



Prairie Wings

Advancing Conservation in the Great Plains 2019



A Letter From the Chair

Margy Stewart

Isn't hope as natural as Whooping Cranes, Least Terns, and Black-footed Ferrets? And shouldn't we protect hope from the risk of extinction, too?

The news is despair-inducing. Take this recent headline from the National Geographic web site: "One million species at risk of extinction, UN report warns" (May 6, 2019). The accompanying article is even more dire, for it turns out one of the species at risk is *Homo sapiens*. Plants and animals create the conditions we need to survive—and yet our appetite for natural resources continues to grow, even though destroying the habitat of our fellow creatures means we are destroying our own as well.

This devastation is not a new story. In fact, since the industrial revolution, much nature writing has featured what literary critics call a "narrative of loss." As Jan E. Dizard writes in *Going Wild*, "The narrative of loss has turned the dominant national celebration of Manifest Destiny and growth on its head—the march of progress is now commonly depicted as heading us for a cliff."

No wonder so many people prefer virtual reality, losing themselves in phones and tablets, never venturing outdoors. As Bill McKibben writes, "The end of nature makes us reluctant to attach ourselves to its remnants, for the same reason that we usually don't choose friends from among the terminally ill. I love the mountain outside my back door... But I know that some part of me resists getting to know it better—for fear, weak-kneed as it sounds, of getting hurt."

Loving nature is a good way to get your heart broken. "It is hard to bear... it goes to my very heart," wrote John Muir when he lost the battle to stop the dam that destroyed his beloved Hetchy-Hetchy valley in Yosemite National Park.

But paradoxically, love is also a good way to generate energy, determination, and action.

Ever since we in AOK decided to support Wildlife, Parks, and Tourism's guidelines for the siting of industrial wind turbines, we have sided with the people in Reno, Marion, and McPherson Counties who are resisting proposed wind developments that violate those guidelines (see pp. 26-28, below). The people in those counties love their land communities, and they treasure the plants and animals that are their neighbors. They cherish the birdsong out their backdoors, the eagles that nest nearby, the migrating birds overhead. They feel joy when endangered Whooping Cranes drop down out of the sky to feed in neighboring fields; they wish safe journeys for those magnificent birds on their hazardous migrations. They don't want to lose their sunsets to shadow flicker or their native prairies to machines.

Faced with the prospect of heartbreaking loss, they do not hide indoors in despair.

Instead, they fight for what they love.

We in AOK are proud to fight with them.

Yes, we make ourselves vulnerable by caring about a land community slated for the chopping block—but we make up for it with the joys of working with wonderful people and doing what we can, together.

We hope for the best! And our hope is *well grounded*. For if ecology teaches us anything, it is that one small interaction can affect the whole.

This is the "butterfly effect"—where metaphorically, the flap of a butterfly's wing on one side of the earth can lead to a hurricane on the other. Described half a century ago by MIT meteorologist Edward Lorenz, the "butterfly effect" is defined as "the phenomenon whereby a minute localized change in a complex system can have large effects elsewhere."

No matter how small our grassroots actions may seem compared to the march of industrialization and "development," when we advocate for nature we can never predict the outcome.

We might be Davids, yes—but didn't David win against Goliath? Doesn't our beloved AOK have a string of victories to point to—from rescuing Prairie Dogs to reintroducing Black-footed Ferrets?

And hasn't the grassroots movement in Reno County just now led the County Commission to reject the proposed industrial wind plant? However, the would-be developer has a history of suing rural communities that put obstacles in its path, so our friends in Reno County may still have a fight on their hands. Those of us who cherish land communities can never rest secure. As Wendell Berry writes, "Our present 'leaders'—the people of wealth and power—do not know what it means to take a place seriously: to think it worthy, for its own sake, of love and study and careful work. They cannot take any place seriously because they must be ready at any moment, by the terms of power and wealth in the modern world, to destroy any place."

But many others find a different kind of "wealth" in their land community and "power" in their love for it. And where love is, there too are faith and hope.

Margy Stewart

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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.

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A Note from the Editor

Michael L. Donnelly

When they think of Kansas, most people probably do not think of wetlands—either small potholes that are there one season or one year, gone the next, or, even less likely, great marshes with expanses of open water surrounded by sedges and cattails. But Kansas has important examples of both: big marshes of international significance for migratory birds, and ephemeral playas that also provide seasonal habitat for wildlife, and equally important, replenish the aquifers that are crucial to sustainable life in the Great Plains. This issue of *Prairie Wings* devotes seven articles to acquainting our readers with Kansas wetlands, their importance, and their fragility and threatened status. Our other articles explore the how-to's of bird photography for beginners, the Audubon of Kansas Sanctuary Committee's latest initiatives, and AOK activism in the service of conservation, and the recognition it has received. We hope that you will find the articles and the photos equally engaging, and that you will be inspired to learn more, and become more involved with Kansas's rich environmental legacy.

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.

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During the past year, AOK received a major gift from the estate of Mary Joyce Davis of Dodge City, a Charter Trustee of Audubon of Kansas



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Ron Klataske, Executive Director, Audubon of Kansas

Hudsonian Godwit and Dowitchers by Bob Gress, BirdsInFocus.com

Your annual membership and other gifts to Audubon of Kansas are vital to our ongoing conservation, education, sanctuary stewardship, and advocacy work. AOK cannot function without the support of members' annual or sustaining monthly contributions and gifts to fund special projects. We thank you for your continuing dedication and generosity. Donating online allows monthly giving. We use PayPal to ensure our donors a safe and secure transaction. Other ways to contribute include bequests, memorials/tributes, and gift memberships. Please consider contributing at this time. Contributions from required distributions of IRAs can be made without accruing any tax obligation from the distribution.

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By establishing a planned gift to Audubon of Kansas, you can ensure that AOK continues to be equally or even more effective into the future. We are committed in perpetuity to stewardship of our sanctuary system. We have outlined several ways to establish a planned gift below:

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I bequeath ____% of my residuary estate (or \$____) to Audubon of Kansas, Inc., a not-for-profit 501(C)3 conservation organization incorporated in the State of Kansas with its address at P.O. Box 256, Manhattan Kansas, 66505. AOK's Federal Identification Number is 48-0849282.

Make a Gift of Land, or other Real Estate. Gifts of real estate or other property are excellent ways to establish a major donation. Gifts of real estate property that can be sold with the proceeds to be used to support

general or specific Audubon of Kansas programs are often referred to as "Trade Lands." Some parcels may be protected with conservation easements prior to sale. Proceeds can be designated, for example, for specific conservation, education or even stewardship of an established AOK sanctuary.

Gifts of Land to be Maintained as a Wildlife Sanctuary (such as the Connie Achterberg Wildlife Friendly Demonstration Farm or the Hutton Niobrara Ranch Wildlife Sanctuary) or permanently preserved generally require establishment of an adequate endowment to fund future operations, pay annual property taxes, and provide for ongoing stewardship of the property. Gifts of land for this purpose must be consistent with the Audubon of Kansas mission, or generate funds that support stewardship and other conservation or educational activities. Protection of lands is best achieved with advanced planning. Landowners can elect to make a gift of land while retaining a life estate. Thus, they obtain tax benefits and continue to retain normal use and management of the property. Conservation enhancement activities can become a partnership venture.

Cars for Conservation! Farm and Ranch Equipment can also be used at AOK Sanctuaries. Although AOK has not promoted this avenue of philanthropy, vehicles and similar property can be donated and then sold to generate funds for AOK operations. In addition, AOK is interested in receiving an energy-efficient vehicle to retain for business travel.

Audubon of Kansas, Inc. is administered by a Board of Trustees with interests in conservation and education in Kansas, Nebraska and generally the central Great Plains and prairie states. AOK is an independent, grassroots organization that is not administered or funded by the National Audubon Society. All funds received are devoted to conservation advocacy, nature appreciation initiatives, education and stewardship (including management of wildlife sanctuaries) in this region.

Please contact any of our Trustees or AOK professional staff at 785-537-4385 or email AOK@AudubonofKansas.org for additional information.



Photo taken by Ron Klataske



Sandhill Cranes by Bob Gress, BirdsInFocus.com

A “City Boy” and World Traveler Responds to Cheyenne Bottoms and Quivira

Rob Prince

I often find myself traveling east along the Arkansas River from La Junta to Lamar, Colorado, then approximately following the River to Great Bend, where the river arches north in an upside down “U.” This past April, passing through on my way east, water is flowing in the Arkansas River at La Junta. Yet by the time I get to Lamar, a mere 56 miles due east down US Highway 50, the flow has been reduced to a trickle, the riverbed virtually empty.

Makes me nervous.

“ Cheyenne Bottoms claims that nearly half (45%) of all of North America’s shorebird population visits there.

The wildlife areas where I am headed further east of the Colorado state line in south-central Kansas both depend upon the waters of the Arkansas River to nurture their environments and sustain life. With 225 miles of irrigation-water-absorbing corn fields, and cattle and pig farms galore between Lamar and Great Bend – all dependent upon and in competition for the Arkansas River water — I’m concerned about the water situation where I’m heading, Great Bend, Kansas.

Just to the north of Great Bend lies a Kansas state-run wetland, Cheyenne Bottoms Wildlife Area, a fresh-water natural geological depression where I’ll spend at least a full day, maybe more, poking around. Forty-five minutes south of Great Bend, there’s the Quivira National Wildlife Refuge — one of the nation’s

finest wildlife areas, an inland salt marsh that lies smack in the heart of one of the continent’s most important bird migratory highways — the Central Flyway. For the past three years I keep returning here from Denver where I live, twice a year, schedule permitting.

Taken together Cheyenne Bottoms and Quivira bring together one of the greatest concentrations of wildlife and bird life of anywhere in the continental United States. To spend a few days here twice a year, however unrealistic it might sound, is to touch a moment in history when the Great Plains abounded in animal and plant life, the heart of an ecosystem that is fast disappearing.

It calls to me. In a world where harmony barely exists, whether it be among humans, or between humans and nature ... at least there is Quivira and Cheyenne Bottoms. I come relaxed and yet excited over what I am about to explore with life-long friends. Although I’ve never measured it, I am certain that on entering either place, my blood pressure drops precipitately.

Cheyenne Bottoms claims that nearly half (45%) of all of North America’s shorebird population visits there. Some 320 species of birds have been recorded, 25 species of ducks and geese. During the migration season the avian numbers have been known to exceed 600,000. Add to the birds an abundance of other animals — raccoons, deer, beaver, muskrats, and mink as well as a variety of reptiles.

Quivira, a unique inland salt marsh of 22,135 acres, a tad larger in area and a bit more remote than “The Bottoms” (nearly 20,000 acres), claims to have even more bird species — some 340 varieties — that include annual visits from endangered and



Willet by Bob Gress, BirdsInFocus.com

threatened forms including Whooping Cranes, interior Least Terns and Snowy Plovers.

On this most recent visit (April, 2019), despite high winds we observed White-faced Ibises, Black-necked Stilts, a slew of Ruddy Ducks, more Blue-winged Teal than I had ever seen, Yellow-headed Blackbirds in equally large numbers, Snowy Egrets and several groups of turtles sunning themselves. The previous autumn (October 2018) there were wondrous formations of American Pelicans, Greater Yellowlegs, Semi-palmated sandpipers, godwits, Cinnamon Teal, Franklin's Gulls, and non-breeding avocets.

Last October, with friends, we saw a kettle of hawks — different species— Swainsons, Ferruginous, Redtails, probably others, maybe fifty of them together, maybe more. Fattening up for their journey to points further south, they were hunting and pecking at a field that local farmers were plowing. A special sighting, but then there are so many. In the fall of 2017, as the sun was setting, — a breathtaking sight — dozens of avocets at the northern end of Quivira's Big Salt Marsh engaged in a feeding frenzy beginning at dusk and proceeding well into the night.

I'm a city boy, New York City born and raised, having spent the better part of the past half century — literally — in Denver, Colorado. I have lived abroad too, again in cities virtually all of the time — Rouen, Tunis, Helsinki. Who would have thought that in my later years — I'll be 75 in a few months — that the most pleasurable moments, precious times and places that refresh my spirit so I can return "to face the darkness" would be spent in south-central Kansas looking at birds.

But its a fact and its become something of an obsession ... I can think of no places I'd rather be than in the wetlands north and south of Great Bend. My family and friends don't quite understand, and frankly, I'm not sure I do either. It's just a place I feel a sense of connectedness with ... well, with everything, and want to keep returning to.

There is something else — a tribute to someone I never met, who fought so that Cheyenne Bottoms would be maintained as a quality wildlife preserve, a woman named Jan Barton whose life ended too soon, and who showed us that people who care for the earth can make a difference. I think of her too each time I'm at Cheyenne Bottoms, of her organizing talent, her persistence, her humanity and of how the world needs more like her.

Rob Prince is a retired Senior Lecturer in International Studies at the University of Denver's Korbel School of International Studies. For the past ten years, along with his colleague, Dr. Ibrahim Kazerooni, a Shi'ite Imam from Iraq, he has hosted a monthly radio program "Middle East Dialogues — Hemispheres" at KGNU, a public radio station in Boulder, Colorado. He is a former Peace Corps Volunteer and staff member in Tunis and Sousse, Tunisia. He is the first to admit he knows virtually nothing about birds.

