habitats for its Species of Greatest Conservation Need (SGCN) catalog, KDWP classified all species listed as endangered or threatened at the federal or state level, or with global conservation status rank of G1 or G2 as Tier 1; all remaining SGCN were assigned to Tier 2 . Species that are listed as "Tier 1 Species of Greatest Conservation Need (SGCN)" in Kansas in at least one of the 14 habitats identified

Some of the species identified by the KDWP in their Kansas Wildlife Action Plan as "Species of Greatest Conservation Need." These creatures would be among the beneficiaries of the Recovering America's Wildlife Action Plan (RAWA), if it had been included in the recent budget bill. We can hope—for their sake and others equally deserving—that RAWA may have better success in the coming session of Congress." All photos by Dave Rintoul.

The Black-footed Ferret (*Mustela nigripes*)

Piping Plover (*Charadrius melodus*)

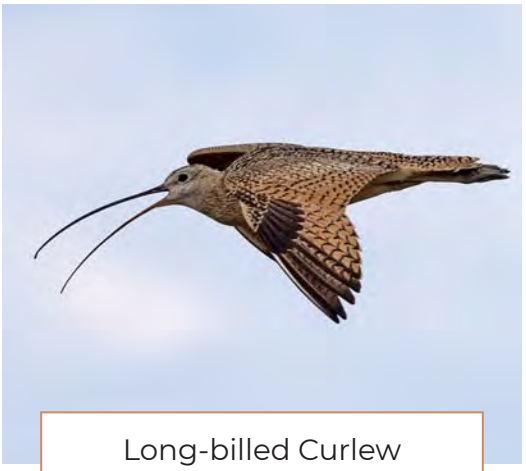
by the KDWP include the Lesser Prairie-Chicken, the Snowy Plover, the Piping Plover, the Whooping Crane, the Least Tern, and the Eastern Spotted Skunk. Tier 2 SGCNs include the Swift Fox, Black-footed Ferret, Black-tailed Prairie Dog, Yellow-faced Gopher, Ferruginous Hawk, Golden Eagle, Long-billed Curlew, Greater Prairie-Chicken, Swift Fox, and most grassland-nesting passerines. Several species of bats and many fish and mussels also appear as Tier 1 or Tier 2 SGCNs in one or more of the fourteen habitats. While some of these might escape the notice of many members of the public, several can be seen as "iconic" species.

Funds from the Recovering America's Wildlife Act could have helped all those creatures, and many others. The Recovering America's Wildlife Act would have provided $1.3 billion a year to states, territories and tribes for purposes of conserving, restoring, and protecting local wildlife and habitat to carry out their plans. That is some $1.3 billion a year. Kansas's share is estimated at $17.6 million per year. The beautiful part is that the money is already in the U.S. Treasury.

Those funds could have been used for the broad-scale habitat creation projects that would bring back the birds that require grasslands — Eastern Towhees, Field Sparrows, Blue-winged Warblers, Indigo Buntings — which have suffered proportionately some of the greatest declines in species. It could have supported research on population collapse that is not well-understood, as well as funding measures that are known to be needed, but currently too expensive to undertake. It could have

Lark Bunting
(*Calamospiza melanocorys*)

Eastern Meadowlark
(*Sturnella magna*)



Long-billed Curlew
(*Numenius americanus*)

assured more extensive conservation measures on private lands by compensating landowners for participation in restoring and preserving habitat.

And there would have been broader-scale benefits to passing the act. As it has been shown that intact prairie is an economically significant carbon sink, there was an extraordinary opportunity to at once improve habitat, helping to bring back bird populations, and at the same time take meaningful action against climate change. Funds from the Recovering America's Wildlife Act could have been used to support the protection of playas in western Kansas, further assuring migrating waterfowl and shorebirds a place to feed and rest during migrations. They could have helped to maintain the great wetlands in the center of the state, controlling invasive plants and devising ways to assure the continued availability of essential amounts of water.

This was an unprecedented chance to do something that is good for wildlife and also good for people. As Audubon of Kansas is showing with its Celebration of Cranes providing opportunities to view sandhill and endangered whooping cranes, and the Kansas Lek Treks Prairie-Chicken Festival sponsoring visits to prairie chicken booming grounds, viewing nature can be a source of tourist dollars, as well as a way of educating the public about the value of these habitats and their denizens, not only emotionally, but economically.

The Recovering America's Wildlife Act would have provided dedicated money that originates in general federal

Snowy Plover
(*Charadrius nivosus*)

Chestnut-collared Longspur
(*Calcarius ornatus*)

Sharp-tailed Grouse
(*Typanuchus phasianellus*)

Ferruginous Hawk
(*Buteo regalia*)

funding to protect *not only wildlife you can hunt, but also non-game species*—species often considered devoid of "economic importance," but nevertheless occupying crucial roles in the web of life.

The culmination of years of effort, research, lobbying, and dedicated commitment to devising State Wildlife Action Plans, identifying SGCNs, designing measures to arrest their decline, and preventing further thoughtless destruction of crucial habitats, RAWA came before the Senate as S.2372. However, as a result of last-minute objections by some senators to technical issues of funding, the texts of H.R. 2773 and S. 2372 were left out of the $1.7 trillion fiscal 2023 spending bill passed just before Christmas. "There were a series of good-faith offers on the pay-for, and it just didn't come together in time," said Collin O'Mara, president and CEO of the National Wildlife Federation that lobbied hard for the wildlife bill. "This remains the most important wildlife legislation in 50 years, and we have to get it done one way or another." RAWA had substantial bi-partisan support. Sources suggest that, as the stalemate had little to do with the actual policy contained within the bill, it can be hoped that re-introduction of the bill in the next Congress might have more success.

AOK will lobby hard for a successful outcome next time around.

AUDUBON OF KANSAS' SANCTUARIES:

CONSERVATION DOES NOT MEAN THE LACK OF HUMAN USE

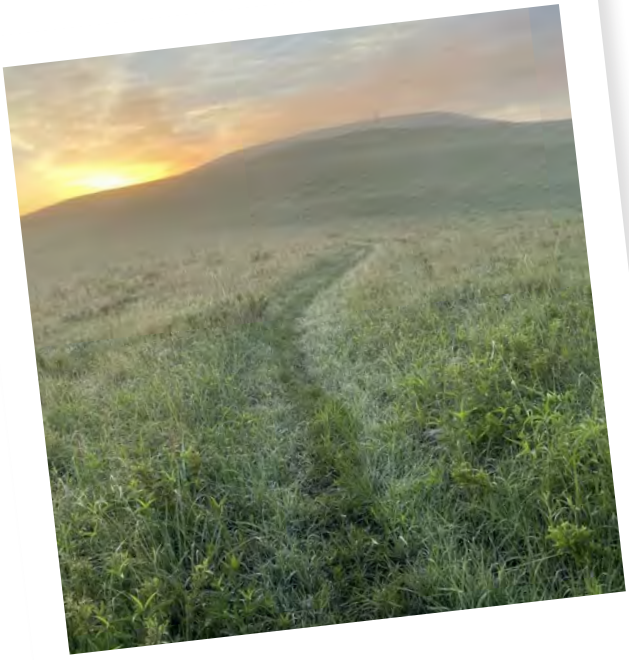
By Dr. Jackie Augustine

Sanctuaries fulfill the conservation portion of Audubon of Kansas' three-fold mission of advocacy, conservation, and education. AOK sanctuaries not only conserve habitat for wildlife but also do so in the context of human land use. Mount Mitchell Heritage Prairie not only supports diverse native plant and animal species, it also serves as a public park highlighting the site's contribution to human history. The newest sanctuary, the Connie Achterberg Wildlife-Friendly Demonstration Farm near Lincoln, Kansas, is an example of how grassland buffer strips between agricultural land and riparian woods can create an ideal habitat for bobwhite quail and other wildlife. The Hutton Niobrara Ranch Wildlife Sanctuary demonstrates how cattle grazing can contribute to the creation of grasslands of different heights and density to support various wildlife. This sanctuary harbors mountain lion, elk, Greater Prairie-Chicken, Sharp-tailed Grouse, Sandhill Cranes, and other species. These three unique sanctuaries offer multiple ways to connect people with nature.

Below is an account of significant happenings this year from each of our sanctuaries.

Mount Mitchell Heritage Prairie is placed on the National Register of Historic Places

The portion of Mount Mitchell Heritage Prairie that is owned by Audubon of Kansas is adjacent to a much larger parcel owned by the Mount Mitchell Prairie Guards. They are key partners in maintaining habitat and public trails on both properties. This year, the Prairie Guards also compiled a vast record of historical information relating to the area and applied for listing in the National Register of Historic Places. This 69-page document outlines the key historical features on the property including 1) Heritage Prairie, a sizeable native prairie landscape, 2) a Native American archaeological site, 3) Fort Riley Road, 4) memorial monuments, and 5) the Captain William Mitchell Farmstead.



Mount Mitchell by JK Augustine

The application describes these historical features as follows: The Heritage Prairie is approximately 163 acres, over 60 acres of which have never been plowed.

