

The Nature
Conservancy



Kansas

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KANSAS UPDATE





Photo © Jenna Schoenefeld

Virtual Fences

Using technology to control where cattle graze could improve water quality and habitat for wildlife

This spring, a new research project designed by The Nature Conservancy and Kansas State University will test how using virtual fences for grazing management can benefit biodiversity in the Flint Hills. The research will take place on Tallgrass Prairie National Preserve and the neighboring Mushrush Red Angus ranch.

It starts with rotational grazing, sometimes also called rest-rotation grazing.

“Rotational grazing targets where cattle graze and how long they stay there by moving, or *rotating*, them through pastures,” says Tony Capizzo, Flint Hills Initiative manager for The Nature Conservancy. “Intensely grazing small areas for shorter periods allows the rest of the prairie a chance to recover.”

The Mushrush family started rotational grazing more than a decade ago when drought impacted the Great Plains. Rotational grazing gives prairie plants more time to grow and build up root systems.

“We found that the cattle also put on more weight, despite the drought, so we continued with it,” says Daniel Mushrush, a third-generation

Kansas rancher. “Plus, the prairie was healthy and supporting wildlife. Protecting the last of the tallgrass prairie is important to my entire family.”

One challenge that prevents more ranchers from implementing rotational grazing is the need for more fences to section off prairies. Virtual fencing is a relatively new technology that could help address this challenge. It uses radio signals and GPS-equipped collars to direct cattle instead of traditional barbed wire and electric fences. Virtual fencing is emerging as a potent tool to support regenerative grazing, but many ranchers are skeptical.

“Projects like this help us learn more about how the technology could work in a real landscape and on a large scale,” explains Capizzo. “We need to assess whether virtual fencing is a realistic option for improving range management in the Flint Hills and that it can be used to meet conservation goals while making sense financially for producers.”

Working with the K-State Division of Biology, there will be three focal areas of research: stream channels, grassland birds, and the plant community. One promising element

of the experiment in Kansas is testing whether virtual fencing helps prairie streams. It is often difficult, if not impossible, to install traditional fencing along stream banks. Baseline data has been collected and grazing plans are in development. Soon, virtual fencing systems will be installed at Tallgrass Prairie National Preserve and the Mushrush Red Angus Ranch.

This research is a crucial part of The Nature Conservancy’s effort to increase the adoption of regenerative grazing practices across the United States. It will scientifically assess how virtual fencing can help ranchers achieve their business and quality of life objectives alongside goals for biodiversity, wildlife habitat, water quality, soil carbon, and more conservation outcomes.

“We are trying to ensure the long-term viability of grazing land ecosystems,” says Capizzo. “But to do that, we have to take care of the people taking care of the land.”

The Tallgrass Prairie National Preserve is located in Chase County, Kansas and is a unique public/private partnership between The Nature Conservancy and the National Park Service. The two organizations cooperatively manage the nearly 11,000-acre property in the heart of the Flint Hills.