AOK Continues Pressure on Behalf of Quivira Water Right

Richard Seaton

In 2018, Prairie Wings recounted the plight of Quivira National Wildlife Refuge, deprived for years irrigators upstream of the water to which it is legally entitled. The Refuge owns a senior water right issued in 1957, entitling it to 14,632 acre feet per year. Despite this priority, irrigators upstream have been allowed to create frequent and substantial shortages there, through agricultural irrigation.

In 2017, in a letter to the Kansas Division of Water Resources (DWR), AOK demanded that the senior water right of Quivira National Wildlife Refuge be enforced. We said the law requires DWR to reverse the longstanding depletion of water at Quivira caused by upstream violators. DWR itself had found in 2016 that the wetlands of the Refuge were “regularly and substantially” lowered because of irrigation upstream, in violation of its rights.

Since the 2017 letter, there have been several new developments:

(1) AOK’s attorney, Randy Rathbun, wrote the U.S. Fish and Wildlife Service and DWR saying if they do not act to protect Quivira’s water right, AOK will file suit to force that protection, and will request an award of attorney fees.

(2) USFWS then filed its request to secure water rights with DWR.

(3) Representatives of AOK, including Rathbun, met with DWR’s chief engineer and staff, and with the state secretary of agriculture, to discuss resolution without litigation. Some progress was made.

(4) The Kansas Department of Health and Environment issued its report on the quality of the water needed when restoring Quivira’s rights. KDHE also recommended that the chief engineer codify maximum levels of chloride in an administrative order, and that careful monitoring of the water quality be maintained.

(5) Groundwater Management District No. 5 (GMD5), an organization of local irrigators, submitted a proposal for a Local Enhanced Management Area (“LEMA”) in February, 2019, which

was rejected by DWR on July 30, 2019. Barfield gave notice of his intent to “administer water rights” on or about Sept 1, to be effective Jan 1, 2020.

(6) On August 16 on behalf of AOK Rathbun requested notice of Barfield’s future actions and also a right to participate in administrative proceedings. Barfield replied on August 23, without committing.

(7) Then on August 27, a group of ten interested entities wrote to Barfield asking that he reconsider his decision to administer water rights. The group included various agricultural trade organizations, and also the Nature Conservancy and Kansas Bankers Association.

(8) On August 30, Secretary of Agriculture Mike Beam denied GMD5’s request for a stay and granted administrative review.

(9) Barfield replied to the ten entities on September 20, denying their request that he reconsider, citing the risk of litigation if he granted it. He issued a map dividing the watershed of Rattlesnake Creek into three zones, with reductions in irrigator usage to be spread over three years. He said he “fully supports augmentation” but that it must be done through local action. He also proposed a local pooling of water rights through a Water Conservation Area. In justification of his position, he mentioned that a court-ordered solution could “result in much more significant reductions” for the irrigators.

As the leading advocate for conservation in Kansas, AOK is determined to vindicate Quivira’s water rights, either through administrative action or in the courts. It is worth emphasizing that farmers using irrigation are generally able to make good money even when they reduce their water usage. Two studies at Kansas State University have shown this to be the case. See Golden and Leatherman, “Impact Analysis of the Walnut Creek Intensive Groundwater Use Control Area,” *Journal of Regional Analysis and Policy* 47(2):176-187; and Golden, “Monitoring the Impacts of Sheridan County 6 Local Enhanced Management Area,” *Interim Report* for 2013-2015, November 8, 2016. So this is not necessarily a zero-sum game, and the needs of agriculture and of conservation may both be capable of being satisfied.

The Value of Marshes: An Essay on Kansas Wetlands

Michael L. Donnelly



American Bittern by Bob Gress, BirdsInFocus.com

Things Seen, Heard, and Felt.

On my memory Kansas wetlands have imprinted many experiences, resonant with life and significance. In memory, I can see today the still expanse of reeds and open water near the end of a clear summer's day, broken by the image of a single white egret winging its self-possessed stately way over the reflections of the declining sun's rose-golden rays on the unmoving water beneath its passage. In memory, I see the grotesque, strangely elegant shapes of a group of White-faced Ibis, birds straight out of Egyptian hieroglyphics from 5000 years ago, necks and long legs extended, silhouetted against the blue sky, descending into a pool in front of me, and, indifferent to us viewers fifteen yards away, earnestly pursuing their business, probing the mud with those sickle-like beaks, finding their sustenance in forms of life that teem in the rich matrix of water and decaying vegetation. I recall an American Bittern, stock-still among the cattails, the lines of the pattern of its throat echoing the verticals of its hiding-place, its eyes alone, on either side of its skyward-pointing beak, betraying its camouflaged presence with their glitter. In memory I call up a frigid, windy November morning, shivering

in the duck blind, when suddenly the silence of the marsh was torn by the roaring rush of wings as a flock of divers buzzed the blind from behind and disappeared into the mists over the decoys. Instances of the constant movement and activity of the marsh replay in memory: The Piping Plover, tiny ball of fluff invisible in its pale dun plumage against the mudflat at Quivira until suddenly it scurries on rapid orange legs for ten or twelve feet like a mechanical toy, stops, and becomes invisible again against its sand-colored background; the sense of the teeming life of the marsh conveyed by the flocks of Sanderling, Least and Semipalmated and White-rumped Sandpipers, all moving among dowitchers, Greater and Lesser Yellowlegs, plovers, formally attired Black-necked Stilts with "bubblegum pink" legs, avocets elegant in black and white bodies and apricot-hued heads and necks, each individual intently pursuing its own foraging, each species employing its characteristic foraging activity—some probing the mud like a sewing machine, some swinging their beaks from side to side, stirring the water, the Wilson's Phalarope floating on the surface, spinning in circles like water-borne tops, creating little vortices that bring their prey to the surface. I recall the delight of discovering that Cliff Swallows, who make those wonderful jug-shaped nests of mud under bridges and eaves, when collecting the muck that is their building material from puddles on the edges of the roads along the dikes at the Bottoms, gather side by side filling their beaks with mud, all the while all of them with their wings held aloft over their backs, the whole mass of birds' wings quivering like the vibration of bees' wings moving in ritual dance over the surface of their honey-comb.

Beyond the impressions of the senses

These sense impressions storm our consciousness with delight—at least they do if we bring to them a sense of openness and child-like wonder. If our gaze is clouded by considerations of immediate personal utility and a narrow calculation of "productivity" in the sense of agricultural production or mineral resources, those screens through which mankind has evaluated wetlands through much of our history, they are written off as "wastelands" or marked for drainage and "improvement." Between 1780 and 1980, we lost more than half the wetlands in the present United States to drainage, fill, or significant degradation.¹ But the strangeness and wonder of wetlands ought to engender, not dismissal or hostility, but curiosity, and

as curiosity is progressively satisfied through investigation and knowledge, engagement and appreciation.

Feeding the wonder with knowledge

As wonder leads to curiosity, we discover facts, and the facts and figures relating to the ecological communities of these wetlands stagger the imagination.

Cheyenne Bottoms has been a wetland intermittently since the interglacial period between the third and fourth glaciations during the Pleistocene era, 100,000 years ago. Out of a preserve area of approximately 41,000 acres, the central pool today may cover 3,300 acres, though in nine major floods in the ninety years after 1885, the marsh could become a lake covering 20,000 acres. On the other hand, in dry periods, even without the depletion by center-pivot irrigation of the Ogallala aquifer which fed the Bottoms, evapotranspiration alone could reduce the marsh to dry, cracking mud in as many as three out of five years. Elaborate canals, dikes, and control structures were constructed by the Kansas Forestry, Fish and Game Commission beginning in 1949 in an attempt to establish and retain sufficient water for the refuge, but about the time those control measures were completed, the new center-pivot irrigation systems reduced the aquifer and the flow in the Arkansas River to the point that irregular and usually meager rainfall remains the only significant water source for the marshes. Heroic measures have been required to keep Cheyenne Bottoms and Quivira as viable refueling stops for migrating waterfowl and shorebirds and vital habitat for many of the 315 species of greatest conservation need living within Kansas. Most of the alternative wetland stopovers for migratory birds have disappeared. Of twelve large marshes, only three remain: Jamestown, Quivira, and Cheyenne Bottoms. And of some two thousand small playa lakes in the state, many not recognized as wetlands, too many have been degraded or disappeared. Just since 1950, the state has lost nearly 50 percent of its total wetlands.

Like the Bottoms, Quivira faces persistent challenges in maintaining adequate water resources for refuge purposes. In 1957, The USF&WS filed for a “senior” water right to divert 22,200 acre-feet of water from Rattlesnake Creek to maintain

the refuge wetlands. In 1982, the Fish and Wildlife Service filed a Notice of Proof of completion of work for that water right, permit #7571. But in 1996, the Kansas Division of Water Resources certified a permit for only 14,632 acre-feet of water to be diverted from Rattlesnake Creek, on the grounds that the USF&WS had never diverted the entire 22,200 acre-feet during the period they had in which to demonstrate their need. The actual amount diverted is normally even less than the approved 14,632 acre-feet because sufficient quantities of water are often not available at the time the water is most needed for breeding bird populations and accommodating spring and fall migrants. That is the reason the USF&WS was unable to divert the origi-



Cliff Swallow by Judd Patterson, BirdsInFocus.com

nally approved 22,200 acre-feet during the proof period in the first place!

Quivira, which differs from the Bottoms in being a salt marsh ecological community, occupies 22,135 acres in Stafford, Rice, and Reno Counties. 48.6 percent of this area is herbaceous wetland (10,819 acres); 13.5 percent (3,005 acres) open water; 22.0 percent grassland (4,898 acres); and the remainder shrub-land, riparian areas and upland woodland. The Cheyenne Bottoms wetland comprises a similar diversity of ecosystems. The broad vista of cattails and open water that greets the viewer passing by the Bottoms on Kansas Highway 156 belies the actual diversity of plant and animal communities that comprise the marsh. John Zimmerman's *Cheyenne Bottoms: Wetland in Jeopardy* distinguishes no fewer than six different “ecological communities” in the Bottoms: mixed-grass prairie and cropland in the uplands; the wheatgrass and saltgrass communities around the

periphery of the basin; the surviving spikese edge community interspersed among the wheatgrass and saltgrass communities; the now-dominant cattail community replacing the formerly dominant spikese edge in water depths of two feet or less; the open-water/mudflat communities so attractive to shorebirds, avocets, and Snowy Plovers at times of low water, and to ducks, grebes, cormorants, pelicans, gulls, terns, herons, Ospreys, and Bald Eagles when flooded; and finally, as a result of the building of the dikes that in the early fifties created the refuge as we know it today, what Zimmerman calls “the dike community” of cottonwoods, green ash, sunflowers, and cocklebur s.²

In the case of both marshes, the casual observer will not be aware of constant changes in habitat conditions over time that require trade-offs in the effects produced on different species and communities. Planners have to take into account, not merely local factors and trends and the declared purpose of the particular refuge, but also the native or non-native status of affected species, national or even international population and range distribution trends for a species, and availability of suitable habitat for the species outside the refuge boundaries.³ Examples of recent additions to the bird communities include some birds that would be hard to miss today: though White-faced Ibis bred in the bulrushes at the Bottoms as early as 1951, large colonies of herons did not arrive until the increasing dominance of cattails over the bulrushes accommodated them in the early 1970s. It is only in the past fifty years that cattails have become the dominant feature in Cheyenne Bottoms (and often a nuisance, tending toward a monoculture), partly as a result of the invasion of the non-native eastern narrow-leaved cattail. Great-tailed Grackles are another relatively recent arrival, having extended their breeding range from central Texas to Kansas by 1969.

All the planning, continuing research, censuses of wildlife and plants, engineering measures, and expense of maintaining these two great marshes are more than justified by their importance, not just to a local ecosystem, or to regional birdwatchers and waterfowlers, but to entire populations of North American shorebirds and waterfowl. Cheyenne Bottoms is the largest marsh in the interior U.S., and the saltmarsh habitat of Quivira is a unique life-zone with its own specialized denizens.

More mind-boggling figures: Waterfowl banded at the Bottoms by local enthusiast Frank W. Robl in the decade after 1924 were recorded being recovered from as far away as California to the west, South Carolina’s coast to the east, and Louisiana, Texas, Cuba, Mexico, and Honduras to the south. These were birds that nested from Alaska and the Mackenzie Valley through the

prairie provinces and the potholes of the northern plains states. Tundra-nesting shorebirds that use Cheyenne Bottoms as staging area in their spring and fall migrations include Black-bellied Plover, Lesser Golden Plover, Semipalmated Plover, Hudsonian Godwit, Semipalmated Sandpiper, Western Sandpiper, Least Sandpiper, White-rumped Sandpiper, Baird’s Sandpiper, Pectoral Sandpiper, Stilt Sandpiper, and Long-billed Dowitcher.

Through the efforts of another avocationist, Edmund Martinez, a total of 58,159 shorebirds representing 32 species were banded on the Bottoms from 1966 through 1978. Fifty percent were Semipalmated Sandpipers; recoveries ranged from the breeding grounds in Alaska to the wintering range in Brazil; the northernmost recoveries were a Long-billed Dowitcher and Pectoral Sandpiper from central Siberia, the southern-most a White-rumped Sandpiper from Argentina. These globe-trotting shorebirds traverse their thousand-mile journeys flying as high as 10,000 feet, and at speeds up to 50-80 kilometers an hour.