The archaeological site is a burial mound dating to approximately 1800 years ago. Fort Riley Road follows the route used by Native American hunters, fur trappers, and explorers, and by emigrants after Kansas Territory was opened to European-American settlement. There are two twentieth-century monuments on Mount Mitchell. The Fielding Memorial Monument is likely a glacial erratic (that is, a stone deposited by an iceberg drifting in glacial Lake Manhattan more than half a million years ago) found on the site. It has a bronze plaque that reads "In memory of 'Dodge'—Doer of Good Deeds. Captain George T. Fielding III. 192nd F.A. Bn, 43rd Div., U.S.A. Killed in Action Near Manila. P.I. April 30, 1945. Aged 28 years." The second monument consists of a tall rectangular smooth-cut Onaga limestone block with a bronze plaque that states: "In commemoration of the Connecticut Kansas Colony known also as the Beecher Bible and Rifle Colony, which settled in Wabaunsee in 1856, and in memory of Capt. William Mitchell, a member of the colony, this monument is erected on Mount Mitchell through the generosity of his son, William I. Mitchell, by the Kansas State Historical Society, 1956." The buildings of the Captain William Mitchell farmstead include a log house, stone well house, and a stone gambrel-roof type barn.

Visitors can access the public trails from Mount Mitchell Road, but the buildings are not open to the public.

Audubon of Kansas thanks the Mount Mitchell Prairie Guards for all their hard work in getting the site recognized on the National Register of Historic Places.

On August 13, Audubon of Kansas hosted a wildflower walk with Courtney Masterson, the Owner-Operator and Ecologist of Native Lands LLC, an ecological restoration organization based out of Lawrence, Kansas. Courtney told stories about her "favorite" plants (she has many favorites) that included hints for correctly identifying the plant, which insect species it hosts, how flowers are pollinated, how seeds are dispersed in the wild, and how seeds must be prepared for re-seeding new areas.

Dale Nimz, the member of the Prairie Guards who drafted the application to the National Register, was also able to attend and discuss the fascinating and multi-faceted history of the area.

Trail at Achterberg Wildlife-Friendly Demonstration Farm officially opens to the public

At a ribbon cutting ceremony on September 26, Audubon of Kansas unveiled a new hiking trail at Achterberg Wildlife-Friendly Demonstration Farm near Lincoln, Kansas. The trailhead is located on 170th Ave., 0.5 miles north of the intersection with E Iron Dr. in Lincoln County.

Achterberg ribbon cutting by Kris Heinze

Trail Highlights

The one-mile trail consists of two loops. The first loop passes ruins from a former homestead including

a chicken coop and foundations for a house and milkhouse. The trail then circles a re-established prairie while weaving through a wooded riparian forest. Hikers will enjoy excellent views of horseshoe bends in Bullfoot Creek as it cuts its way across the property. The second loop circles another prairie restoration, but also enters a more extensive wooded area where Bullfoot and Horse Creeks meet. The area abounds in wildflowers, insects, birds, deer, and other wildlife, including Bobwhite quail, a favorite bird of the sanctuary's namesake, Connie Achterberg.

Trail Establishment

The Connie Achterberg Wildlife-Friendly Demonstration Farm was established in 2014 when it was donated to AOK. On September 11, 2022, volunteers from AOK, Pheasants Forever/Quail Forever, Women on the Wing, and Sterling College established the hiking trail. The Kansas Trails Council provided expertise and equipment through its "Trail in a Box" program. Fallen trees, woody brush, and grasses had to be removed to establish the trail. We thank Kris Heinze at Live Lincoln County for helping advertise the trail and for taking photos during the ribbon cutting.

Wetland Easement at Hutton Niobrara Ranch Wildlife Sanctuary receives regional attention

This year, Audubon of Kansas finalized a wetland easement on 300 acres at Hutton Niobrara Ranch Wildlife Sanctuary, near Bassett, Nebraska. The US Fish and Wildlife Service is now our partner in managing that land. They will also make wetland improvements by creating a berm to retain water longer and create larger wetlands. By expanding the marsh habitat, we hope to increase the population of secretive marsh birds like Virginia Rail and Sora (See "Animals tell Audubon of Kansas that our habitat management is successful" in this *Prairie Wings*).

Ron Klataske, the former Executive Director, started this process and should receive the credit. There were numerous hurdles along the way. The most recent was Nebraska Governor Pete Ricketts issuing an Executive Order placing restrictions on conservation easements. Paul Hammel, reporter for *The Nebraska Examiner*, wrote a wonderful piece detailing the process and why Audubon of Kansas was able to obtain an easement when easements sought by other private landowners in the area have not been successful; see: (https://nebraskaexaminer.com/2022/08/20/wildlife-group-gets-conservation-easement-despite-opposition-by-ricketts-county-niobrara-council/).

Portion of Hutton easement river overlook. Photo by JK Augustine

Easements generally restrict the suite of things that can happen on a parcel of property. They are tied to the deed, and therefore will be in effect in perpetuity, even if the ownership of the land changes. Easements can have various restrictions, but common restrictions limit development and promote habitat or agricultural management. Because there are limits as to what can be done on the property, the assessed tax value of the land

Mountain Lions Hutton trail cam by L Arrowsmith

goes down, and owners benefit from reduced property taxes (as well as the comfort that comes from knowing the land and habitat they worked to restore will be protected in perpetuity). Nebraska Governor Ricketts' Executive Order required easements to be approved by County Commissioners before they take effect. Many County Commissioners in Nebraska are rejecting the easements that come before them.

Our easement was no exception: it was rejected by the Rock County Commissioners. So, how were we able to continue with our easement? Our easement was with the federal government and states cannot restrict the activities of the federal government. Most easements are held by Land Trusts, nonprofit organizations committed to protecting land. The governor's Executive Order applies to easements to be held by Land Trusts.

Did you know?

Audubon of Kansas pays property taxes on all our sanctuaries. We do this to support the local communities.

Because our easement was rejected by the county commissioners, Audubon of Kansas will not receive any property tax reduction as is typical of conservation easements. We decided to continue with the easement because we welcome the partnership with the US Fish and Wildlife Service to conduct wetland habitat improvements, and we received a cash payout equal to the estimated loss in economic value of the property. We will add this money to the Hutton endowment to support habitat restoration on the property.

Portion of Hutton easement wet meadow. Photo by JK Augustine

Animals Tell Audubon of Kansas That **OUR HABITAT MANAGEMENT IS SUCCESSFUL**

Jackie Augustine

How does Audubon of Kansas know that burning and removing cedar or Siberian elm improves the habitat? How do we know if adding a nature trail disturbs wildlife? The animals tell us! Audubon of Kansas engages in a suite of wildlife monitoring activities to document how animals are responding to our habitat management. The exact method of monitoring necessarily varies by the organism being studied.

Mountain Lion

We are partnering with the state of Nebraska to monitor mountain lions (*Puma concolor*) at Hutton Niobrara Ranch Wildlife Sanctuary. The goal is to estimate movements and population size of this rare predator.

AOK's Hutton Niobrara Ranch Wildlife Sanctuary Coordinator Lana Arrowsmith has led that effort. In spring and fall, she sets out game cams in strategic locations to monitor wildlife movements. When movement is detected the cameras record whatever tripped the shutter. When two mountain lions were detected simultaneously in one photo, she contacted the state wildlife biologists. They had her find a fresh roadkill deer, bring it to the sanctuary, and check the carcass daily. She can tell when a mountain lion has visited the carcass if the liver and heart were eaten, and she notifies the state wildlife biologists again. They place a live trap in the area with a device that alerts them if the trap closes. When they receive an alert, the biologists visit the trap as soon as they are able (within an hour or two). They tranquilize the animal, take measurements of its size and condition, and fit a tracking collar on it. Upon release, the biologists can monitor the cougar's movements from the comfort of their office.

In March, a young male was captured, collared, and released. He was four-to-five years old and weighed 150 pounds. Hutton is one of several properties that he visits on both sides of the Niobrara River. A second mountain lion has also been seen on the game cameras. Hopefully, it is a female and we will see her on the camera leading her kittens soon!

Prairie Grouse

Monitoring populations of prairie grouse such as Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*), Greater Prairie-Chicken (*T. cupido*), and Sharp-tailed Grouse (*T. phasianellus*) is easy, if you have good hearing and know what to look for. Both species can be heard from a mile or more away on a calm morning. I have been studying prairie grouse for 20 years. I quickly found the lek sites at Hutton by listening for the birds starting a half hour before sunrise to two hours after. (See "Prairie-Chickens: Home on the Range" in last year's Prairie Wings). Following the detection of the lek, I observe the location from a blind placed on the edge of the lek.

Last year, only three male Greater Prairie-Chickens were observed displaying, but six were observed this year. Sharp-tailed Grouse numbers are more steady at about 17 males in both years.

Marsh birds

Rails are small, secretive waterbirds found in wetlands. They are difficult to see and they vocalize infrequently. Some birders call them "invisible"! The two most common species, Virginia Rail (*Rallus limicola*) and Sora (Porzana carolina), prefer dense vegetation. Their bodies are compressed laterally (left to right) so that they can slip through small gaps in the vegetation. Some believe this body shape is where the saying "Skinny as a Rail!" originated. Rails are related to American Coots (*Fulica*

Sora adult (Porzana carolina). Photo by Dave Rintoul

americana), which are much easier to see. Coots, which are large, duck-sized birds, have dark plumage and white beaks. We are conducting surveys for these secretive waterbirds at Hutton Niobrara Ranch Wildlife Sanctuary. The surveys call for five minutes of listening followed by 30 second playbacks of the birds' calls and 30 seconds of listening. The birds are more likely to vocalize after hearing their call played; however, playbacks should not be used routinely or "for fun" as doing so causes disturbance and distracts the birds from their normal activities. Three surveys are conducted two weeks apart during May and the first half of June. I detected 15 Virginia Rails and seven Sora using the wetlands at Hutton. In the next year or so, two small dams will be added to two areas in the wet meadow along the Niobrara River at Hutton. The US Fish and Wildlife Service will construct these dams as part of the wetland easement to prevent the water from draining and to spread it out over a larger area. We expect these dams to increase the amount of wetland habitat and increase the population size of both Virginia Rails and Sora.

Songbirds

Point counts are the standard way to determine the population size of songbirds in a given area. They consist of an observer standing in one place for three minutes while recording all the birds seen and heard. With 5000 acres, Hutton point counts are approximately 0.5 miles apart and vehicles are used to travel between points. With 240 acres, Achterberg point counts are 100 meters apart and travel is by foot. The distance between the points reflects the size of the area to be surveyed.

A slightly different method is used at Mount Mitchell. Because the area to be covered is rather small (about 25 acres), all birds seen and heard are counted as an observer walks slowly over a particular route.

All bird surveys were conducted in early June.

The Hutton survey has been conducted annually since 2006. During that time, we have seen the number of Horned Larks decline. This reflects management of the area. When we acquired the property, it was over-grazed and not even a golf ball could be hidden in the grass. Horned Larks (*Eremophila alpestris*) love this kind of habitat, but it is not good for many other species. AOK grazed the property at a significantly reduced rate, and now the property has a healthy stand of grass even in the drought conditions which we are currently experiencing. While Horned Larks declined, the numbers of Northern Bobwhite quail (*Colinus virginianus*) increased. Bobwhite prefer more grass to hide their nests and chicks.

The Achterberg and Mount Mitchell surveys have only been conducted for two years each, but we are already making interesting observations. There appear to be two coveys of Northern Bobwhite at Achterberg. One covey utilizes buffer strips along Horse Creek and the pastureland south of the property. Another covey is north of Bullfoot Creek in the remnant prairie and pollinator plot. During the first year of the survey, a new species was recorded for the county, an Acadian Flycatcher (*Empidonax virescens*). Acadian Flycatchers

John Schukman conducting a bird count at AOK's Hutton Sanctuary. Photo by JK Augustine

prefer old-growth forest. This bird was likely just migrating through, but it shows the quality of the riparian woods. Its appearance on Achterberg also shows how much forests have grown in the area. Achterberg is located in Lincoln County, which also is known as "Post Rock County." When European settlers arrived, there were not enough trees to build fences, so ranchers used limestone rock as posts for fencing.

Mount Mitchell was burned the previous spring during the first year of the survey, but was unburned during the second year. Mount Mitchell is not grazed by cattle, so the grass is allowed to grow tall and thick. Burning removes the previous year's dead standing grass, but without burning, the grass provides ideal nesting habitat for various songbirds. Some songbirds only nest in prairies that are not burned or grazed for a few years. One such bird is the Henslow's Sparrow (Ammodramus henslowii). Several were spotted during the second year of the bird surveys. You have to appreciate subtle beauty to appreciate Henslow's Sparrows. These small birds are mostly brown with a hint of yellow by their eye, a greenish wash behind their head, and a few short streaks on the upper breast. Their song is just as uninspiring–a short "tsezlik" that isn't very loud and only lasts about a half of a second. However, when you see a Henslow's Sparrow, you know you are looking at an icon of a vanishing habitat. In a state where most native prairie is grazed annually by cattle, these tall, thick, ungrazed prairies are hard to find. The lack of habitat is why the Henslow's Sparrow is listed as a "Species in Need of Conservation" in Kansas. No Henslow's Sparrows were observed during the first year of the surveys when the area had been burned that spring.

Point counts are great for getting a count of the number of breeding birds in an area. What if you want to learn more about birds migrating through? Those birds may be less likely to sing, making them harder to detect.

Recently, a Motus Tower was installed at Hutton. The Bird Conservancy of the Rockies received a grant to deploy towers throughout the Great Plains and we are honored to host one of them. We repurposed a nearly 100-year-old, nonfunctional windmill into a state-of-the-art Motus tower. These towers allow scientists to track the movements of individual birds. Before the development of Motus towers, satellite transmitters had to be used to track the long-distance movement of individual birds. The disadvantage of satellite transmitters is that they are large and heavy; the smallest bird that can be tracked with a satellite transmitter is a Lesser Prairie-Chicken (which weighs 1.75 pounds). Because the Motus transmitters are small, they can be placed on small birds like sparrows. Each individual bird has a unique signal that is picked up by the Motus

Pirate Spider (family Mimetidae) at Hutton. Photo by Eric Eaton

tower when the bird comes within a few miles of the transmitter. The transmitter relays that information via wifi or cellular signals to a database. The Motus tower has already detected 14 different individuals, all of them Swainson's Thrushes (*Catharus ustulatus*). This indicates that Hutton lies along an important route for migrating songbirds. One Swainson's Thrush was tagged in western Montana on September 19. It stayed at the place of capture for four days, presumably eating like crazy as it prepared for the next leg of its journey. It was last detected at the place of capture around 2:30 am on September 24. The next three detections were all on the same day, September 24: 4:30 am at another site in western Montana, 4 pm at Hutton Niobrara Ranch Wildlife Sanctuary in Nebraska, and 10:30 pm in Missouri. That thrush traveled 1227 miles in 20 hours! That's an average speed of 60mph! It would take us 23 hours to drive that route in a car.

Fish

Biologists from Nebraska Game and Parks monitor the small fish in Willow Creek. As we learned in last year's *Prairie Wings*, small fish are important because they are at the bottom of the food chain. Several state threatened species are found in Willow Creek. Biologists use electroshocking to survey fish. While wearing rubber waders, they send an electric current into the stream. This stuns the fish and they float to the surface. Fish are then scooped up in nets for processing. Species, sex, and length are recorded before they are released back into the creek. In an effort to standardize the sampling, they survey a total of 40x the average stream width at each station (minimum: ~500 feet and maximum: ~1000 feet). This method allows them to adequately sample various types of habitats found within the stream (i.e., riffles, runs, and pools). While conducting their survey on our property, they sampled a total of 216 fish representing seven different species: Blacknose (Rhinichthys atratulus), Longnose (R. cataractae), Northern Redbelly (Phoxinus sp.), and hybrid Finescale X Redbelly Dace (*Phoxinus eos x P. neogaeus*–threatened in Nebraska); Creek Chub (*Motilus atromaculatus*), Fathead Minnow (*Pimephales promelas*), and Plains Topminnow (*Fundulus sciadicus*).

Insects

One doesn't have to look hard to find an insect. We had two insect specialists, Eric and Heidi Eaton, visit Hutton during a work week toward the end of July. Eric Eaton is the primary author of The Kaufman Field Guide to Insects of North America and the sole author of Insectpedia. Both Eric and Heidi record the species they see using photography. Their cameras also record the location and time that the photo was taken. No other equipment is necessary, unless they want to look for insects at night. We all know that moths are more likely to be active at night, but there are many other insect species that are also active at night. Many of these nocturnal species are attracted to lights. Eric turned on the porch light and photographed insects landing on the front doors. Heidi set up a sheet on the back patio and pointed a black light at it. Different species were attracted to the different types of light. They upload all their observations to iNaturalist. Eric submitted 227 observations and Heidi posted 141 observations (they tried to avoid overlap). See all the plants and animals recorded at Hutton at https://www.inaturalist.org/projects/hutton-niobrara-ranch-wildlife-sanctuary

Prairie Dog on Greenwald Ranch. All photos by Mike Corn.

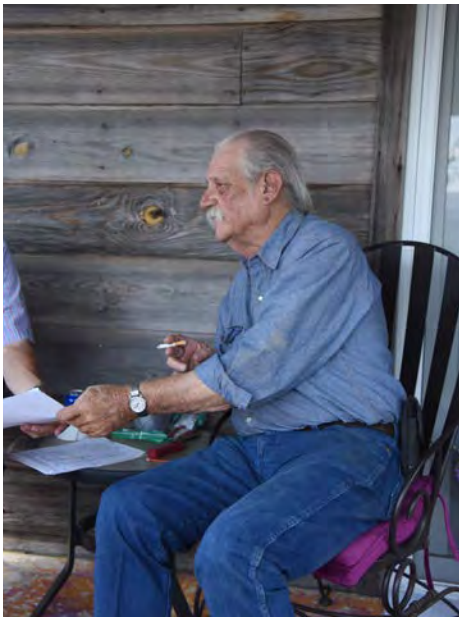
STANDING GROUND:

WITH PRAIRIE DOGS IN LANE COUNTY

Mike Corn

Prairie dogs are a keystone species in the shortgrass prairies of the Great Plains. They are a major food source for raptors including Golden Eagles and Swainson's and Ferruginous Hawks, for Burrowing Owls, who also use their abandoned burrows as nesting sites, and for other predators native to a healthy ecosystem. But the history of prairie dog/human relationships has been fraught, ever since the first European settlers invaded the prairie dogs' territories. Kansas, in particular, has on the books antiquated laws dating back to 1901, mandating eradication of the little rodents on the orders or at the hands of County Commissioners. AOK has advocated for years on behalf of prairie dogs and the ranchers who choose to give them a refuge on their land—not only because of the central role of members of the *Cynomys* genus in native prairie ecosystems, but also because flourishing prairie dog towns are crucial for the successful reintroduction of the endangered Black-Footed Ferret, a species that was on the brink of extinction by the end of the last century.

You can read about the recent history of AOK's struggles in back issues of *Prairie Wings*, which can be accessed at https://www. audubonofkansas. org/ under the drop-down menu "Publications"; see particularly *PW* Fall/Winter 2011, "Conservation of prairie dogs and Re-introduction of Black-footed Ferrets Requires Courage," by Ron Klataske; *PW* Winter 2012/Spring 2013, "AOK Applauds Appeals Court Decision;" *PW* Spring/Summer 2014, "The New Hard Times for Black-footed Ferrets in Kansas," by Ron Klataske; *PW* Fall 2015/Spring 2016, "Larry Saves the Prairie" and "Larry Haverfield:



Greg Greenwald, whose 3,600-acre Lane County ranch was the subject of an August visit by the Lane County Commission.