Martinez’s efforts proved for professional ornithologists and conservationists the central importance of Cheyenne Bottoms in the hemispheric movement of shorebirds. In fact, the International Shorebird Survey (the Manomet Survey) from 1976 through 1983 documented Cheyenne Bottoms’ central importance as one of only three major stopovers for shorebirds east of the Rockies (there were only five sites found west of the Rockies, and five in Central and South America). In the Great Plains, of 210 sites surveyed east of the 105th meridian in the Manomet Survey, no other site studied had as much as ten percent of the shorebirds censused in Cheyenne Bottoms. Indeed, an average of 45 percent of all shorebirds counted in the spring Manomet Survey were at the Bottoms. In their return journeys in the fall, 28 percent of shorebirds counted in 454 sites across the region were at the Bottoms. In the spring passage east of the 105th meridian, over 90 percent of all White-rumped, Baird’s, and Stilt Sandpipers, Long-billed Dowitchers, and Wilson’s Phalarope counted were recorded from Cheyenne Bottoms. Seventy-four percent of the Pectoral Sandpipers counted, 73 percent of the Marbled Godwits, and 59 percent of the Hudsonian Godwits used the Bottoms in the spring, and in the fall, when inexperienced first-year birds choose broader pathways south, numbers of Long-billed Dowitchers still topped 90 percent of the birds censused in the nation. The numbers of individuals of several species reported in the Manomet Surveys from single daily census records are equally staggering: 101,500 White-rumped Sandpipers, 62,580 Baird’s, 210,000 Long-billed Dowitchers, 130,000 Wilson’s Phalarope. Of the 31 species reported in the Manomet Survey, 20 were present at Cheyenne Bottoms in numbers that exceeded five percent



Red-winged Blackbirds by David Seibel. BirdsInFocus.com

of the total count for all sites. Brian Harrington has suggested that Cheyenne Bottoms may be the most important stopover area for northern shorebirds in the western hemisphere.⁴ So the ecological importance of the site cannot be overstated: “The continued existence of shorebird populations, which number in the millions, may depend on a mere handful of geographic foci without which these birds will be unable to make the migratory journeys upon which their life cycles pivot.” Yet “Cheyenne Bottoms may become permanently dry, its source of water entirely preempted by the need to maintain the forage-to-beef-to-packing-plant-to-fastfood hamburger commercial pathway.”⁵

Population figures from Quivira are no less amazing: More than 300 species of birds are thought to use the refuge, includ-

ing more than 30 species of shorebirds. “From 2009 to 2010, more than 11,000 ducks, 300,000 Canada Geese, 402,500 White-fronted Geese, and 425,000 Snow Geese were estimated to visit the refuge on independent, bi-monthly survey dates. . . . Three of the fourteen 2009-2010 surveys each reported more than 30,000 Sandhill Cranes. From 2002 to 2006, an annual average of more than 30,000 shorebirds were counted on Quivira Refuge during biweekly migration surveys” and “in 2010, biweekly data counted 55,491 shorebirds on the refuge during the migration periods surveyed.” Highest recorded number of Whooping Cranes using the refuge and nearby areas in recent years is 91 in the spring and 112 in the fall—a substantial portion of the estimated population of 250 to 300 birds in the winter of 2011-2012. Federally endangered birds with critical

habitat on Quivira Refuge lands in addition to the Whooping Cranes include the interior Least Tern, whose fluctuating populations have included ten or more nesting pairs over the years, producing as many as 36 to 40 young raised to flight stage; on both Federal and State threatened species lists, the Piping Plover and the western Snowy Plover use critical habitat on Quivira Refuge.⁶

These great marshes appeal to all these birds, resident and migrating waterfowl and shorebirds alike, as well as all the resident passerines and their predators higher up the food chain, as places of rest and shelter, but especially as an over-flowing larder. The casual observer could scarcely miss seeing avocets and Great Egrets or White-faced Ibis; she would probably be much less taken with chironomids—midges and their larvae, bloodworms. Zimmerman reports single-sex swarms of as many as 20,000 to 40,000 midges, and provides a fascinating sketch of their life-histories. And there are 50 bloodworms per square inch in the exposed mud of the Bottoms—65,082 bloodworms per square meter, or 55,045 kilograms of dry weight mass, that is, 61 tons every month, March through November. These humble creatures so unimpressive to most of us are the cornerstone species in the complex web of life in the marsh, and represent a bonanza for the shorebirds. To fuel their migrations of a thousand or more miles, these long-distance travellers must cram fat levels at Quivira and the Bottoms. Taking population estimates of shorebirds during spring migration 1986, Wayne Hoffman used published measurements of flight metabolism and approximations of distances to be travelled to their specific breeding grounds to estimate that migrating shorebirds carried away almost 2800 kilograms of fat (three tons!) which would have required them to consume 165 tons of bloodworm protoplasm. Estimates for waterfowl are more difficult to arrive at, as their diets are more varied than that of shorebirds, and some of them feed away from the marsh for considerable amounts of time. But Hoffman calculated that the around 80,000 ducks and 15,000 geese present at peak fall migration in 1985 would have required a little over 1900 tons of seeds during their 90-day layover.⁷ While shorebirds are taking from the marsh's plenitude tons of fat to fuel their flights, the abundant blackbirds that winter in the marsh derive most of their food from outside the marsh, and roosting in the cattails at night leave behind vast amounts of "exogenous nitrogenous fertilizer" in their wake. Hoffman estimated that the more than half a million blackbirds utilizing the cattails in the Bottoms as an ever-shifting roost site in February 1986 would have produced, during the winter of 1985-86, 54 to 108 tons of guano. In the mid 1970s, when the roost was even larger, guano production might have been twenty times greater.⁸ The "musky smell, a smell of organic richness" noted by Zimmerman is the aroma of

an intricate chain of relationships and dependencies, consumption, guano and decay, sustaining a network that leads up from the humblest bacteria in the muck through bloodworms and sandpipers, ducks and blackbirds, to the Peregrine Falcon and the Bald Eagle.

“ The marsh teaches that there are other forms of life whose ways are not our ways...

What the wetlands teach

Great reaches of water mirror the immense dome of the sky; marsh reeds and sedges roll in waves before the winds that bring the open water to life; synchronized flocks of birds—blackbirds, ducks, geese, cranes, sandpipers—rise and fall, swirl tightly in randomly choreographed patterns, or break up into smaller bunches or pairs to drop into the cover of the marsh vegetation, or to ride the water in huge rafts, seeking food or rest. Like the open prairie, like the sea out of sight of shore, the big marsh inspires consciousness of an immensity on a scale incommensurate with our normal comfortable, often unconscious relations to our surroundings. Our senses are awakened and heightened by the exhilarating Otherness of these places and the creatures that inhabit them.

The marsh teaches that there are other forms of life whose ways are not our ways, who share with us our most basic, fundamental biological needs and urges, but whose lives are circumscribed by their relations to food, to weather, to the seasons, to changes in their habitat, much more sharply and completely than we are normally conscious of being. How perfectly their lives and activities integrate into the ongoing pattern of life in their rich, but precariously balanced environment. Being in the midst of the great marsh at once braces, excites, and paradoxically calms with the apprehension of forms of life that proceed without us. As spectators, for a time we immerse ourselves and share in a grand order of things that transcends our daily round.

It would not be frivolous to compare Sunday morning in the great marsh to a visit to a great cathedral. In its appeal to apprehensions outside our preoccupation with mundane concerns, attending to Nature can have influences on our consciousness not unlike those offered by religion. Religion, among many salutary effects (to limit our reflections solely to the practical realms of moral and psychological influence), properly enforces upon us humility: a sense that there are much greater things in



White-faced Glossy Ibis by Bob Gress, BirdsInFocus.com

the world than our busy preoccupations to weigh; that the scale employed by the Universe is much grander than the inches and feet and miles, the ounces and pounds, dollars and cents of our usual calculations; that in all that we see and hear and feel, there is not insignificance and chaos, but an over-arching order into which everything is integrated, serving its purpose, and contributing to the functioning and well-being of the whole; finally, that we are not monads, but have a moral obligation to play a role, participating with others in contributing to the support of an order that is greater than our narrow personal ends.

What do we do with what we have experienced, and learned?

In this survey of facts and figures, I have not touched on the economic value of marshes and wetlands nationally, not only as contributing to the \$150 billion added to the U.S. economy annually by the 101.6 million people who fish, hunt, or watch birds, but as filters that clean our waters by removing sediments and nitrogenous fertilizer pollutants, even supplementing or replacing municipal water treatment systems; as replenishers of ground water (the surviving wetlands, playas, and riverbeds of the region are the only sources recharging the Ogallala aquifer); and as barriers to flooding and storm damage.⁹

I want to concentrate instead on the non-utilitarian, or at least non-monetary, contributions of these wetlands. The marshes teach the complex interdependency of all creatures in the web of life, from bacteria and chironomids in the muck through the myriad thousands of shorebirds and waterfowl that visit twice a year. But the wetlands' history also testifies to the delicate bal-

ance of forces that maintain the wetlands as the indispensable basis for that web of life; to the vulnerability of communities eons old that we did not make, but which our thoughtless or short-sighted actions can erode, degrade, and undo in decades. Not only do we share the earth with these myriad others, our history has brought us to the point where we must take responsibility for stewardship of their lives and habitats, because our cumulative actions, greedy or careless, unintentional as well as intentional, can irrevocably tip that balance and rend that web of life. We must bend every effort, individually and as citizens, to assure that the great wetlands in the center of Kansas are preserved and maintained, so that our children and their children and children's children can see the great flocks of shorebirds, thirty or more different kinds, wheeling in unison over the mudflats or single-mindedly storing up from the mud energy to fuel their epic journeys across two continents; can hear the whinny of the Sora hidden in reeds, and the clatter of flocks of cranes leaving their roosting areas at dawn.

1 "The Many Benefits of Wetlands Conservation," J. Dale James and Ellen R. Herbert, *Ducks Unlimited*, vol. 82, no. 6 (November/December 2018), p. 49.

2 John L. Zimmerman, *Cheyenne Bottoms: Wetland in Jeopardy* (University Press of Kansas, 1999), pp. 77-93. Zimmerman's book is an essential read for anyone interested in birds and conservation in general, and is beautifully written.

3 See *Comprehensive Conservation Plan, Quivira National Wildlife Refuge*, U.S. Fish & Wildlife Service, October 2013, p. 40.

4 Harrington, B.A., and R. I. G. Morrison, 1979. "Semipalmated sandpiper migration in North America," in *Shorebirds in Marine Environments*, ed. F. A. Pitelka, *Studies in Avian Biology* 2: 83-100. Cooper Ornithological Society, Allen Press, Lawrence, KS.

5 Figures in the preceding three paragraphs come from Zimmerman, *Cheyenne Bottoms: Wetland in Jeopardy*, pp. 130-136, as does this final quotation.

6 Statistics from *Comprehensive Conservation Plan, Quivira National Wildlife Refuge*, U.S. Fish & Wildlife Service, October 2013, pp. 41-46.

7 Zimmerman, *op. cit.*, p. 73.

8 *Ibid.*, pp. 74-76.

9 See, for instance, James and Herbert, "The Many Benefits of Wetlands Conservation," pp. 50-52, Zimmerman, *Cheyenne Bottoms*, pp. 127-129, and USF&WS *Comprehensive Conservation Plan, Quivira National Wildlife Refuge*, pp. 59-61.

Playas: An Important Source of Water in the Great Plains

Miruh Hamend, Playa Lakes Joint Venture

As Great Plains communities struggle to deal with drought and declining aquifers, playas — a relatively unknown natural resource — are playing an important role in replenishing and improving the quality of the region's water supply. Playas, also called lagoons, buffalo wallows and mud holes by locals, are relatively small, round, shallow depressions that collect and hold water from rainfall and runoff, creating temporary wetlands. Some dry up within days. Others contain water for weeks or months. With more than 80,000 scattered across the western Great Plains — from Nebraska and Colorado south to Texas and New Mexico — these seasonal wetlands provide much-needed water for wildlife and people. In recent decades, many researchers, representing a variety of disciplines, have been studying playas to learn more about the benefits they provide.

“There’s a number of researchers who are focused on playas,” says University of Kansas geologist Bill Johnson. “What’s really important now, for a lot of people, relates to what everybody’s interest is rooted in — what’s their connection with the groundwater?” Johnson has been investigating playas for more than 30 years. He says scientists have evidence playas are a primary source of recharge to the Ogallala aquifer — that vast but diminishing source of groundwater so vital to life on the semi-arid plains. According to a USGS literature review (Gurdak and Roe, 2009) and a recent Kansas Geological Survey study (Johnson et al, 2019), recharge rates in playa basins are 10 to 1,000 times higher than under other areas, and groundwater recharge may exceed three inches per year in unaltered playas.

Aquifer recharge occurs through playa basins and along the perimeter of playas. According to Ken Rainwater, a professor in the Department of Civil, Environmental, and Construction Engineering at Texas Tech, “Even though soils in the playa bottoms are clay, they dry out and desiccate with big cracks between rainfall events. So when you have your first flush of water coming into the playa, it’s real easy for water to go down through those cracks and head down through the clay toward the aquifer below.” As the clay absorbs water, it expands, sealing the cracks, and filling the basin with water from rainfall and runoff. Recharge continues to occur along the playa’s perimeters as long as it is submerged in water, much like water running over a bowl’s lip.