Greg Greenwald looks ahead as he leads a small convoy of vehicles on a tour of his Lane County Ranch to survey the areas where he has prairie dogs.

Memories of a True Conservationist," by Randy Rathbun; *PW* 2018, "Prairie Dogs Bring Out the Worst and Best in Wildlife Stewardship," by Ron Klataske; and *PW* 2020, "Ron K on BFF Restoration & Prairie Dog Struggles."

This report by Mike Corn on a recent visit by Lane County Commissioners to the ranch of Greg Greenwald shows that while tensions still exist and some landowners remain unreconciled to the presence of prairie dogs in their vicinity, there are still ranchers like Greenwald who will fight to control their own property and protect the "dogs." More hopefully, unlike earlier episodes, civil compromise and establishing measures of control seem in this instance to have achieved a peace, or at least a truce, between the contending parties.

However, Mike's reporting also highlights the struggles that ranchers like Greenwald face in addition to complaints about their prairie dogs, in these times of severe and sustained drought and economic challenges to their livelihood by climate change.
- Intro by M. L. Donnelly, Editor-in-Chief

ALAMOTA — Greg Greenwald didn't mince words when Lane County Commissioners visited his home last August 15th to talk prairie dogs. It's his right, the 75-year-old rancher said, to determine how he operates his 3,600-acre ranch, including managing the prairie dogs that inhabit about half of the acres. Perhaps more importantly, given the topic at hand at the time, Greenwald said he's held up his end of an agreement made in 2018 with the then-sitting commissioners. It was an agreement aimed at limiting or eliminating adverse effects neighbors might see from his decision to let prairie dogs thrive on his land.

After discussing a recent neighbor's complaint and touring the property on a day when the temperature soared above the century mark, commissioners suggested a few alterations, such as extending a barrier fence that is designed to let grass grow and discourage prairie dogs from crossing over onto adjacent property. Greenwald also plans to repair raptor perches, damaged by high winds, and said he would this fall again poison — with Rozol— prairie dog burrows that are closest to adjoining properties where there are signs of encroachment. As a means

of controlling the prairie dog population, he also continues to take reservations, sought primarily by out-of-state hunters, who target the animals. In the wake of the 2018 discussion and subsequent agreement with commissioners concerning prairie dog control, Greenwald has asked the more than 200 hunters who visit his ranch each year between May and October to keep track of the number of animals they kill. He said the numbers they report suggest anywhere from 18,000 to 20,000 prairie dogs are shot each year. "It's been a slaughter out there," he said, "but no hawks or eagles have died out there." The use of poison to kill prairie dogs is a bigger threat than other control measures because of the danger of residual deaths to other animals. Those deaths occur if prairie dogs don't die in the burrow. They then can be eaten by hawks and eagles, which are federally protected wildlife, as well as by coyotes or foxes. Greenwald said he refuses to use anything other than Rozol, an anticoagulant. The other poisoning methods include Phostoxin, a deadly gas that kills everything in the burrow and is especially hazardous, or zinc phosphide, a poison-laced grain. The latter treatment, he said, was not effective when he last used it, and is a threat to birds that pick up the grain.

Thoughts of deaths of other species, notably eagles, prompted Angie Reisch, Lane County's game warden, to ask commissioners about what action might be taken as a result of the tour. **If the prairie dogs are poisoned, she said, and any eagles were killed, she would investigate, as eagles and hawks are protected by federal laws.** Greenwald also wanted to know what the outcome of the meeting might be, but was told by Commissioner Cody Vincent, "We're not going to make you do anything." Commission Chairman Kiley Beach said he would talk to the neighbor who complained and detail steps Greenwald is taking to limit movement of prairie dogs. Commissioner Godfried "Bud" Newberry was in agreement that Greenwald was abiding by the 2018 agreement.

By virtue of powers originally given to township boards by the Kansas Legislature in 1901 and only slightly modified over the years, County Commissioners have the power to poison prairie dogs if a landowner won't; they can then send the owner a bill. If the bill isn't paid, the money due can be applied as a lien on the property.

Prairie dogs almost always elicit strong emotions, either for or against the animals. Generally, farmers loathe them, and strongly object to their presence — even if it's on another person's property.

Estimates are hard to come by, but it's thought that as many as 2 million acres of land were inhabited by prairie dogs in 1903. By 1989, that number had plummeted to little more than 46,000 acres. By 2008, a new survey method suggested the number was closer to 85,933 acres, still a 96 percent reduction from 1903.

At the outset of the recent meeting, Beach said the commissioners, none of whom were on the commission in 2018, were merely trying to do their due diligence after receiving a complaint from the landowner adjacent to Greenwald. That landowner had wheat planted this year and complained about damage caused by prairie dogs.

On the tour, Greenwald told commissioners that the border fence is designed to limit grazing by cattle,

After showing Lane County commissioners the border fence he built following a 2018 agreement with then-sitting commissioners, Greg Greenwald, near the center, points in the direction of the next stop on a recent tour to talk about his efforts to prevent prairie dogs from crossing over onto neighboring lands.

allowing the grass to grow taller, which discourages prairie dogs from passing through it. They avoid taller grass, which makes it harder for them to spy predators. Growth of the grass has been affected by the drought, and the buffalo grass that predominates on Greenwald's property is not prone to tall growth. "Mother nature has not cooperated," Greenwald said. "The grass has not grown." Greenwald said he is working with a state wildlife biologist in the search for taller grasses.

As noted, Greenwald also found that he's going to have to extend the border fence, as prairie dogs have expanded into an area beyond the current stretch of fence.

This year's drought and persistent heat not only affected the growth of grass, allowing the prairie dogs to expand their towns; they affected Greenwald's bottom line by forcing him to round up cattle grazing on his ranch, moving them three weeks prior to the meeting, and putting them into a feedlot to be fattened. He said between 400 and 600 head of cattle graze his ranch each year. Rain has been sparse in recent years, other than two years ago, and snowfall is a rarity anymore. Moreover, he said he didn't even try growing wheat this year. "I didn't even plant any wheat last year because last September with my (soil) probe I couldn't even get it in the ground."

During his meeting with commissioners, Greenwald heralded his efforts to attract hunters, citing their need for out-of-state hunting licenses and the money they spend in Dighton. **But above all else, Greenwald said he's willing to stand his ground in defense of his way of managing his property—and the resident prairie dogs.** "I'm an old Russian," Greenwald said, pronouncing it as "Rooshian." "I'm not going to let anyone run over me."

Left: Harnessed Moth (Apantesis phalerata) Caterpillar on Liatris Photo by Right: Two pollinators-Gray Hairstreak (Strymon melinus) and bee Photo by Jay Dee Miller.

NEONICOTINOID SEED TREATMENTS IN NORTH AMERICAN AGRICULTURE:

Hazards to Insects, Birds and Entire Ecosystems

J.P. MICHAUD
PROFESSOR OF ENTOMOLOGY, KANSAS STATE UNIVERSITY

The declining abundance of many bird species is readily apparent to any birdwatcher. Although the causes of declining bird populations are numerous, most share a single common denominator: human activities that kill birds either directly, or indirectly by diminishing their habitat or food supply. Some of these impacts will be difficult to prevent (collisions with cars, wind turbines, etc.), but others provide us with low-hanging fruit; they could be eliminated easily by legislation at little or no economic cost, and are thus ideal targets for public advocacy campaigns. One such target is the current practice of treating crop seeds with neonicotinoid insecticides, which eliminates not only pests, but many non-target insects that serve as food for birds, fish and other higher animals. Think about the fraction of total land area devoted to crops in Kansas (87.5 percent) and then consider that more than 95 percent of bird species rely on insects as their primary food source - even game birds like pheasants and nectar-feeders like hummingbirds require insect protein to raise their chicks. If our croplands no longer produce any insects, what are our birds going to eat?

As a professional entomologist engaged in crop protection, I counsel farmers on the best ways to protect their crops from pests, while at the same time avoiding non-target impacts—any harm to non-pest organisms. Although insecticides are often a necessary tool within our current model of agriculture, there are many ways to reduce their unwanted impacts, while

still achieving acceptable pest control. Farmers can wait until threshold numbers of pests are present, limit treatments to infested areas, and choose materials with selective activity that spare non-target organisms. These are among the principles of Integrated Pest Management (IPM), the paradigm of responsible pest management. They were developed sixty years ago and have helped us evolve beyond the indiscriminate use of insecticides that characterized agriculture over the past century, ultimately inspiring Rachel Carson to write *Silent Spring*. But now, **the corporate interests of "Big Ag" have quietly and insidiously abandoned these principles and effectively returned us to the environmental irresponsibility of 1950s agriculture,** promoting the prophylactic use of pesticides that are orders of magnitude more toxic to insects than DDT or the other compounds of that era.

Neonicotinoids are so named because they bind to the same nerve receptor as nicotine, which is also the binding site of acetylcholine, a key neurotransmitter. Both insects and higher animals possess these receptors, but they are much more abundant in the central nervous system of arthropods and other invertebrates, making them especially toxic to these animals. Their chemical properties enable them to be absorbed through plant roots and distributed throughout the vascular system. Thus, seeds coated with neonicotinoids grow into plants which remain toxic to any insect that feeds on them for many weeks, up to 60 or 70 percent of the entire lifetime of an annual plant. But these same properties mean they also move through the soil and into streams and lakes via runoff from farmers' fields, killing many other invertebrates—not just insects—in the process. Because they bind irreversibly to nerve membranes, there is no safe level of exposure for these organisms—even larger, longer-lived species can eventually accumulate a lethal dose, despite exposure to a very low concentration in the environment.