Playas not only contribute up to 95 percent of water flowing into the aquifer, but they also improve the quality of that water. Research has shown that water reaching the aquifer through

healthy or unaltered playas is of higher quality than that going through other pathways. This happens in two ways: first, as rainfall and runoff travel toward the playa, the surrounding grasses trap sediments, which can carry contaminants into the playa; then, as the water moves through the clay floor of the playa, a second ‘cleaning’ process occurs as the soils beneath the playa remove nitrates and other dissolved contaminants.



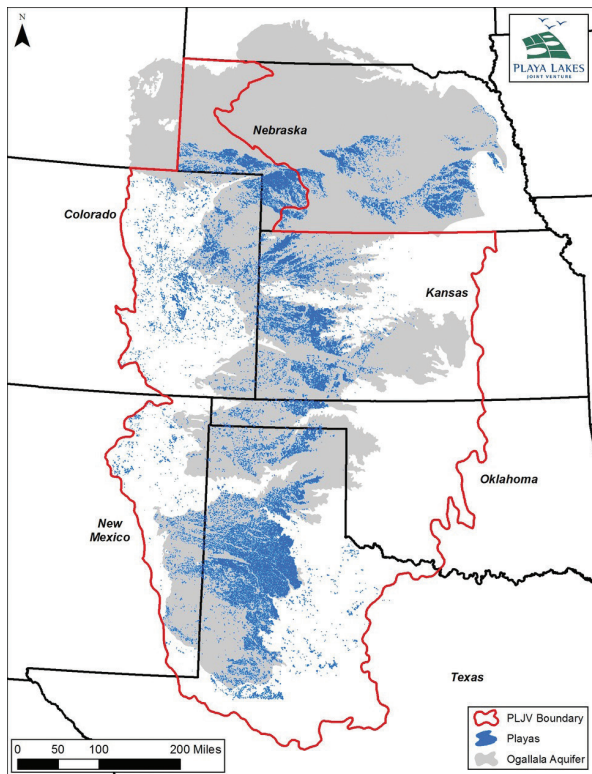
Kansas playas in cropland (PLJV)

Besides their role in recharging the aquifer, playas are the center of biodiversity on the plains — supporting 185 bird species, 450 plant species, 13 amphibian species, and 37 mammal species at some point in their life. When you talk to Tom Flowers — a retired district conservationist with the U.S. Department of Agriculture at Meade, Kansas, and an enthusiastic bird-watcher — his astonishment about the life-cycle of these playas becomes apparent. He says these ephemeral lakes are almost magical.

“They can be dry for 15 or 20 years, have a rainfall event, and immediately within days perennial plants show up. They lay dormant beneath the ground for all these years, but as soon as that soil becomes moist, they shoot up and produce bulrush, cattails, mud plantain, spikerush, and a host of plants.”

That explosion of plant life is just part of it. Flowers is fascinated by the small creatures that wake up, too. “They fall down in the cracks when it’s dry, and they just lay there as eggs. As soon as it gets wet, within just a few days, the eggs hatch, they grow, and they become small invertebrates such as fairy shrimp, tadpole shrimp, clam shrimp, and snails.” This bursting-forth of plant and animal life is irresistible to local and migrating birds. The grasses, plants, and those little invertebrates are all a ready feast for resident and migratory birds.

From pljv.org: More than 80,000 playas overlay and provide recharge to the Ogallala Aquifer.



According to Susan Skagen, a retired research wildlife biologist with the U.S. Geological Survey, “There is a broad diversity of birds migrating north and south and using wetlands, including playas, for rest stops. You’ll see a lot of the shorebirds that are making very long-distance migrations: White-rumped Sandpiper, Semipalmated Sandpiper, Baird’s Sandpiper, and American Golden-Plover. They go right through the heart of the plains. It’s the shortest distance from Tierra del Fuego, which is how far some of them actually fly from, all the way up to the arctic.”

“Many of these birds eat the small little animals in playas,” explains Flowers. “So, even though playas don’t hold water very long, they’re absolutely critically important for migratory birds — and also our summer and resident birds for nesting and feeding.” To hear Flowers tell it, it’s as if playas are the town square for wildlife: “Not only birds, but bison, raccoons, coyotes, deer, everything comes to have a drink.”

But just as we’re learning more about their importance, so are we learning that playas are under stress. Playas work best when they are surrounded by a native grass buffer that filters out soil and agricultural contaminants and there are no pits or other modifications to the playa. Filling in pits is one of the easiest ways to restore a playa. In most cases, the spoil pile from the original excavation is present and used to refill the pit. Once the pits are filled, rainwater and runoff can reach the large cracks in a dry playa — which is essential for recharge to occur — rather than collecting in the pit. The shallow water that spreads across the playa also allows plants to flourish, which in turn provides

important food and habitat for migrating birds and other wildlife.

Johnson says many playas have lost capacity to not only recharge groundwater but also to filter and clean water going down into the aquifer because they’re clogged with sediment — sediment transported from cultivated fields by runoff. He recently studied sediment accumulation rates in several Kansas playas, from pre-agricultural times to now, and the research (Bowen and Johnson, 2019) showed that “conversion of watersheds to cropland has greatly accelerated sediment accumulation within playas, which is generally resulting in a decline in critical playa ecosystem functions.”

Due to their small size and the fact that they are often dry, many producers till through playas to plant crops. However, even if the playa is large enough to be avoided, the surrounding upland is often farmed to the edge of the playa, resulting in increased sediment accumulation in those playas. In one study of Kansas playas, those in cropland had approximately 10-15 cm (4-6 inches) of accumulated sediment compared to ~2 cm (<1 inch) in grassland playas. On average, playas within cropland watersheds that didn’t have buffers lost 30% volume of storage capacity, while those with grass buffers lost only 7% volume. The paper concludes that without grass buffers, accelerated sediment accumulation in playas will continue, which will greatly reduce ecosystem functions, “and, ultimately, many playas will disappear from the landscape.” According to Johnson, who co-authored the study, establishing native grass buffers around a playa is highly effective at reducing sediment accumulation and protecting playa functions.

“We’re not trying to get anybody in trouble; we’re not trying to tell people you are doing things that are wrong,” says Rainwater. “We’re just trying to understand how these complex processes on our planet work so that maybe we can have a better future.”

What we do know is that healthy (unaltered or restored) playas filter and clean the water going into the aquifer and that this is a continuous process. Water reaching the aquifer today started its journey during our parents’ and grandparents’ lifetimes; and the water recharging now will be available for today’s children and future generations.

For more information about playas, the benefits playas provide and programs to help conserve and restore playas, visit PlayasWorkForKansas.com and pljv.org.



Sandhill Cranes, Snow Geese and American Wigeon on a playa by Henry Harrison

The Year that We Almost Lost Playas in Western Kansas

A. Spencer Tomb

In the early 1980s, the US Fish and Wildlife Service started to work on a national inventory of wetlands. Over half of the wet-lands in the United States had been lost to agriculture or development by 1984. The task of locating wetlands for the National Wetland Inventory was given to the Soil Conservation Service (SCS) of the US Department of Agriculture. The SCS later became the Natural Resources Conservation Service (NRCS). In Kansas as the first reports of the county-based wetland inventories started to appear it was obvious that playa wetlands were being underreported in western Kansas.

At that time, I was on the Board of the Kansas Wildlife Federation. I had been a botany professor at K-State for about ten years. I was asked by Kansas Fish and Game Commission wildlife biologists to help them identify obligate wetland plants in suspected playas in the Dodge City area. At that point in my career, I was working on pollen morphology and the evolution of the lettuce tribe of the sunflower family. I had never worked on wetlands. My knowledge of wetlands and wetland plants was confined to a half dozen plants that ducks liked to eat. I spent a few days reading about wetland delineation and looking at dried specimens of wetland plants from western Kansas.

The trip to Ford County was short and sweet. I took herbarium specimens and photos of several common wetland indicator plants that were known to grow in Kansas playas. We had a short meeting and then went to four nearby playas. There was no standing water, but there was evidence that these depressions had been wet in the spring. We found several species that were obligate wetland indicator plants at all four of the playas we examined. It was obvious that these depressions should appear on the inventory as playa wetlands.

When I got back to Manhattan I contacted the National Wildlife Federation (NWF) office in Bismarck, ND and told them about the underreporting of playa wetlands in Kansas. They were not surprised because other states in the Great Plains were complaining about the underreporting of wetlands. They asked me if I was confident in my identification of these wetlands. I sent them several photos and a two page letter. The National Wildlife Federation served the Soil Conservation Service with a Freedom of Information Act request. The National Wildlife Federation made a formal complaint on the way the National Wetland Inventory was being done.



*Playa on Kiowa National Grassland
(Angela Safranek/USFS)*

A month later that summer the Soil Conservation Service assembled a state and regional team to look into playas and Billy Teels the SCS wildlife biologist from Washington DC came to Kansas to lead the investigation. I was invited to attend by the Kansas Fish and Game. We gathered at the Kansas Fish and Game office and I was talking to Teels when we were asked get in to the trucks. Teels invited me into the truck with him and most of the SCS team. We drove west of Dodge City for about fifteen minutes. As we turned off of the highway and started down a dirt road we were greeted by a large number of frogs hopping out of our way. We flushed shore birds and ducks off of an oval pool of water. We stopped and watched more birds flush. I pointed out several obligate wetland plant species.

As we got back in the trucks at the third playa, which was about 5 acres, some asked Teels what he thought. He looked down at his muddy boots, paused a moment and then said, “When I see frogs, shorebirds, ducks, wetland plants and water I have to think this is a wetland.”

I sent a short letter to the NWF Wetlands Office and quoted Billy Teels. A few months later playas started to appear on the revised wetland inventory maps. I will always be thankful for that timely 3.5” downpour in the early summer west of Dodge City that year.



*American Wigeon on New
Mexico playa (PLJV)*



A Portfolio of Portraits:

Some Birds of the Wetlands and Their Environs



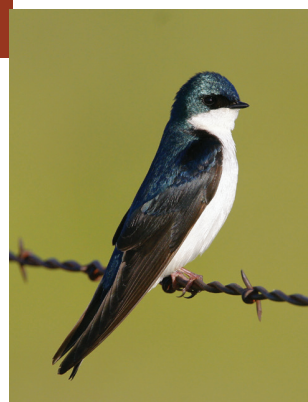
Whooping Cranes by Bob Gress BirdsInFocus.com



Virginia Rail by Bob Gress BirdsInFocus.com



Ferruginous Hawk by Bob Gress,
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Tree Swallow by Bob Gress,
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American Golden Plover by Bob Gress,
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Great Egret by Judd Patterson, BirdsInFocus.com



Black-necked Stilt by Judd Patterson, BirdsInFocus.com



Cattle Egret by Chod Hedinger



Pintail Ducks and Shoveller by Chod Hedinger

Playas in Peril, Wetlands in Jeopardy:

Playas and Other Wetlands Face Their Gravest Legal Threat So Far

Michael L. Donnelly

As this edition of *Prairie Wings* was in the final stages of preparation, the EPA and U.S. Army announced on September 12, 2019, a revised definition of the “Waters of the United States” (WOTUS). Pursuant to the February 2017 Presidential Executive Order 13778, entitled “Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘Waters of the United States’ Rule, under the pretext of “minimizing regulatory uncertainty” occasioned by differing court decisions on the 2015 WOTUS Rule, this measure not only erases much of the 2015 rule, but reverses the entire pattern of interpretation since 2008. The change in the rule was justified by the agencies “to ensure that the Nation’s navigable waters are kept free from pollution,” “to ensure economic growth,” minimize regulatory uncertainty, and restore regulatory power to the states and tribes “under the Constitution.” (From the news release, “EPA, U.S. Army Repeal 2015 Rule Defining ‘Waters of the United States’ Ending Regulatory Patchwork.” 09.12.2019; <https://www.epa.gov/wotus-rule/step-two-revise>.) There is no mention of consideration of scientific, hydrological evidence, of the conservation of wildlife and habitat that are effectively the property of the people of the United States, or even of preservation of clean water or appropriate availability of water in the United States, except in waterways defined, in essentially nineteenth-century terms, as “navigable waterways.” What was considered in the new WOTUS definition was provision of “greater regulatory certainty for farmers, landowners, home builders, and developers nationwide.” [News Release of 9.12.2019]

The newly revised WOTUS Rule excludes from the Federal jurisdiction of the EPA and the Army “ephemeral streams, isolated waters,” and “any feature that flows only during or immediately after it rains,” as well as groundwater and “prior converted cropland.” In the name of efficiency and consistency, “the proposal would eliminate the time-consuming and uncertain process of determining whether a ‘significant nexus’ exists between a water and a downstream traditional navigable water.”

“No ephemeral features are considered jurisdictional under the proposal,” and “only surface water connections are ‘jurisdictional.’” [https://www.epa.gov/sites/production/files/2018-12/documents/factsheet_-_wotus_revision_overview_12.10.1.pdf]

This radical shift in policy reverses the whole tendency of interpretation of WOTUS before the October 9, 2015 decision by the Sixth Circuit Court of Appeals to suspend the EPA’s enforcement of the 2015 Rule. The whole legal history of previous regulation under the Clean Water Act was on the whole, until now, based on broader interpretation of WOTUS.

The new restriction will render it impossible to “ensure that the Nation’s navigable waters are kept free from pollution,” as pollutants deposited in non-jurisdictional ditches, ephemeral streams, and non-adjacent wetlands will inevitably be carried into navigable “waters of the United States” by occasional flood events, subsurface channels, and as leaching into “waters of the United States” from polluted waters that do not have a surface connection is not subject to control. Polluted waters do not need a year-round *surface* connection to reach vast areas downstream.