It is well known that the vast, synchronous monocultures that characterize modern industrial agriculture diminish biodiversity, but remarkably, even uniform fields of corn and wheat foster diverse communities of insects when left untreated with pesticides. Crop-based arthropod communities not only generate considerable biomass of flying insects to support bird populations, they also create stable food webs full of beneficial species that provide natural biological control of most pests, most of the time—including the many aphid species that are the primary target of seed treatments! These seed treatments not only kill everything that feeds on the plant, but also many innocent bystanders. These include invertebrates responsible for decomposition and nutrient recycling in both terrestrial and aquatic ecosystems, resulting in the accumulation of organic deposits in lakes and streams, contributing to reduced oxygen content and harmful algal blooms.

The broad-spectrum activity of neonicotinoids means they kill a wide range of organisms, potentially disrupting entire ecosystems. In cropland, they create a sterile culture where the natural enemies of pests must either die from starvation or abandon the crop. And these beneficial species don't escape exposure either. Neonicotinoids can be exuded by plants in droplets of fluid via a process called "guttation," and in floral and extrafloral nectar, all of which are utilized by many beneficial insects for hydration. Even flowering plants growing adjacent to a treated seed can become contaminated. Thus there are multiple routes of exposure, not only for pollinators, but also for predators and parasitoids, our natural pest control agents. And these insects need not be killed outright. Our research has shown that even small, sublethal doses can impede behaviors essential to their successful foraging and reproduction, thus driving population declines.

Giant Swallowtail (Papilio chresphontes) on Orange Butterfly Weed (Asclepias tuberosa). Photo by Dave Rintoul

In southern latitudes along the Gulf Coast, many pests breed year-round and can attack crop seedlings in very early stages, and it is here that seed treatments have been shown to provide marginal increases in crop yields, usually a few dollars per acre. Even there, the true costs of their use ("externalities" in the lingo of economists) are never factored into these calculations, as only the harvested product is considered. What about the loss of pollinators that diminishes fruit yield in a nearby orchard, or the decimation of ladybeetle and lacewing populations that otherwise would have migrated to neighboring fields to control pests later in the season? These might now require an insecticide application. **But at midwestern latitudes (Oklahoma, Kansas and parts north), there is no evidence at all of consistent yield benefits from seed treatments, and no justification for their uniform application on such a wide scale.**

In 2021, grain sorghum occupied almost 8.5 million acres on the High Plains, and virtually every seed was coated with thiamethoxam—and that is just one crop. Sadly, farmers are powerless to oppose the powerful oligopoly of the **seed/chemical companies, who now insist on treating all the seed of almost every crop, raising the farmer's cost of planting by $5-$10 per acre.** Now, even environmentally conscious farmers can no longer obtain untreated seed of most commercial crop varieties in a "free market" system that promised us choices!

The toxicological and environmental impacts of neonicotinoids are well documented in the scientific literature and beyond dispute. The European Union has responded by banning this entire class of chemistry, largely in response to evidence of massive declines in the total biomass of flying insects, using data obtained not from agricultural fields, but from adjacent nature preserves! Alternative pest control tactics have been implemented, and agricultural productivity continues apace, despite loud protestations by the chemical companies. **It is time for concerned citizens of the United States, catalyzed by organizations such as AOK, to demand federal legislation that bans the use of these compounds,** or at the very least, their needless and unjustifiable application to all the seeds of our crop plants.

CROSS TIMBERS

by Elizabeth Dodd

Remains of tree from 1747. All photos, unless otherwise credited, by Elizabeth Dodd

In 1974, A.W. Küchler, a geographer at the University of Kansas, published what he called a "new vegetation map" of Kansas. It was not, however, a presentation of the agricultural landscape which then dominated the state. This "new" map depicted what he called, in a scientific portmanteau word composed of 'that which has grown' and 'mingling together,' both from the Greek, phytocenoses. It identified "the potential natural vegetation," or plant communities, throughout the state. Based on soils, weather, and other underlying elements of the land, he portrayed the "floristic composition as dictated by its evolution and by the environment" (586). "Man can destroy the natural vegetation by ploughing, etc.," he wrote, "but when the land is abandoned, the natural vegetation will usually return" (586).

It's a hopeful, maybe even an innocent, concept. Such a map invites imagined time-travel to romanticized, unpeopled realms—a false past where indigenous land management is erased, or a future where the catastrophe required for such widespread abandonment has left no trace. In Küchler's granular detail, county names, lati-

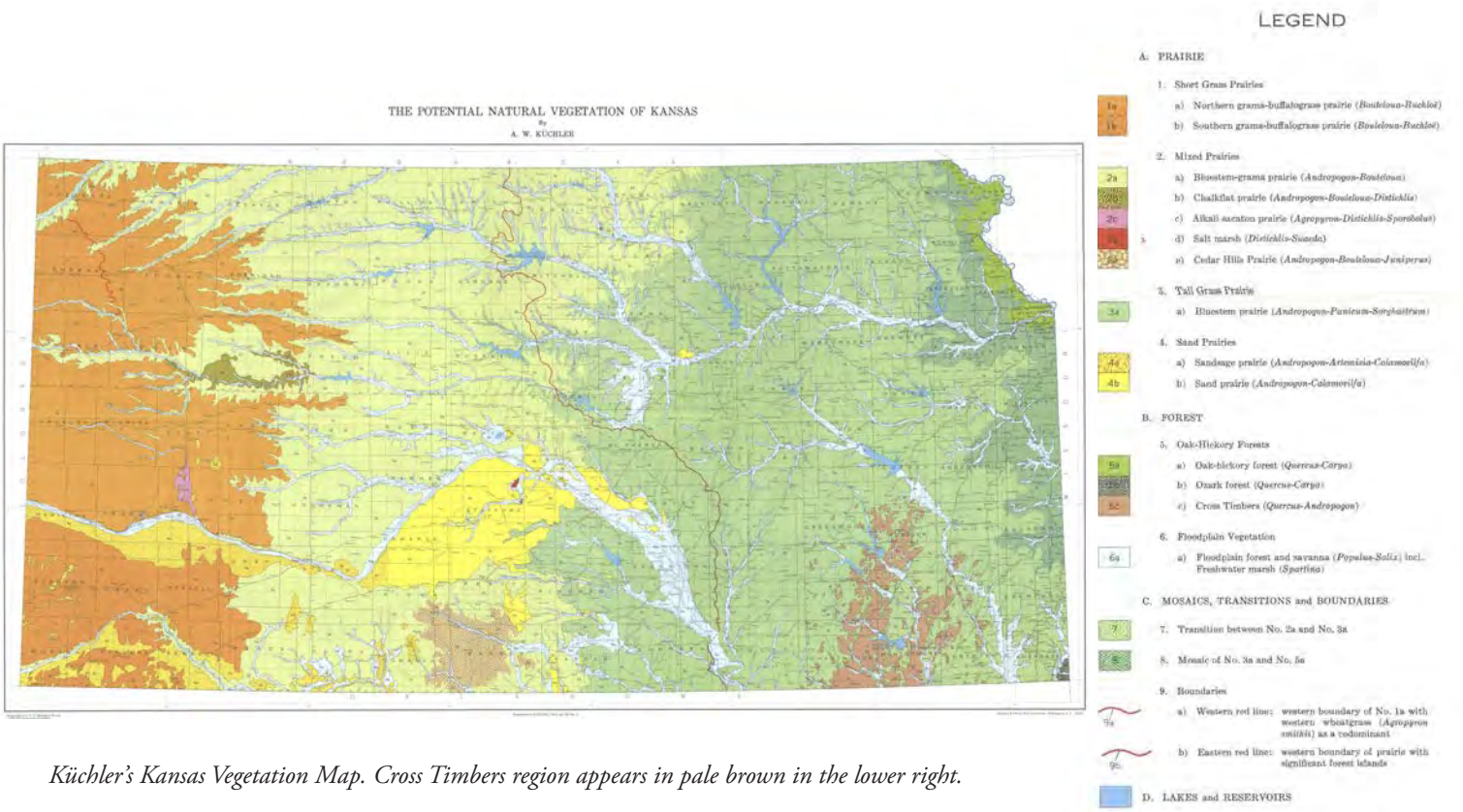
tude and longitude lines, railroads, reservoirs—all these are recorded. Towns and cities alike are marked with an inconspicuous dot. But there's no hint of the great mesh of roads laid across the land. Instead, the color wheel unrolls from warm in the west to cool in the east, delineating ten types of prairie and two of oak-hickory forest, all transected by wide, pale floodplains or savannahs, within which skinny rivers writhe in royal blue.

Against the background green of tallgrass prairie in the southeast corner of the state, what looks like a splatter of cinnabar seems splashed up from somewhere below the Kansas state line. This represents the third forest type in Kansas, the Cross Timbers, where post oak and blackjack oak grow in close association. In Küchler's map, this final phytocenosis is an archipelago stretching from the Caney River on the west to the Neosho on the east, and not quite reaching to the Redmond Reservoir on the north. Named Quercus-Andropogon for its two dominant genera—oak and bluestem—the Cross Timbers west of the Neosho are the northern most peninsula of a forest that once dominated Oklahoma and stretched hundreds of miles into Texas. Like ecosystems and habitats everywhere, that forest is much diminished—no surprise there. However, scattered among the landscape's reservoirs and patchy woods are some relict stands of very old trees, survivors of not just decades, but centuries.