The tendency of the Administration proposal is to narrow the interpretation of WOTUS to the point where most of the “waters of the United States” would lie outside the regulatory authority of the EPA and the Corps of Engineers. Surely such redefinition and recodification would belie the original objective of the CWA: “The objective of the CWA, as established by Congress, is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s water’s.” 33 U.S.C. 1251(a).

Furthermore, protection of isolated wetlands and ephemeral waters like playas ought to be the right of the federal govern-



ment under exercise of jurisdiction based on the Migratory Bird Rule, an issue apparently ignored by the current EPA and Army in their deliberations. Indeed, the conference report accompanying enactment of the CWA in 1972 states that “the conferees fully intend that the term ‘navigable waters’ be given the broadest possible constitutional interpretation ...”[9], seemingly an instance of a “clear statement from Congress that it intended that [interpretive] result.” And surely the maintenance of the integrity of ecosystems—“the biological integrity of the Nation’s waters”—should allow the Migratory Bird Act some purchase on the decision-making process.

Scientists recognize the value of wetlands like playas in contributing to water quality, providing flood damage protection, and recharging ground water. A 1995 National Research Council report asserted that, because of groundwater connections between isolate wetlands and surface waters, these functions are not confined to contiguous wetlands or those with surface connections to navigable streams.. And the value of small wetlands like playas to waterfowl for food and forage is demonstrable. As noted in both articles in this issue, even wetlands that may be completely dry for several years can be important for storing flood waters and can have distinctive water-dependent biota (plants and animals) that persist over dry intervals but return when water returns to the site (as noted particularly in Miruh Hamend’s article above).[14]

The fundamental clash here comes down to the Administration arguing that “The line between Federal and State waters is a legal distinction, not a scientific one,” in line with the whole tendency of the Administration’s view to marginalize scientific and expert evidence in favor of the narrowest legalistic interpretation of statute language, taking authority and jurisdiction away from the Federal government and remanding it to the states. The Administration is breaking with previous administrations not just in privileging the narrowest interpretation of WOTUS,

but also in deciding that which waterways and wetlands are to be protected is merely a matter of law, not science—while the agencies concerned have maintained back into the 1970s that science matters in this question.

The playas of the Central Plains have played an essential role in restoring groundwater and the aquifer, in offering habitat to unique ecosystems, and in affording forage and resting areas to the great flocks of migrating shorebirds and waterfowl, as well as resident birds and wildlife. Nevertheless, unless challenged in court and overturned, this redefinition of WOTUS, marginalizing science and the environment, privileging private economic interests over the public good and the long-term sustainability of the environment, probably spells the demise of these already beleaguered and essential wetlands in our backyard.

Wetland Reserve Easement program is Beneficial for Landowners and Wildlife

Despite the unfortunate proposed change to WOTUS, Federal assistance is still available for landowners wishing to protect, restore, and enhance wetlands on their property. The USDA offers conservation easements through the Agricultural Conservation Easement Program or ACEP, a Farm Bill program. Through the program, the Natural Resources Conservation Service provides technical and financial assistance to private landowners to protect, restore, and enhance wetlands and other sensitive lands. Projected payments authorized for perpetual Wetland Reserve Easements for 2020 range from around \$1,900/acre to around \$3,200/acre, depending on the region within Kansas.

Landowners and others with additional questions are encouraged to contact their county NRCS office, or Lynn E. Thurlow, Soil Conservationist/Easement Program Manager at 785-823-4548 or by email at lynn.thurlow@usda.gov

AOK Sanctuaries: **Not Just Wildlife Friendly—People Friendly, Too!**

Margy Stewart



Photo 1: Ankledeep: The creek was a popular feature during the evening! Here Zeki Ismail from the Job Corps wades in the creek. Gary Haden photo.

Photo 2: Happy Explorers: Retired educator and retired army veteran Fred Reid loaded up the “buggy” with McDowell Creek youngsters and Job Corps students. They drove through the creek and explored the tall grass prairie! Gary Haden photo.

Since AOK launched its “Sanctuaries Initiative,” two more properties have become prospective AOK wildlife refuges. These are “legacy sanctuaries,” so named as the owners are bequeathing their lands to AOK. They include Gary and Carolyn Haden’s 285-acre property in Morris County and Margy Stewart and Ron Young’s half-section of Flint Hills land on McDowell Creek in Geary County. The two legacy sanctuaries are in line to join AOK’s existing preserves—the 5000-acre Hutton Niobrara Ranch Wildlife Sanctuary, the 240-acre Connie Achterberg Wildlife-Friendly Demonstration Farm, and the 47-acre Mt. Mitchell Prairie Heritage Preserve/Historical Park.

In furtherance of AOK’s philosophy that sanctuaries should be people friendly as well as wildlife friendly, Margy Stewart and Ron Young hosted a “Celebrate Juneteenth” cook-out and wildflower walk at their Bird Runner Wildlife Refuge, on June 16, 2019. The event was a joint effort among four organizations—Audubon of Kansas, Junction City Juneteenth Community Association, McDowell Creek Community Association, and Prairie Heritage, Inc. Special guests at the event were twenty-five students from the Flint Hills Job Corps hailing from numerous Kansas counties, several Great Plains states, and at least two continents. Among these latter were refugees from Darfur Sudan, Myanmar, and one boy who came from Tanzania, but whose family was originally from the Democratic Republic of the Congo. Like the home-grown students, these youths were in the Job Corps to learn a trade and get an education.

AOK trustees joined residents of McDowell Creek and Junction City in welcoming all the students to the Flint Hills and introducing them to the flora and fauna of the tallgrass prairie. To the celebration of native prairie was added a celebration of

“Juneteenth,” a folk holiday marking the abolition of slavery. (Word of the Confederacy’s defeat reached Galveston, Texas on June 19, 1865—“Juneteenth”—which ever since has been commemorated with community celebrations—officially in some states, unofficially everywhere else.)

Delicious food has traditionally been part of Juneteenth celebrations, and the gathering at Bird Runner was no exception. The AOK cook-out included bison-burgers donated by the Flint Hills Prairie Bison Reserve and fried fish caught in local streams. Ron Young deep-fried some okra, which especially pleased those present with southern roots. The McDowell Creek Community Association served the meal, did the set-up and clean-up, and provided tables and chairs.

It was a beautiful June evening, with hosts and visitors alike exploring the creek, making paper from native plants, and following paths through native grasses and wildflowers. Toward the end of the evening, “Buffalo George” from the Bison Reserve brought out his mandolin, and Nick Dalpu from the Job Corps picked up a guitar. Though they had just met, the two instantly harmonized, while the group gathered around to sing along. The lovely music drifted over the prairie, as darkness fell and fireflies emerged. It was a soothing lullaby end to a memorable Flint Hills evening, where people and the wild ecosystem of the prairie came together.

For more information on the Sanctuaries Initiative, go to audubonofkansas.org or email AOK@AudubonofKansas.org. Copies of *Your Land, Your Legacy*, the new brochure explaining ways to support the AOK Sanctuaries Initiative, can be obtained from the AOK office on request.

Update on the AOK Sanctuaries Initiative

Gary Haden

Connie Achterberg Wildlife Sanctuary by Ron Klataske



Gary Haden at Haden Sanctuary by Margy Stewart

As part of its Sanctuaries Initiative Audubon of Kansas has published an 8-page brochure entitled *Your Land, Your Legacy* that explains various ways in which landowners can work with AOK to assure that their land will be preserved in perpetuity as they want to remember it. Through an agreement with AOK, along with a donation of funds to provide for its maintenance, landowners can be assured that their property will not be sold, developed or otherwise significantly changed.

Also through written agreement with AOK, landowners can specify whether their land might be used for research, how their land might be open to the public, whether hunting, fishing or other uses might be allowed, and whether management should include maintaining the land in its current state or whether it should be managed to enhance its potential for wildlife.

Your Land, Your Legacy describes various ways of transferring land to AOK and also discusses how individuals who do not own land can contribute to an endowment that supports donations of land to AOK from people who have the land but do not have funds to support its maintenance subsequent to their bequest. The brochure also describes Legacy Sanctuaries that are in the pipeline to become future AOK Sanctuaries. Contact AOK at 785-537-4385 or at AOK@AudubonofKansas.org for a copy of the brochure.

Bald Eagle Finds a Home on Dan and Brenda Pace's Wetland Easement

Kingman County, Kansas

“ I wanted to manage for wildlife and still have a measure of grass for the tenant's cattle”... I'm really pleased with the plan.
Dan Pace

“Think we have two chicks this year,” Dan said, pointing to a gnarly lump of branches that make up a Bald Eagles' nest packed in a cradle of tree limbs near the very top of a cottonwood tree.

Nesting Bald Eagles are just one part of the wildlife legacy Dan and Brenda Pace are leaving for their community. They came to Pretty Prairie in 1983 to work at the Pretty Prairie bank, in Reno County, Kansas. Stretching their finances, Dan and Brenda bought 240 acres of wetland in the late 1980's. “I don't remember how I got the owner to separate the 240 acres from the ranch, said Dan. “The piece of land had a pond, a river—I used to do a lot of fishing; it was just perfect for that.” So began their first steps as Kansas conservationists.

Brenda's parents, Gordon and Martha Barnhardt, had several hundred acres of native prairie they preserved throughout their lifetime. Talking about his father-in-law's prairie, “Just unbelievable wild flowers—never seen anything like it,” Dan said. “He taught me a lot about plants and birds. I attribute a big part of my conservation ethic to him.”

Dan wanted to do something with his land, to find a way for it to be preserved for people to enjoy in the future and yet still be productive. His brother-in-law in Colorado had worked with the Natural Resources Conservation Service (NRCS) on a conservation project, so thinking there might be a way for him to find something to meet his goals, Dan contacted the NRCS in Kingman County.

Mike Clover, District Conservationist, Kingman County, came out and talked with Dan to understand his goals as they walked the property to see how to preserve its natural resources. After more analysis, Mike developed a conservation plan tailored to Dan's goals while preserving and improving the property's natural resources. Dan and Brenda enrolled in NRCS's Wetlands Reserve Program in 2008.

The Agricultural Conservation Easement Program (ACEP) has replaced the Wetlands Reserve Program from the previous farm bill. The new Agricultural Conservation Easement Program has an Agricultural Land Easement component and Wetland Reserve Easement component.

The Wetland Reserve Easement component provides technical and financial assistance to private landowners and Indian tribes (in Kansas, the other component, Agricultural Land Easements, is done through a non-profit land trust). Wetland Reserve Easements have two enrollment options—perpetuity or 30 years. Wetland easement payments are based on an established area rate cap defined by geographic region. Perpetuity wetland easements pay 100 percent of the cap established for that area and 75 to 100 percent of restoration costs. [To learn more details on the payments and enrollment options, go to <http://www.ks.nrcs.usda.gov/> and click on “Easements” under “Programs” on the top navigation]

Some easements can obtain compatible use authorization for limited use of the property. Such was the case for the Paces' property in Kingman County. NRCS developed a 5-year plan, allowing hay production at certain intervals as a way to manage grass cover and control woody shrubs.

A haven for migrating waterfowl, beavers, songbirds, and threatened fish

The Bald Eagle is a relatively recent resident, with the first pair observed in 2011. But there is more. “I've been down here in winters and you couldn't begin to count the ducks,” said Dan. “And this place has been loaded with migrating Red-winged Blackbirds and I've also seen migrating pelicans down here. Coyotes, muskrats, about everything waterfowl-wise, I've seen it. Beavers are absolutely not afraid, don't recognize you as a

“ We abuse land because **we see it as a commodity belonging to us**. When we see land as a community to which we belong, we may begin to **use it with love and respect**.
Aldo Leopold, *A Sand County Almanac*



Bald Eagle by Bob Gress, *BirdsInFocus.com*

threat, they come right up to the boat.” The beavers have about six dams to pool water coming from the natural springs feeding the river.

The Kansas Forest Service conducted a census of the river fish for a streambank erosion project. “I was surprised at the type of fish found, like gar and catfish, which weren’t expected in a stream this size,” Dan said. Another species found was the Arkansas darter. This is a threatened species monitored by the Kansas Department of Wildlife, Parks and Tourism.

Just routine property management

Johnsongrass had been a problem, along with some spots of *Sericea Lespedeza*. “I didn’t realize Johnsongrass was a big problem here. I’m always monitoring for invasive species,” explained Dan. “Once you get the problems under control, and stay with it, it’s like anything else; the property just requires minor maintenance.”

“I don’t have any regrets; the management has been pretty straightforward. And if I have a question, I just call Mike. He’ll come out a few times during of the year to see how things are going,” he said. Dan’s plan included approval to allow haying at certain intervals. “I wanted to manage for wildlife and still have a measure of grass for the tenant’s cattle,” said Dan, “I’m really pleased with the plan.”

Wetland Easements—Building Community

Voluntary conservation easements preserve natural resources

for the community. Benefits include such things as preserving wildlife habitat, recharging groundwater, affording hunting opportunities, education, and opportunities for scientific research. Dan does not allow hunting because of the Bald Eagles, fearing they may be driven away.

The Kansas Department of Wildlife, Parks and Tourism has been monitoring the Bald Eagles since 2011. Even though 240 acres may not be a large area, threatened species such as the Arkansas darter and Bald Eagles thrive on wetland easements. Dan and Brenda also have a 67-acre wetland easement with a playa wetland in Meade County, Kansas. Playa wetlands are unique wetlands in western Kansas that support habitat for wildlife and migratory birds.