"Only one acorn in a thousand ever grew large enough to fight rabbits," Aldo Leopold wrote in *A Sand County Almanac;* "the rest were drowned at birth in the prairie sea" (7).

Musing on the convergence of conditions that might have led to the survival of one particular tree in the sand prairie of his Wisconsin farm, in the sketchbook narratives of his almanac Leopold presented a primer of what he called "an ecological education"—here, recounting the ten-year rabbit cycle and laying the life-span of a lightning-killed tree against a record of human activity on the landscape. Felling the tree for firewood, he reflected on "the integrated transect of a century," tracing the record of human actions in the sand prairies—burned and drained prairies; extirpation of predators, market slaughter of prairie-chickens, wild turkeys, and passenger pigeons; and a great plow-up of what he called "wheating the land to death" (13). As "fragrant little chips of history spewed from the saw cut," Leopold recounted the years, back to both the decade of the Civil War and the very year when John Muir asked his brother to sell him their family's old Wisconsin farm as a sanctuary for wildlife. "Our saw was biting its way," he mused, "stroke by stroke, decade by decade, into the chronology of a lifetime, written in concentric annual rings of good oak" (9). The tree in question was a blackjack oak, a species which, along with its frequent companion post oak, provides a textbook example of a plant well-adapted to grassland cycles of drought and fire. And in commentary on this particular blackjack's ledger, Leopold listed wet years and dry, all of which were laid down in the variable width of annual ring growth.

While the fact that tree rings record local weather history had long been known, including mention by Leonardo da Vinci in the 16th century and George-Louis Buffon in the 18th (Liutsko et al., 2016), the development of dendrochronology—tree ring dating—took place in the same region where Leopold worked for the US Forest Service from 1909-1924. While Leopold was stationed in Arizona and New Mexico, an astronomer named Andrew Ellicott Douglass was in Arizona pursuing his



Küchler's Kansas Vegetation Map. Cross Timbers region appears in pale brown in the lower right.

theory that the eleven-year sunspot cycle drove weather patterns on Earth. Beginning in 1904, Douglass sampled ancient trees, starting with ponderosa pines from Arizona, then reaching out to collaborators to acquire giant Sequoia from California, and specimens from Germany and Scandinavia. The men's time in the Southwest overlapped at a significant point in their careers; by the time Leopold was a supervisor in Carson National Forest (1912-1925), Douglass was establishing a long chronology using additional, well-preserved timbers in Ancestral Puebloan ruins in the Four Corners region.

I can't prove it, but I suspect that Leopold would have been acquainted with Douglass's pursuits. In 1922, Douglass addressed the American Association for the Advancement of Science meeting in Tucson; if Leopold, then exploring his theories of erosion control in mountain headwaters, wasn't in attendance, he could certainly have read the published remarks later that year. Both men employed the metaphor, widely used by 19th century natural history writers and literary Transcendentalists, of reading the book of nature—and more specifically the stories written within the bodies of trees.

"The forest is one of the smaller pages in nature's book," Douglass wrote, "and to him who reads it too tells a long and vivid story…The trees composing the forest rejoice and lament with its success and failures and carry year by year something of its story in their annual rings. The study of their manner of telling the story takes us deeply into questions of the species and the individual, to the study of pests, to the effects of all kinds of injury, especially of fire so often started by lightning, to the closeness of grouping of the trees and to the nearness and density of competing vegetation…" (5).

When you look at a very large, old stump left standing in the forest, you might marvel at its size, pause to count its rings, like pages, and reflect a little on the difference in potential longevity between trees and ourselves. Personified as Tolkien's Ents, tree-beings' sense of scale would surely dwarf our own—we would appear, as Treebeard observed, "a hasty folk." Leopold knew the death date of his oak, as did Douglass with the first pines he felled to establish his data set. Once you have that end date, it's simple enough to count back to germination. In his next step, Douglass studied the specific patterns—wide rings and narrow—across a range of trees in the

American west, from leviathans he cut specially for the task to ancient beams in Native American buildings. He essentially lined them up, cross section by cross section, the rings overlapping when two trees revealed they had been living compatriots. The resulting ruler stretched ever further into the past as the older specimens revealed earlier patterns of growth.

If concentric growth rings are one sort of circular visualization of chronology, the great cyclical patterns of the Mayan calendar are another. Two calendars of days mark time on a human scale (the Tzolkin and the Haab, which measure cycles of 260 days and 365 days, respectively). A third, the Long Count, cycles through 5,126 solar years—a period that could more properly count the rise and fall of cultures or, perhaps, some of the very oldest living organisms on the planet, the North American bristlecone pines or clonal quaking aspens, or a particular cypress tree from South America. Together, the calendars laid out the rich substrate of time on which events both sacred and secular unfolded in the Maya's written histories, all recorded in the illustrated, folding books referred to now as codices. "They wrote their books," Bishop Diego de Landa wrote in 1562 "on a long sheet doubled in folds, which was then enclosed between two boards finely ornamented…The paper they made from the roots of a tree, and gave it a white finish excellent for writing upon" (Section 7). Famously, the Spanish priests installed in South America destroyed nearly every written record. The few which escaped you can count on just one hand. "We burned them all," Landa wrote, "which they (the Maya) regretted to an amazing degree, and which caused them much affliction." Centuries of a cultural past, reduced to illegible ash and the still-infinitesimal carbon footprints of anthropogenic change.

Only recently did I learn that *codex* derives from Latin's *caudex*, meaning the split trunk of a tree. Fascinatingly, *library*, too, has etymologically Latinate roots within the bodies of trees: *liber* meaning *book* appears, says the *Oxford English Dictionary,* "to be a use of liber, bark, the bark of trees having…been used in early times as writing material." I often realize that words know more than I do, through their own long histories. But whatever connection between liber-book and liberty might lie within metaphor—or not—my language skills can't quite untangle.

Meanwhile, Leopold, in the final pages of *A Sand County Almanac*, noted the difference "of velocity" between change on the level of evolution ("slow and local," he termed it) and anthropogenic change. The latter he called "Man's…changes of unprecedented violence, rapidity, and scope" (217). By then he had come to describe land itself as "an energy circuit," and was much concerned with the "comprehensive" and "unforeseen" effects of disrupting the beauty, stability, and integrity—his touchstones of a land ethic—with planet-wide disruption. Some of his words can seem tragically prescient. Agriculture, industry, and transportation he singled out for attention. "Transportation taps the energy stored in rocks," he noted, and this accelerated release of stored energy amounted to a release of "biotic capital" that would "becloud or postpone the penalties of violence." (218)

Kansas is widely recognized as home of the largest relict of the tallgrass prairie, one of the most endangered ecosystems in North America, with less than 4% of its pre-European contact expanse still left intact. *Andropogon gerardi, Sorghastrum nutans, Panicum virgatum*—big bluestem or turkeyfoot, Indian grass, switchgrass—from whichever shelf in the cupboard of language you pull out the names, the grasses whisper about their long hold on the soils of the central plains. However, the oak forests that remain in Kansas represent another vanishing biome far less celebrated or even recognized. Post oak, blackjack oak, white oak—these are the trees that dominate the splatter-pattern soil map Küchler laid out

Sandstone outcrops

in 1974. And it's oaks, as well as prairie forbs and grasses, that tie Kansas species to Leopold's love of sand prairies in Wisconsin as well as to Douglass's examination of tree rings in the southwest.

In the early 1980s, a doctoral student in the Physical Geography Department at Arizona State University named David Stahle was collecting tree core samples from oak forests in the southeast. He had begun his college studies in archaeology at the University of Arizona, the institution where A.E. Douglass had established his Laboratory of Tree-Ring Research and the early science of dendrochronology helped to date precisely the construction of Ancestral Puebloan kivas and great houses. In the early 1980s Stahle and his team conducted core sampling from a few old historic buildings in Arkansas, as well as their real focus: post-oak and white oak forest from 42 separate locations scattered across Oklahoma, Texas, Missouri, Arkansas—and Kansas.

He located ancient trees—old-growth forests, he called them—from the Kansas Cross Timber woodlands in Elk River, Fall River, and Toronto Lake.

Stahle's point was not simply to identify the oldest trees in any of these spots. Instead, he was assembling a long chronology of growth rings, within which he could read not just the regular pulse of years but also the disturbances within that pulse that would indicate weather anomalies. His main interest was locating rings which showed damage to the cambium from spring frost—the so-called "false spring" events when severe sub-freezing temperatures strike after more than a week of mild weather—the thermometer's version of mercury in retrograde. Prompted by early warmth, a tree leaves its dormant phase and begins to make "early wood," the light-colored, less-dense tissue indicating rapid springtime growth; a sudden plunge of ten degrees Fahrenheit or more leaves a record in the growth ring, crushed or exploded xylem cells that can be clearly seen under a microscope. Stahle's team first assembled a frost-ring chronology stretching over 330 years, and then cross-referenced the years with cellular damage against any available weather records elsewhere in the US, in order to connect the local oak damage with widespread weather events.

Frost rings in the trees' cellular structure speak of late freezes 1826, 1828, and 1870; newspapers and diarists from Iowa to Arkansas to Mississippi record mild winters—*peach blossoms by Christmas near Little Rock!—or late springs—4 degrees F on April 10 in Ft. Snelling, Minnesota!*—and in the confluence of these accounts, Stahle infers particular weeks or even days when a cold snap gripped the living tree and left behind the print of injury. Samples from the data set reveal frequent injuries in the Southern Plains between 1814 and 1821; he mused that "it may not be merely coincidental" that this spate of false springs falls around the 1814, 1815, and 1818 Tambora volcanic eruptions. However, no record of those possibly-volcanic-prompted freezes appeared in the tree samples from Kansas, so there's no definitive connection visible this far north in the Southern Plains.