There are many Kansans like Dan and Brenda supporting their community through conservation easements. “There are a total of 234 wetland easements on 24,851 acres scattered in all parts of Kansas,” according to Lynn Thurlow, NRCS state program manager for easements. “Dan and Brenda are great stewards of Kansas wildlife habitat in their community.”

Their sense of community also inspired them to complete a new project, the restoration of a 103-year-old barn. “I wanted to do something for the community, as a business incubator for our community—to support all kinds of business, bed and breakfasts, wedding planners, photographers, and for teaching events,” said Brenda. The barn, built in 1913, was almost lost due to a ferocious April storm when 110 mph straight-line winds ripped a good part of it away in 2015.

The 16,000 plus square foot Collingwood Barn, with a footprint shaped like a Maltese Cross, opened in July after over a year’s work by Brenda and enthusiastic support and help from the community. Local businesses are using it to create economic growth in the community and bring in visitors from outside the county. Besides their rich wildlife sanctuary, the restored barn is yet another legacy for their community from Dan and Brenda Pace.

This article originally appeared on the website of the Kansas office of the Natural Resources Conservation Service of the USDA

Siting Wind Farms and Conservation Values: the AOK Stance

Margy Stewart



Sandhill Crane migration routes funneling through Cheyenne Bottoms and Quivira - SeeTheCranes.com

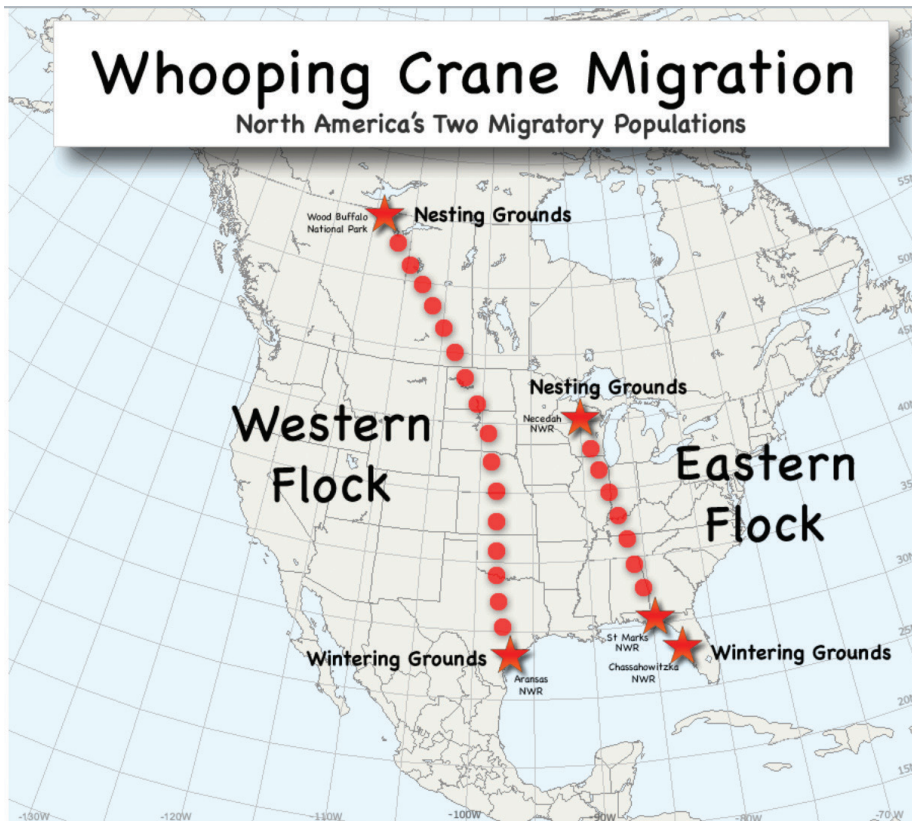
The wildlife of Kansas is not owned by any individual or any organization. It is owned by the people of Kansas and is held in trust by the State for the people of Kansas. The entity charged with guarding that trust is our Kansas Department of Wildlife, Parks, and Tourism (KDWPT). In fulfillment of their obligation, KDWPT has established guidelines for the protection of wildlife in the siting of wind energy conversion systems (WECS).

Currently, ultimate authority for siting decisions for WECS rests with individual counties, which can establish strict or lenient regulations or ignore regulations altogether. We in Audubon of Kansas have been urging counties to adopt our state's guidelines as siting standards that would have the force of law. Too often we have seen wind developers come into Kansas and dismiss our state's guidelines as mere "recommendations." Misplaced wind turbines put wildlife, including endangered species and threatened ecosystems, at risk. But too often wind developers are more interested in quickly claiming taxpayer subsidies than they are in substantiating their claims to being "green."

Here are the KDWPT guidelines:

1) That wind power facilities should be sited on previously altered landscapes, such as areas of extensive cultivation or urban and industrial development, and outside of the "Tallgrass Heartland" wind moratorium, avoiding as well other areas of large intact native prairie, important wildlife migration corridors, and migration staging areas.

- (2) That projects should adhere to the Siting Guidelines for Windpower Projects in Kansas, produced by the Kansas Renewable Energy Working Group³, or the U.S. Fish and Wildlife Service's Land Based Wind Energy Guidelines⁴.
- (3) That the study and establishment of standards for adequate inventory of plant and animal communities is conducted before wind development site selection, during construction, and after development is completed. The resultant improvement in available knowledge of wind power and wildlife interactions obtained through research and monitoring should be used to periodically update guidelines regarding the siting of wind power facilities.
- (4) That the Department recommends avoidance of native prairie and other crucial habitats as opposed to compensatory offsite mitigation.
- (5) That mitigation is appropriate if significant ecological harm from wind power facilities cannot be adequately addressed through proper siting and avoidance of crucial habitats. The Department requests that, when possible, project developers utilize established mitigation programs to offset unavoidable impacts (examples include established conservation banks and the WAFWA Range Wide Plan for Lesser Prairie-Chicken Conservation).
- (6) That the Department manages public wildlife areas to optimize habitat for native wildlife species especially game species and migratory birds. This work tends to concentrate wildlife in those areas. To avoid adverse impacts to those species and the users of the wildlife areas, the Department recommends that turbines not be sited within three (3) miles of a KDWPT-managed property.
- (7) That Environmental Reviews, which investigate possible impacts to native wildlife and habitats, should be conducted by Department staff to assist in the determination of possible adverse impacts to wildlife and support the establishment of processes to ensure a comprehensive and consistent method in addressing proposed wind power developments. (Retrieved from <https://ksoutdoors.com/Services/Environmental-Reviews/Wind-Power-and-Wildlife-Issues-in-Kansas/Wind-Power-Position>, May 19, 2019.)



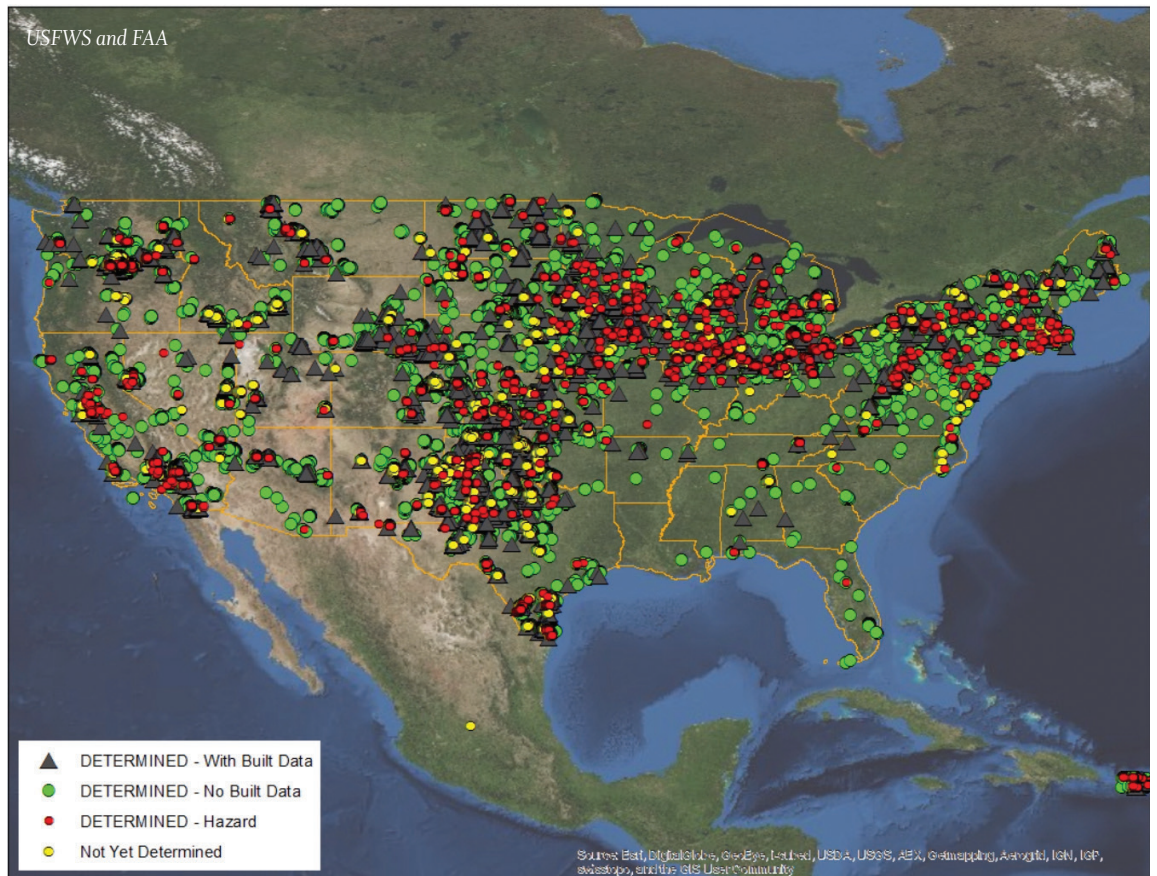
By protecting wildlife, these guidelines protect our natural heritage, the birthright of all Kansans.

But if neither the developers nor county officials take the guidelines seriously, wildlife is not protected. Wildlife advocates in three separate counties—Reno, Marion, and McPherson—have recently contacted AOK because proposed industrial wind projects threaten the environment. When we investigated, we found that the developers' proposals did indeed violate our state's guidelines. Turbines were proposed for native migration corridors, wildlife gathering spots, and locations too close to state wildlife areas, as well as for unplowed native prairie. Some eight turbines proposed for Reno County scored a quadruple whammy: simultaneously fragmenting native prairie, impacting wetlands, degrading critical habitat for threatened and endangered species, and transgressing the three-mile buffer around Cheney State Park and Cheney Lake Wildlife Area. The developer brushed KDWPT objections aside, calling Kansas's guidelines "purely a recommendation—not a rule or a regulation." Similarly, in Marion County, the would-be developer simply refused to schedule the recommended KDWPT site review, after KDWPT pointed out some violations.

The developers get away with dismissing Kansas's guidelines because no law says they can't. But the rationale for the generous subsidies which taxpayers provide to WECS is that wind energy is supposed to be "green." How "green" can it be if it ignores protections for wildlife? NextEra, the developer in Reno Coun-

ty, is in line for \$12.4 million per year in federal tax credits and another \$56 million in state tax exemptions over the life of the project, if the project is approved. These numbers are typical of projects around the state. In return for all that investment, shouldn't the public receive more than environmental damage in return? (Reno County recently denied NextEra's application for a permit, following the success of a citizens' protest petition. NextEra is now suing Reno County, trying to invalidate the petition.)

The danger from misplaced "green" energy is not just a Kansas phenomenon. We in AOK are sponsoring a yearly "Celebration of Cranes" at Quivira National Wildlife Refuge. We invite people to experience the Serengeti-like wonder of the migration of hundreds of thousands of Sandhill Cranes, along with the presence of dozens of endangered Whooping Cranes that are slowly building their population up from its almost-fatal low of 15 in 1938 compared to 500 today. The accompanying maps show the migration route of Sandhills and of the band of Whoopers that come through Kansas twice a year. The cranes use the Central Flyway and share it with millions of migrating hawks, eagles, fishing birds, vultures, shorebirds, ducks, geese, and songbirds. But that very same corridor is being increasingly populated by giant industrial structures—destructively sited wind turbines. The third map, assembled by the Fish and Wildlife Service using data from the FAA, shows existing and proposed locations for industrial wind turbines. If we think about birds trying to fly through this forest of turbines—each massive blade sweeping



Locations of windfarms, built and planned, in the continental U.S., showing those that constitute hazards.

an area the size of two football fields—we can only shudder at the dangers we humans are adding to the already perilous journeys of migrating birds.

When the KDWPT guidelines are violated, it's not just wildlife that is hurt. Human, communal values are violated as well. AOK stands with people in threatened communities because:

- We value humans' love for nature. We see it as itself a natural resource—something on which a sustainable society can be built.
- We value people who see wildlife as a part of their community.
- We honor people's desire to embrace their land communities—to defend their sunrises and sunsets, their night skies, their feathered and furry neighbors.

We should not be swayed by slogans, no matter how “green” they sound.

Our touchstones should be real birds, real wildlife, real migration corridors, real habitat, real communities, and real people who cherish the natural world.

The Three “L’s” of Bird Photography

Dave Rintoul

Photographing birds in natural settings is a good way to enjoy the natural world and to learn more about it. To me, that is the best part of bird photography. But it is far from being the only positive; there are lots of reasons to get out there and capture bird images. You get an opportunity to get close to some of the most fascinating and beautiful creatures on the planet. You might get stunning images that you can give to friends or family, and in some cases even sell to others. It might even be therapeutic, allowing one to forget (for a while at least) some of the cares and worries that we all carry with us daily. The benefits are myriad, and apply to some degree to everyone who photographs birds.

One of the truisms about bird photography is that there are probably as many ways to approach it as there are birds. The advent of digital photography, including the amazing cameras that most of us carry around in our smartphones, means that photography in general is much more accessible to many more people, and bird photography is no exception. In this article I don't have the time or space (and certainly not the expertise) to cover all the technical aspects of the subject; I will just assume that the reader is interested in getting quality photographs of birds and has access to the equipment that would allow him/her to do that. Whether that is a point-and-shoot camera with a fixed lens or a high-end digital SLR (single-lens reflex) with multiple lenses, or simply a new phone, I hope some of the information in this article will be useful to anyone who wants to photograph birds. That said, I would urge readers to get to know their equipment thoroughly; the time to learn about your camera is not the time when that rare bird is perched and posing in your back yard! So regardless of your photographic equipment, take it out and practice with it until you can operate the controls efficiently and instinctively. I assure you that this familiarity with your equipment will pay off in the future!

In my simplified view of the subject, there are just about three things that need to be emphasized to help readers get better bird pictures. Those all start with L: Light, Location, and Logos. The first two are obvious although I will elaborate on them further. In this context Logos does not mean the things that help you recognize brands; the meaning goes way back to the Greek word “λόγος” – knowledge or explanation. The more you know about the subject, its habits and habitats, the more success you will have in finding and photographing it. The same Greek root is found in lots of words that define fields of study: Ecology, Meteorology, Phenology, Physiology. So just as you will benefit from educating yourself about the photographic equipment you will be using, so you will benefit from learning as much as possible about your subjects and the places where those subjects might be found.

So let's get to the first of the Big L topics, Light. Light is incredibly important in every genre of photography; the word “photography” is rooted in the concept of “drawing with light.” But while observing lots of other photographers over the years, and particularly in recent years when excellent bird photography equipment has become much more widely used, I've seen many examples of people who didn't appreciate the role of light in their photographs. The most common example of this consists of taking a picture where the subject bird is between the sun and the photographer, i.e., a backlit bird. It is sometimes possible to get a pleasing backlit picture of a bird, and it is often impossible to get the bird to move to a spot where the light is behind the photographer. But in general, you will probably be very disappointed by a backlit photo, unless it is for documentation purposes only. Let's look at some examples. All these photos are minimally processed (cropped, highlight/shadows optimized) in Photoshop.



Figure 1 - This is a basic-plumaged American Avocet, backlit. There may be some artistic aspects to this photo, and one can certainly identify the bird from the photo, but there are no feather details, no highlight in the eye to add life to the image, and it is generally not an image that you would be proud to exhibit on your wall.



Figure 2 - But if you get the light mostly behind you while photographing a basic-plumaged avocet, a different story emerges. This image has feather details, a slight highlight in the eye, and is generally more pleasing as a depiction of this mostly black-and-white bird.



Now let's look at a more colorful bird, the American Kestrel, in two light situations, shown in Figures 3 and 4. In Figure 3 the bird is not completely backlit; the sunlight is hitting the bird from the left at an angle of about 45 degrees. This light shows the colors of the bird quite well, and there is a highlight in the eye. But this is such a colorful species that it really pays off to work until you can get the light fully on the bird, as in the next image.

First off, I have to admit that another “L” word is obvious in Figure 4 – Luck. In my experience kestrels are very wary birds, and furthermore almost always (as seen in the image above) perch on artificial objects such as barbed-wire fences, fenceposts, or utility lines. This bird was more obliging; it chose a natural perch and was also very approachable. In addition, the light on this bird was not just from the sun overhead; he perched above a snowbank and so was also lit from below to some extent. Sometimes you get lucky, and this was one of those times.

This image shows off all the colors of this bird and there is a highlight in the eye. This is probably the image most objective observers would choose if presented with the choice of either of the kestrel images here.



Now of course for every rule there is an exception. The one time you don't need to pay attention to the position of the sun is on an overcast day. In Kansas, those are often days just before or after passage of a weather front, when there are a lot of birds that you'd like to photograph. The diminished light from overcast skies means that you will have to use a larger aperture, slower shutter speeds, or a higher ISO—the traditional rating of film speed or sensitivity to light. You may even have to calculate some combination of those factors, but shooting in overcast lighting conditions also means that your subjects will be lit uniformly and diffusely, which can result in some very nice images.

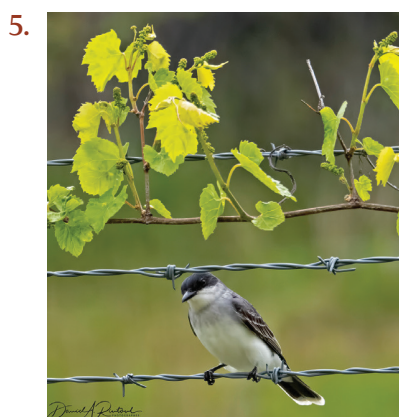


Figure 5 - Here is a shot of an Eastern Kingbird on an overcast morning. If the sun had been out this bird would have been badly backlit. But the diffuse light on an overcast day gives you more angles, even if it means that you have less light to work with. There are other aspects to this topic that deserve mention as well. Sunrise is a good time for birding and bird photography, but most birders don't think of sunset in quite the same way. But photography in the late afternoon hours can be very rewarding. Familiarize yourself with the concept of the “golden hour,” which is not necessarily an hour at all, but simply refers to the times near sunrise or sunset when the quality of the light is much different from that at midday. The warm, diffuse and directional light of sunrise or sunset can add color and interest to your bird photos just as it does with landscape photos. This is particularly true for pictures of birds in flight (a topic worthy of an entire

article by itself!), since birds in the sky can be horribly backlit at most other times of the day. Websites like www.golden-hour.com, and even some weather apps for your phone, have information about the timing of the golden hour for your location. Finally, just as you want to keep the sun at your back, you should try to keep the wind at your back as well. If the wind and sun are both at your back, photographing birds in flight is a lot more rewarding.

To summarize, get the light and the wind behind you as much and as often as possible. If you are planning outings for bird photography, when possible take the route that keeps the sun behind you. Pay attention to the light at all times, and your photographs should be more pleasing to you and to the folks you show them to.

Moving on to the next L – Location. All of us have our favorite spots for birding, and those are often good spots for bird photography as well. But not always. A spot that is good for warblers and other migrants in the spring can often give you “warbler neck,” the sore neck that comes from staring up into treetops all morning long. You can see the birds, and ID them, but it is hard to get good photographs of them. So a bird photographer might have different parameters than a birdwatcher in choosing the site for a morning’s outing. It is hard to find a good spot for photographing birds that frequent the treetops, but one could look for a situation where a trail or road overlooks a tree-filled valley or ravine below. That might not be the same spot that gives you the opportunity to build a long species list (a priority for a birdwatcher), but it will certainly give you the opportunity to get a stunning picture of the birds that are there.

Similarly, we all know of places where shorebirds and waterbirds are abundant and easy to see with binoculars, but distances or (see above) morning light angles make it difficult to get good photos of those birds. Optimizing your outings to get a long list of species would mean that you head to those places anyway. Optimizing your outings from the perspective of a photographer would lead you elsewhere, or to a corner of that spot where the light and the distance to the birds would allow you to get good shots, even though you may not see as many birds or as many species at that particular spot. For many bird photographers who started out as birdwatchers it is sometimes difficult to recalibrate and prioritize so that photographic conditions take precedence over birding parameters; it may take some time and conscious practice before this too becomes automatic.

Other topics related to Location include backyard birding. Many suburban backyards can be very birdy places if planted with bird-friendly shrubs and outfitted with feeders, nest

boxes, and water sources. Some of the best locations might be right in your yard, and putting up a temporary blind so that you can photograph birds on a favorite perch as they head to/from a feeder can be very rewarding. Similarly, some parks and wildlife refuges are better than others for bird photography. Some of my favorites are Quivira NWR in central KS, Bosque del Apache NWR near Socorro NM, and Ding Darling NWR on the Gulf Coast of Florida near Naples. In all these spots you have opportunities for wide-open spaces with lots of light and lots of birds, and all of them are popular with bird photographers for exactly those reasons.

The discussion of location leads us to the final L word, Logos. If you are a birder, you KNOW the good birding locations in your area; that is part of your knowledge base. You KNOW what times of the day and what times of the year it will be most productive to visit those places; that is also part of your knowledge base. If you are not a birder already, you will have to add that knowledge, but there are lots of folks to help with that.

Other forms of knowledge take similar efforts to acquire. If you want to get pictures of a target species, say, a Painted Bunting, you will need to learn about the habitat preferences of that species. You should learn to recognize the song or call so that you can quickly track it down once you have heard it in that habitat zone. You should learn the life history. When will the males be singing? When does nesting occur? What do the juveniles look or sound like? Preparing yourself with advance knowledge about a species will improve your chances of finding and photographing that species, as well as decrease your chances for disappointment if you are, for example, looking for a summer-resident bird in February or March and coming up empty.

Lots of knowledge that you may have accumulated as a birdwatcher can be helpful in bird photography, so field guides are your friends here as well. Websites like birdcast.info, which translate weather patterns into probabilities of migration peaks or valleys, can also be useful in planning photographic expeditions. More esoteric knowledge can come from phone apps like TPE (The Photographer’s Ephemeris) which can give you daily light, sunrise, sunset, moonrise, moonset and other information for the exact spot you are in, or for any specific spot in the world. And, as always, other birders and photographers are often more than willing to share information, compare notes, and help a like-minded bird fanatic! Take advantage of local birding groups and local birding (and bird photography!) social media sites; they are an infinite source of knowledge and wisdom. And work on your observational skills. Some people are naturally observant, but most of us need to be reminded at least some of the time to slow down and pay attention to the sights and sounds around us.



Figure 6 –Light-morph Harlan's Hawk

There are a few other miscellaneous tips and hints that don't fall under these three topics. So here they are, in no particular order.

- Bird photography is usually not a social activity. Birders understand that a crowd of people can scare off birds, so that field trips with more than 4-5 birders are often unproductive. Getting close enough to a bird for a good photograph is even more unlikely with a crowd, so you might have to resign yourself to a solitary activity if you take up bird photography in earnest.
- When possible, photograph birds with a clean simple background in mind. A lot of cluttering items in the background of a shot can distract from the bird, and make the image less desirable. Of course, you can also open up the lens to decrease depth of field and throw the undesirable background into an inoffensive blur.
- In general, I tend not to go out in search of a target species, since I sometimes don't find it, which can be frustrating, and who needs extra frustration in bird photography? I go out just planning to shoot anything that wanders my way. Not only is that less disappointing, it often is educational, even enlightening. You can learn a lot about a bird species by chasing it around for an hour on a summer morning! But if your personality is focused differently than mine, by all means choose a target species and chase it down.
- Have patience. Be prepared to move on if there is not much activity, but also be prepared to stay in one spot if a bird is cooperative. Staying in one spot means that the birds often get used to your presence. Staying down low and avoiding sudden movements is also a good idea if that is possible. And understand that even if the first twenty birds you see are jumpy and uncooperative, the next one, like the kestrel in one of the pictures above, might be perfectly okay with you being in the

vicinity for a while. You might shoot a lot of frames of that one obliging bird, and quickly forget the others who didn't want to be in your presence at all.

- Focus on interesting behaviors and activities rather than just portraits of the bird. Preening, yawning, flying, courtship, feeding young, and aggression are all things that add interest to a bird picture. Every picture tells a story, but there are a lot more words in a picture of a bird doing something besides just sitting there!
- Learn to use Photoshop, Elements, Paintshop Pro, GIMP, Lightroom, or other post-processing software to get the most out of your images. Digital photography has many advantages over film photography, including instant gratification and sharing, ease of organization and storage of images, and the ability to delete and forget less-than-memorable shots. Image processing is one of those advantages; you can rescue a shot that is under-exposed more readily than you could in the era of film, for example. So take advantage of this technological advance as much as possible.

“ Finally, get out there and shoot some pictures. As with anything, practice is critical for honing your skills.

Finally, get out there and shoot some pictures. As with anything, practice is critical for honing your skills. If you want to shoot images of sparrows, find some sparrow-rich spots in the fall and shoot away. If you want to get good pictures of birds in flight, find a spot with lots of flying birds (outflow tubes of reservoirs often have lots of flying gulls) and practice on those. Take your equipment with you as often as possible so that you don't miss an opportunity when sometime in the near future, a rare or gorgeous bird flies over you!

Conservation Award Presented to AOK Executive Director

Michael L. Donnelly

Ron Klataske, Executive Director of Audubon of Kansas (AOK), was recently honored for an impressive list of achievements in the cause of conservation by the “President’s Award” from the Western Association of Fish & Wildlife Agencies (WAFWA). The award recognizes fifty years of service dedicated to conservation of wildlife and native ecosystems during Ron’s tenure as a regional representative and vice president for the National Audubon Society from 1970 to 1998, and as one of the prime movers in the creation and activities of Audubon of Kansas since 1999.