The urge to map human time onto evolutionary time, geologic time, or any other kind of longue durée, draws us to whatever kinds of "clocks" we can find in the more-than-human world, and to the records we infer from such time-keeping. We're a species deeply predisposed to notice patterns. And we want to bring the calibration of personal experience into alignment with much larger scales. The very fact that hillsides in Kansas were still home to trees that sprouted as early as the 1720s caught the imagination of Doyle Niemeyer, the superintendent of the state parks at Toronto Lake and Fall River for nearly twenty years. In 2002, drawing on Stahle's research from the early 1980s, Niemeyer laid out a trail above the reservoir at Toronto Point, and convinced the Kansas legislature to rename the park in honor of the Cross Timbers biome.

Cross Timber forests are dominated by both post oak and blackjack oaks, but the latter generally don't exceed 80 years or so of age—the lightning kill of Leopold's blackjack oak was a timely death. It's post oaks that become the truly venerable. Sandy soils and sandstone outcrops in the hills above the former stream channel of the Verdigris River are precisely the kinds of semi-xeric habitat where both oaks thrive. And because neither species has much value as commercial lumber, they're rarely clear-cut as a commodity. Following construction of the dam in 1960, the old trees on the upper slopes survived in the relative protection of the park; far more may have been submerged in the impounded waters. Niemeyer's Ancient Trees interpretive trail speaks to the urge to map ourselves into older cycles and landscapes. It winds for a mile along a hillside overlooking Toronto Lake, tracing a line of sandstone outcrops and skirting several open patches of big bluestem. Mostly, though, it loops through post oaks, cedars, a few hickories, some blackjack oaks—an accessible relict of the old Cross Timbers forest that once stretched through the Chautauqua Hills. Signage installed in 2002 guides visitors past trees that have stood on that particular slope of land not just for decades, but, in a few cases, for centuries.

On a warm, clear day in early September, Gail Harshaw is my guide as we walk together and discuss the trail and the old trees. (I'd spent the night before at Mann's Cove campground, only a dozen or so primitive spots on a peninsula flanked by the reservoir's arms, where coyotes and a pair of barred owls called after sunset.) Gail, a resident of Fredonia, Kansas, worked with the park under the AmeriCorps program at the time the trail was first established. She did some of the research for the interpretive signage, managed aspects of the project's purchasing, wrote grant proposals. It has been several years—maybe a decade—since she visited the place and she generously risks ticks and chiggers (both of which, it turns out, are abundant despite the weeks of dry summer weather) to come stroll with me among the trees. Leaf litter rustles underfoot and sunlight slants through the deciduous canopy, falling on the occasional swallowtail butterfly. Vultures coast over the lake below and we hear occasional calls of killdeer from the water's edge.

Despite spending three decades in tallgrass country, I'm deeply drawn to ancient trees. No—I love them. In the Appalachian forest where I grew up I've hiked in old-growth forests where 500-year-old poplars and oaks stretch a hundred feet into the air, shading out most understory shrubs or grasses. There a "cove" means a little valley, a bowl between ridgelines where the soil is deep and rich. In the Pacific Northwest I've slept in old-growth groves of Douglas firs that can reach 300 feet above the pine-needle duff of the forest floor. Cross timber forests resemble neither. Here, the oldest oaks

grow no more than 30 feet or so in height. They're slow-growing, so even trees a century old might be no broader than a cottonwood half that age. But if you look carefully, they do seem old. They're knobby and twisty, with massive limbs. Holes gape. Lumps show where, once, limbs protruded from the trunk. Oaks self-prune through *cladoptosis*, shedding lower limbs that might be damaged or shaded out by the canopy above. Over time the scars left behind bark over like calluses or muscular-looking boles. Such trees seem highly expressive, each one a personality with a life story, even more so than the ancient evergreens of the northwest forests.

Niemeyer selected fourteen of the trees Stahle had dated twenty years before and threaded the trail among them—not so close that you would touch each tree as you passed it, but rather so you'd stand a short distance away, lifting your gaze from sign to trunk to crown and then back down. Each sign includes a photo of the tree's appearance in 2002 and gives the date it sprouted. The text then calibrates the oaks' lives with moments in state and national history.

"This tree," reads one, "was 6 years old in April, 1869 when Enoch and Sarah Jane Reeves, early settlers along the Verdigris Valley deeded land to the incorporated town of Toronto. Some of the founders of the town, formerly of Canada, named the town after Toronto, Canada." Today the understory has grown up, but it is still easy to recognize the wavy, gnarled cast of the upper limbs from the photo in the standing tree. One of the largest branches is now shattered, and we imagine there's a threat of rot traveling down to the trunk.

Another, dated to 1780, "was 24 years old when Meriwether Lewis and William Clark, by order of President Thomas Jefferson, began exploring the territory of the Louisiana Purchase." Here the undergrowth is particularly thick, and I thrash around a bit, trying to get a glimpse of the upper branches. Gail and I think both think we see a few green leaves. "It actually looks healthier now than it did in the picture," she says. And it does! But that might also be a trick of the green light from the saplings below.

"In 1832 when this tree began to grow," reads another signpost, "Washington Irving published his account of travels through the Cross Timbers in *A Tour of the Prairies*, a book which is to be credited for authenticating the Cross Timber name." The trunk bends slightly

Sandstone outcrops

Gail Harshaw and remains of 1752

off-center, as if it once leaned to the side to avoid yet another, long-vanished tree. Much as I like the allusion to the 19th century novelist—he called the Cross Timbers a "forest of cast iron"—I'm tempted to supplement the text with other references—*This tree was 24 years old when John Brown led a massacre of pro-slavery homesteaders at Osawatomie.* Or maybe, *When this tree was 21 in 1853, all of what would become next year Kansas Territory was guaranteed by treaty to various Indian nations.*

Halfway into our hike, we find a vigorous oak with a girth we could hardly reach around together if we tried. It's a beautiful tree, taller and straighter than many we've seen, and the grain of the bark slants a bit, as if the tree had twisted slowly, the way you might cast your gaze across the landscape. No sign accompanies it, but we think surely, the researchers would have considered this a promising sample. We circle the trunk, scouring it for the kind of blemish that might indicate it once was cored. But we find nothing that small—core samples

were only about the size of a pencil. Another tree appears to have been tagged at some time. Like one of the quarters you'd slide into a dryer at the laundromat, the bright aluminum is disappearing into the tree—only a single digit is legible, a 9 or a 6.

Kimberly Jones, the current manager of the park, examined their archives but found no files that might identify other trees from the original sample set that might have been omitted from the trail. When I wrote to Stahle inquiring about how to pinpoint the exact locations of any additional trees, he pointed out that all their collecting took place "pre-GPS." At first I was disappointed. But, in the end, isn't there something attractive in the idea that a stationary tree might shake free from whatever grid or file inscribes it in a data set, and then slip out into deciduous anonymity in the forest?

But we're struck by how many of the trees have died. Of the nine trees dating to the 1700s, only one seems to still have a little green life in it. The others lie as logs among the leaf litter, or stand as rotting snags, or have vanished altogether. "I don't remember that many being down," Gail says, recalling the last hike she took here, with her grandchildren. Back at the trail's start, a park sign promised fourteen ancient trees; we find only three still alive.

Stahle's collection sites ranged throughout Oklahoma and into Texas, sampling the full expanse of remaining Cross Timbers forestland. Several trees in Oklahoma and Texas were decades older than their kin in Kansas. A tree in the Black Fork Mountain Wilderness that straddles Arkansas and Oklahoma dated to 1650; another, in the McCurtain Wilderness in southeastern Oklahoma, dated to 1627 (*Tree Ring Records* 28). The most ancient ever found grew near the Keystone Ancient Forest Preserve in Oklahoma. Sprouted in 1610, it had seen four centuries of springs and autumns, summers and winters, when it was felled. "This tree was destroyed in 2013 to clear a building site," Stahle explained, "an inglorious fate for the oldest known post oak in the entire ecoregion" (*Ancient Cross Timbers* 9).

Those very old dates from Oklahoma make me wonder about the dying trees around the lake. As we walk the return loop of the trail we note the high-water line. Pale logs, some as big as trees featured along the trail, lie beached above the cove's shoreline like enormous bone piles; perhaps some were cohorts of these ancients, floated up from some former thicket in the bottomland.

I wish I knew about the health of the elders farther south, and whether some widespread die-off has affected the greater Cross Timbers biome, or whether this is a local phenomenon. Recently, Thomas R. Rogers and F. Leland Russell have studied "recruitment" of second-growth trees to the Kansas Cross Timbers forests over the past few decades. They found that blackjacks—one of Leopold's favorites in the sand prairies far to the north—do quite well in dry years, post oaks slightly less so, but I haven't found studies regarding recent die-off in the old-growth forest. Could it be a consequence of the lake itself? Post oaks thrive in sandy soil, in stony, dry conditions. While the stones remain, the fluctuations in the water table through the past sixty years have surely meant wet feet for some of the trees. Still, the surrounding forest is home to some mighty burly, vibrant trees. I wonder how many additional ancient oaks Stahle's team cored that weren't spotlighted in Niemeyer's trail. Gail and I locate a few likely candidates, full of gnarly character, and we never stray far from the trail. So perhaps, a little ways away, there could be several still quickening

Summer Tanager (Pirangra rubra) by Bob Gress, BirdsInFocus

each spring, laying on new wood and opening buds. A few lines from the poet Mary Oliver come to mind.

> Around me the trees stir in their leaves
> And call out, 'Stay awhile.'
> The light flows from their branches.

And it's true—in September's slant light, it feels as if light pours from the trees themselves, instead of only washing past them. Stand still enough in shafts of autumn light, the equinox drawing near, and you can feel yourself straddling a point where time, in its myriad cycles and scales, seems to swing close enough to splash you in shadow before it banks and wheels away.

"I think that was one reason Doyle [Niemeyer] wanted to get it done," Gail muses as we contemplate the number of dead, "—to capture it before it all died and nobody ever knew about it."

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Storm brewing over the Konza Prairie Biological Station. Photo by Sarah Winnicki-Smith

WEATHERING THE STORM:

A TALE OF EXTREME WEATHER AND THE GRASSHOPPER SPARROW

KOLEY FREEMAN

Growing up, my only knowledge of Kansas was the black -and- white farm fields from the movie, The *Wizard of Oz.* So when I relocated to Kansas in my late twenties, I was quite surprised to be greeted by the beautiful and lush tallgrass prairies of the Flint Hills. It also wasn't until I moved that I met and fell in love with a small, elusive bird, the Grasshopper Sparrow.

Whenever I tell someone that I study Grasshopper Sparrows I get one of two responses. The first is that they've either never heard of or seen a Grasshopper Sparrow, which is not an unexpected response. Grasshopper Sparrows are not a well-known species to non-bird enthusiasts. They don't frequent bird feeders, nor are they memorable for bright, flashy colors. I'll be the first to admit that they are quite drab on first inspection, but if you look closely enough you can see beautiful shades of rufous browns, pale grays, and hints of vibrant yellows. These secretive birds are great at blending in and hiding, scurrying through the tall grasses to avoid predators, and as a result it can be much easier to hear its distinctive insect-like song than to actually see one.

The second response usually involves a lengthy discussion about how they used to see Grasshopper Sparrows all the time but not as frequently, if at all, anymore. Unfortunately, this response mirrors what we are seeing in a population of Grasshopper Sparrows that breed at the Konza Prairie Biological Station just south of Manhattan, Kansas. The population is part of a grassland songbird project, led by my supervisor and mentor Dr. Alice Boyle, which has just wrapped up its tenth and final year. Every summer for the past decade, a crew of dedicated graduate students and field technicians have braved the early mornings and mid-day sun to monitor the movements and reproductive efforts of Grasshopper

Sparrows. But, as time has passed, there have been fewer sparrows to follow.

The Grasshopper Sparrow is a species of grassland bird, a group of birds that live and breed in open landscapes dominated by grasses and forbs. Since the 1970s, grassland birds have declined by a staggering 53 percent, the most of any group in North America. Such declines are considered to be largely a result of loss of habitat due to mismanagement and conversion of land to agriculture. Furthermore, shifting weather patterns throughout the prairies may also present an increasingly difficult challenge for grassland birds.

Grasslands are highly dynamic habitats. Without grazing and fire, the fields of grasses and forbs can quickly be taken over with shrubs and trees. Without precipitation, the grasses will not grow. Rainfall in the mid-continental grasslands of North America is variable, resulting in some drought years and other years with excessive rain. The amount of rainfall in a given year can have cascading effects up the food chain, impacting first the growth of the vegetation, then the abundance of insects like grasshoppers that consume the plants, and eventually Grasshopper Sparrows which eat the insects and nest in the grasses. But rainfall amounts and patterns in the area are changing.

It is predicted that by 2050, Kansans will experience double the number of days of heat waves as they do now. Along with warming temperatures, summertime precipitation is expected to decrease, leading to longer periods of drought, drier soil, and higher risks of wildfires. During the summer it is predicted that there will be fewer periods of rainfall, but when it will rain, it will be in more intense downpours. The subsequent increase in severity of storms and intensity of rainfall may put extra strain on an already declining species. As a result, I am interested in understanding how a small-bodied grassland songbird like the Grasshopper Sparrow may respond to and survive these increasingly severe storms.

During poor weather, birds can use several behavioral strategies to survive. One option is to seek refuge in dense foliage, hunker down, and wait it out. Another is to avoid unfavorable weather by dispersing from the affected area. But for nests, movement isn't an option.

Grasshopper Sparrows construct their nests on the ground using grasses and dead foliage to create a domed cup. These nests are well concealed, so to find them you need to have a good pair of hiking shoes, a lot of time and patience, and sometimes a rope. Searching for nests in what feels like an endless sea of grass is an acquired skill and one that I personally do not have much practice

Female grasshopper sparrow on her nest. Photo by Sarah Winnicki-Smith

Left: Grasshopper sparrow being released after its body composition was estimated. Photo by Aja Wong. Right: The QMR used to measure body composition of live animals and is moved around the study area in a trailer. Here, Dr. Alice Boyle prepares a grasshopper sparrow for its scan. Photo by Koley Freeman.

with, but I have had the pleasure of observing expert practitioners in action. A telltale sign that you are near a nest is that a female will flush, which is a startling event for both the bird and human involved. Her sudden takeoff can be triggered if you or the rope you're dragging gets close enough to her nest. From there, it is time to get on your hands and knees, gently moving around the vegetation until you find the opening to the nest the female flushed from.

Once found, the nests are checked regularly. We keep track of who the parents are by giving each a unique combination of colored bands on their legs, allowing us to subsequently identify who is who using binoculars. We also count how many eggs are in the nest, how many eggs hatch, and how many nestlings successfully fledge. However, the vast majority of nests don't have a happy ending. Roughly 60-70 percent fail each year, and the suspected causes of failure are numerous. Most are attributed to predation by snakes, mammals, and avian nest predators, but weather may also play a role.

Because Grasshopper Sparrow nests are constructed on the ground, they are prone to flooding. Unfortunately, as soils dry and downpours become more intense the chances of nests filling with water increases, so future nests may be more prone to failure as a result of weather.

In addition to behavioral strategies, birds can also respond to poor weather by modulating their energy stores. Like humans, birds can break down fat and protein for energy. The majority of fat is located surrounding the organs and just under the skin, which in birds is thin and translucent, allowing for a good view of the yellowish fatty deposits. Fat is great for birds because it is relatively light and compact, perfect for flying. Alternatively, birds can get energy from musculature and organs by breaking down protein.

We can study the amounts of fat and protein birds have by measuring their body composition. First, we set up a net strung between two poles called a mist net. Then

with a bit of patience and luck we catch the bird, immediately remove it from the net, and begin to process it. Each bird caught gets a government issued metal band that goes on its leg with its own unique number so the bird can be identified if caught again. We also measure the mass and various parts of its body like the length of its wing to get an idea of its size and condition. Finally, the bird is placed in a small tube and placed in a quantitative magnetic resonance (QMR) machine that estimates body composition. The machine measures the bird's fat and lean mass, which includes the protein rich organs. The entire process is quick and within minutes, the bird is released back onto its territory.

We learn a lot from catching Grasshopper Sparrows. We can gain information about how old they are or whether they are carrying ectoparasites. But the QMR allows us to take a look at what is happening internally. By investigating the body composition of Grasshopper Sparrows, we know that they rely heavily on their fat stores rather than sources of protein to survive storms. The good thing is that birds are capable of rebuilding their fat stores quickly so as long as they have enough fat to survive a storm; they can start foraging once the rain stops to replenish their energy stores.

While storms can impact reproduction and survival, the role they play in driving population trends is still being investigated. Logically, if severe weather leads to higher rates of nest failure and a lower chance of survival, then populations should decline, but how much influence storms have on the population and whether there are other factors to consider is what we are focusing on next.

I hope that people learn from the plight of the Grasshopper Sparrow as they are emblematic of the challenges faced by inhabitants of the disappearing grasslands of North America. Grasshopper Sparrows represent only one example of how the changing landscape and climate can have dramatic consequences on species persistence. Research initiatives, such as Dr. Boyle's grassland bird project, are integral to understanding the natural world in which we live and also provide knowledge that can be used to shape conservation efforts, land management decisions, and policies.

Grasslands are in peril and are continually lost to woody encroachment and conversion to agricultural land, which does not bode well for the Grasshopper Sparrow. On Konza, Grasshopper Sparrows are found in highest abundance in areas that are burned every other spring and have little to no woody vegetation. Without suitable habitat, the sparrows may be forced to breed in less productive areas and have fewer areas to disperse to when avoiding storms. It is therefore essential to manage and preserve the grasslands effectively if we want the Grasshopper Sparrow to have a fighting chance against increasing climatic pressure.

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REDBIRD LOVE

Joy Harjo

We watched her grow up.
She was the urgent chirper,
Fledgling flier.
And when spring rolled
Out its green
She'd grown
Into the most noticeable
Bird-girl.
Long-legged and just
The right amount of blush
Tipping her wings, crest
And tail, and
She knew it
In the bird parade.
We watched her strut.
She owned her stuff.
The males perked their armor, greased their wings,
And flew sky-loop missions
To show off
For her.
In the end
There was only one.
There's that one you circle back to–for home.
This morning
The young couple scavenge seeds
On the patio.
She is thickening with eggs.
Their minds are busy with sticks the perfect size, tufts of fluff
Like dandelion, and other pieces of soft.
He steps aside for her, so she can eat.
Then we watch him fill his beak
Walk tenderly to her and kiss her with seed.
The sacred world lifts up its head
To notice–
We are double, triple blessed.

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