Among Ron’s many achievements, perhaps two are most significant in their national impact. They resulted in new units of the National Park system. One involved developing a proposal and working with landowners and Congress over an eleven year period to secure protection of a 76-mile stretch of the Niobrara River in north-central Nebraska as a National Scenic River. Another involved proposing and fighting for the establishment of the Tallgrass Prairie National Preserve in the Kansas Flint Hills, established as a unit of the National Park system by congressional action on November 12, 1996 after a decades-long effort. Earlier, he also proposed and was one of the earliest proponents of the creation of the Konza Prairie south of Manhattan and purchase of the 30,000-acre Barnard Ranch to establish a Tallgrass Prairie Preserve in Oklahoma.

He led Audubon campaigns opposing dam and diversion projects on the Platte and Niobrara Rivers in Nebraska. The campaign to stop the Mid-State Reclamation Project—which would have been the death knell for the Platte—succeeded in 1975 with a local referendum vote which eliminated tax funding for the sponsoring entity. The proposed Norden Dam on the Niobrara was stalled in Congress with opposition to federal funding, and then the victory was capped with designation of the Niobrara as a national scenic river.

The campaigns to protect instream flows and riverine habitats from the adverse impacts of additional dams and diversions upstream in the vast Platte River watershed involved numerous Audubon activities at many levels, and it is arguably one of the



Ron Klataske Receives Conservation Award - by Ryan Klataske

most ecologically significant Audubon contributions in the central Great Plains. In 1971, Ron organized the first Audubon event to encourage people to experience the spring staging of nearly a half million Sandhill Cranes along and on the river. That was followed by organization of annual Spring River Conferences and Crane Festivals that continue to this day. He also worked with landowners to acquire property for establishment of the Lillian Annette Rowe Sanctuary. Along with all of the outreach conducted by the sanctuary and the Iain Nicolson Audubon Center, those events have helped immensely to raise public awareness and make the gathering of cranes on their early spring epic migration one of Nebraska’s greatest wildlife tourism attractions.

Although his vision for many of the conservation initiatives and his tenacity for advocacy over decades have been vital for favorable outcomes, he is uncomfortable receiving awards. He stresses that in all cases the dedication, involvement and support of others, often a great many others, has been equally or more important and crucial to successes. Many “partners in conservation” have worked in tandem with Ron since the early 1970s. He cites the late Larry Haverfield and Gordon Barnhardt—who fought to retain prairie dog colonies during the past fifteen years and who have hosted reintroduction of Black-footed Ferrets on their land against extraordinary opposition by anti-wildlife forces—as examples of heroic partners that make all of us proud and our organizations look good.



Conservation Award Presented to Ron Klataske by Brad Loveless - by Ryan Klataske

Pushing for repeal of state statutes that allow county commissioners to mandate poisoning of prairie dog colonies on private land is one of the pillars of AOK's advocacy. Prairie dogs are a keystone species vital for the survival of Black-footed Ferrets in the wild, and important for many other short-grass prairie species.

While still working for the National Audubon Society, Ron presciently proposed creating trail systems on flood control levees north of the Kansas River in Lawrence, and later the similarly situated linear trail in Manhattan. Both are now popular walking, hiking, and bike trails, bringing a larger segment of the population into closer contact with nature.

The AOK system of sanctuaries, at present consisting of the 5,000-acre Hutton Niobrara Ranch Wildlife Sanctuary along the Niobrara (a gift from Harold and Lucille Hutton), the Mt. Mitchell Heritage Prairie south of Wamego, and the Connie Achterberg Wildlife-Friendly Demonstration Farm in Lincoln County, represents the fruition of another of Ron's creative dreams for Kansas and beyond. With this state's comparative dearth of public lands, he envisioned an archipelago of both wildlife preserves and publically available sites demonstrating economically feasible wildlife-and-nature-friendly agricultural practices. The concept is based on the model of a sanctuary system and education centers established by the Massachusetts Audubon Society during the past 120 years! Additional AOK sanctuaries are planned.

Ron has been a tireless advocate for conservation before legislatures and administrative agencies, serving as a persistent presence pushing sometimes slow-moving bureaucracies. He

has played a central role in pressing for control and eradication—to the extent possible—of invasive plants like Old-World Bluestems, which threaten native prairies and rangelands. For the past twenty years he has worked closely with Kansas Department of Transportation officials to reduce non-essential mowing and implement limited mowing policies for 150,000 acres of highway roadsides, and planting of native grasses and wildflowers when areas are reseeded. This has been part of AOK's more comprehensive effort to enhance and establish pollinator habitat.

He recently made the case for restricted trapping of river otters in areas where their populations are struggling to reestablish themselves, and he has been a voice on behalf of declining populations of Lesser and Greater Prairie-Chickens (the iconic bird on the AOK logo). Whenever opportunity for education or intervention in the cause of conservation in the central plains has presented itself, or a threat arisen, Ron's expertise, time, and indefatigable efforts have gone into action, presenting scientific facts and sound policy alternatives to stakeholder groups, government agencies, local authorities, and the larger public.

Ron's award for a half century of achievement in the cause of conservation was presented by Brad Loveless, Secretary of the Kansas Department of Wildlife, Parks, and Tourism and current president of WAFWA at the WAFWA 2019 Summer Meeting held in Manhattan, July 11-16, 2019. WAFWA represents 19 state wildlife agencies from the U.S. and five Canadian provinces.



Sketches in preparation for a mural project in a near by town by Betsy Knabe Roe

AOK Hosts A Celebration of Cranes at Quivira National Wildlife Refuge November 1-3, 2019 *Michael L. Donnelly*

The big event on the fall calendar for Audubon of Kansas is the three-day Celebration of Cranes, scheduled for the Quivira National Wildlife Refuge from Friday, November 1 through Sunday November 3.

Early in October last year, Ron Klataske, AOK Executive Director, conceived the idea of sponsoring a day at Quivira at the height of crane migration to introduce a larger public to this amazing annual event, and the marsh on which it takes place. Back in 1971, while still working for the National Audubon Society, Ron organized the first Audubon event encouraging people to experience the spring staging of nearly half a million Sandhill Cranes on the Platte River in Nebraska. The organization of annual Spring River Conferences and Crane Festivals followed, until today, the gathering of Sandhill Cranes on their early spring epic migration has become one of Nebraska's greatest wildlife tourism attractions.

With less than a month to plan last year, AOK put together a day at Quivira, hosting van tours of the marsh to introduce a larger public to the spectacular concentrations of Sandhill Cranes and the occasional rare and endangered Whooping Cranes (as well as thousands of three or four species of geese and abundant other kinds of waterfowl and wildlife).

As late as the Wednesday before the scheduled weekend, Ron expected fewer than fifty people, and early in the week had only about twenty signed up, so he cancelled a second van that had been ordered. But over the weekend Michael Pearce, who works with KDWP to promote this kind of thing, got wind of the event, called Ron Saturday night after a duck hunt to get details, and called papers Monday in Hutchinson and Wichita. His articles on the planned event were published Thursday and Friday. The result was an inundation of calls to Quivira headquarters, which was wholly unprepared to deal with so much interest. On Saturday, probably one hundred fifty people turned up, and van tours took place all day (though the best viewing times for cranes are right after sunrise through early morning, and late afternoon until the big flocks finish returning to their roosts just after dark). AOK volunteers also drove visitors in their own cars, pointing out wildlife and marsh ecology, and setting up spotting scopes along the Wildlife Loop. Visitors enjoyed the exhibits at the Quivira Visitors Center and comparing notes about their tours or anticipating what they might see while waiting for a van to return for another trip.

On the whole, the event was an unexpectedly great success, acquainting a larger public with the spectacular concentration of migrating birds and the unique habitat of the saltmarsh; but AOK also learned a lot from this experience. We decided that the one-day event in 2018 should be a pilot program for a larger, better organized three-day event in 2019, and immediately began the business of planning and scheduling.

This year as a result of extensive preliminary planning by members of the AOK Board and volunteers, five tours are planned (Nov. 1,2,3). Early morning hours starting at dawn and sunrise are the best hours to view Sandhill Cranes and Whooping Cranes, waterfowl and many other birds and wildlife. Most of the cranes and waterfowl (particularly geese) leave their night roosting areas to feed in agricultural fields surrounding the refuge. They usually return in greatest numbers near sunset

Members of AOK and visitors at last year's Celebration of Cranes viewing Whooping Cranes and other waterfowl with spotting scopes and binoculars from the Wildlife Loop at Quivira National Wildlife Refuge.



and dusk. During the day, there will be many other waterfowl to see, of course. We will have spotting scopes and share binoculars at the main viewing areas (usually near the north end of refuge), but participants are encouraged to bring their own. There is no guarantee the Whooping Cranes will be present, but historically this is a good time, and in any case, there is much to see and learn at Quivira.

This year we are excited to have three experts giving presentations:

Rex Buchanan, Director Emeritus, Kansas Geological Survey. “Water and Geology at Quivira National Wildlife Refuge”? Buchanan and Jim McCauley co-authored the book *Roadside Kansas*, a guide to geological landmarks across the state. After 37 years with the Kansas Geological Survey, Rex retired as interim director in June 2016.

Anne Lacy, Crane Research Coordinator. “The Trumpet in the Orchestra of Evolution: The Story of the Sandhill Crane in North America.” After completion of her M.S., Anne accepted a full-time position at the International Crane Foundation as a research associate in the Field Ecology Department (now the North America Program), working on an ongoing long-term study of Sandhill Cranes. She began working with the Whooping Crane Eastern Partnership in 2009 to study the ecology of the newly reintroduced Whooping Cranes in Wisconsin.

Elizabeth H. Smith, Ph.D. International Crane Foundation, “A Long and Narrow Flyway: Whooping Cranes and Trans-continental Migration.” Elizabeth is North America Program Director and Texas Whooping Crane Program Leader, International Crane Foundation. The Texas coast plays an integral role in the recovery of this federally endangered species, as the Whooping Crane relies on large expanses of quality coastal habitat each winter within and around Aransas National Wildlife Refuge. Her research on effects of sea-level rise and storm surge on coastal habitat change is critical to the promotion of community advocacy for conservation planning and protection.

Refuge staff and members of the Friends of Quivira will be on hand to answer questions, and Barry Jones, Visitor Services Specialist, Quivira National Wildlife Refuge, and Mike Oldham, Project Leader, USFWS, Quivira National Wildlife Refuge, will also be on hand to greet participants and introduce the salt marsh.

Deadline for registration is Oct. 28, 2019.
Register at audubonofkansas.org

If unable to use online registration you may
a) download the pdf form, print, then mail to Audubon of Kansas, Inc., 210 Southwind Place, Manhattan, KS 66503, making checks payable to Audubon of Kansas

or b) contact AOK office - email aok@audubonofkansas.org or call 785-537-4385.

Audubon of Kansas will provide hot cider and light refreshments at the visitor's center, and there will be live music during the lunch hour Saturday.

Van tours \$12 each, children under 12 free, reservations required for the van seats. This fee is to help pay for the van rental, and therefore is not refundable. Please arrive 10 minutes prior to your chosen tour time.

Box lunches available for \$8 on Saturday only (*must be pre-ordered*)

For more information contact AOK, email aok@audubonofkansas.org or call 785-537-4385.

PLEASE do not call Quivira National Refuge Visitor's Center.

At the Quivira National Wildlife Refuge

Elizabeth Schultz

WHOOPING CRANES

**In 1541, Coronado was lured by tales of the “Seven Cities of Gold” to find Quivira. He discovered instead settlements of hard-working farmers.*

**Fifteen Whooping Cranes in the 1940s have, as the result of avian conservationists’ dedicated work, now become 500.*

The treasure we sought in Quivira was in the air: Whooping Cranes, endangered, majestic, iconic, elusive as Coronado’s gold, their precious weight in white feathers, light filled, uplifting.

Eyes and ears alert, binoculars and scopes ready, we scanned for that white signal among skeins of Snow Geese and Sand Hill Cranes unraveling across the sky, migrants dissolving borders, their calls drifting down and around us. Shaped suddenly out of air, from among the other birds, seven white cranes came into being. We identified them, and they became ours. We circumscribed them in our lenses as they settled along a distant marsh, folded their wings against their bodies, origami in reverse, nobody’s treasure but their own.

Waterfowl at Quivira, by Chod Hedinger

SAND PRAIRIE

Here where white-tailed and mule deer mingle, where Mountain Bluebirds fly with Grasshopper Sparrows, here the prairie’s muscles flex and ripple, stretch toward horizons, east, west. Supple dunes swell, marshes sweat and glisten. The chest heaves, sighs as winds pass through asters, tickle bluestem, buffalo grass, blue grama. clusters of honey locusts, cottonwoods, and sand plums form barrettes securing these flowing grasses. Beneath: the earth’s body, quickening.

AT HOME IN QUIVIRA

A family of deer stand sentinels on the edge of a road. A single coyote, savvy, sassy, saunters through grasses, ears peaked, muscles flexing, alert to cars, to humans, waiting for birds to settle into grasses, for badger to arrive with entertainment. Pocket gopher tunnels into sand, hollows out a cozy bedroom, reaches up for sand to cover her digs. Woodrat stacks sticks, branches, constructs a wooden teepee, hunkers inside, waiting for the next storm to deliver more lumber. Red ants percolate in their pot of sand.



**This Edition of Prairie Wings
is Devoted to Friends and
Partnerships**

friendsofquivira.org/about-friends-of-quivira
www.audubonofkansas.org/



210 Southwind Place
Manhattan, KS 66503