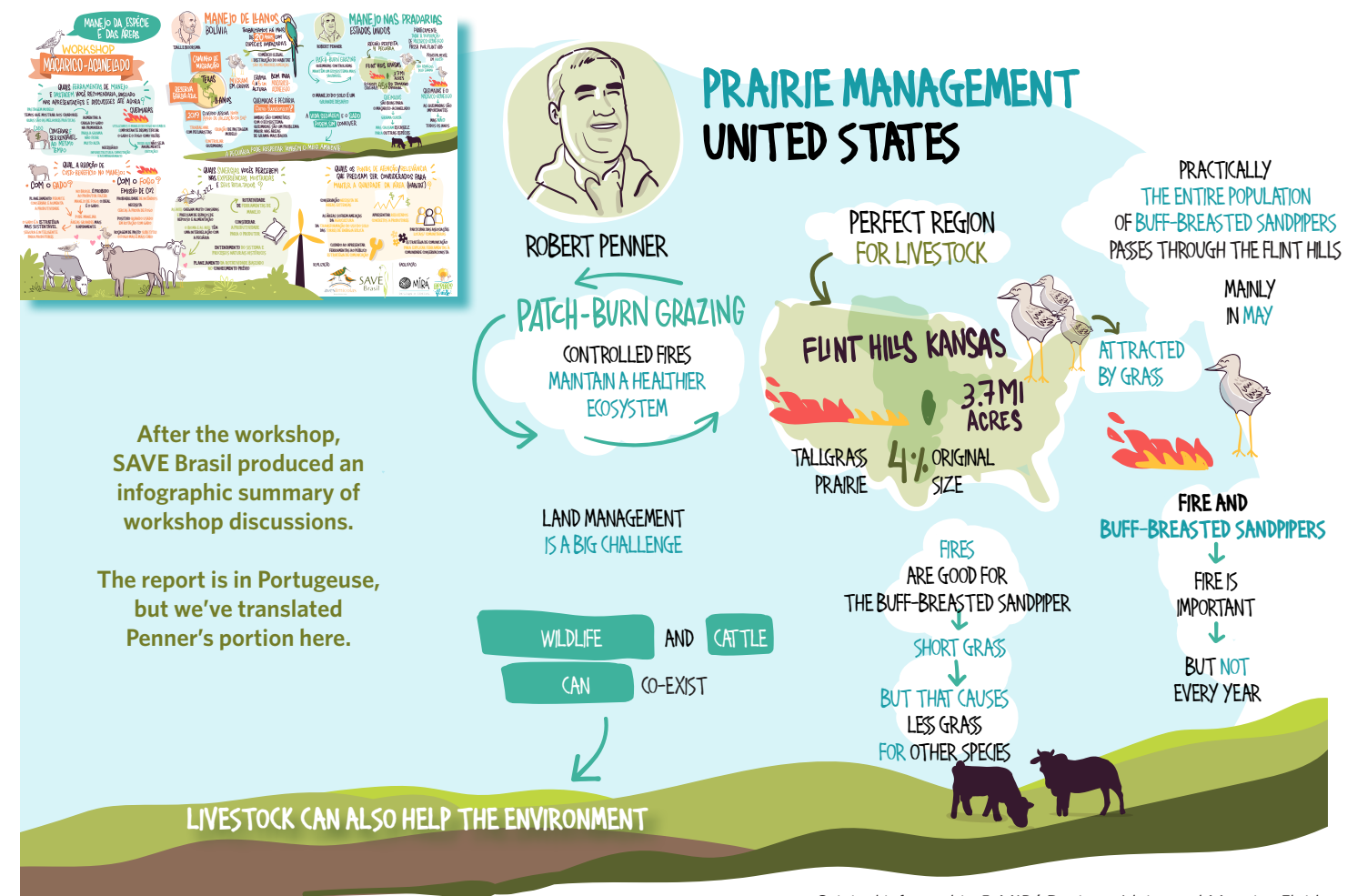
FROM KANSAS TO BRAZIL AND BACK AGAIN

Robert Penner, The Nature Conservancy’s avian conservation manager in Kansas, was invited by the bird conservation organization SAVE Brasil to participate in a mutli-country buff-breasted sandpiper workshop last fall. Bird conservation experts from Brazil, Argentina Uruguay, Paraguay and Bolivia joined Penner—the only representative from the United States—for the three-day virtual conference to discuss what’s working and what isn’t when it comes to conserving this special bird.

Buff-breasted sandpiper (*Calidris subruficollis*), is a delicate shorebird that prefers dry upland areas over the wetlands and mudflats typically used by shorebirds. Once believed to number in the millions, this bird is now uncommon. Its population was decimated by hunting in the early 20th century. Habitat loss along its migration path through the central United States and the South American wintering grounds further reduced the species.

Kansas’s prairies are extremely important to the survival of this bird. Almost the entire population of the world’s buff-breasted sandpipers stops in the Flint Hills to rest and feed during migrations. The same short grasses that emerge after controlled fires in the Flint Hills each spring aren’t just a tasty treat for cattle—they also provide ideal habitat for buff-breasted sandpiper.

Thanks in part to Penner’s efforts to document this species in the Flint Hills, we know that livestock grazing is compatible with and can even be used as a tool for conservation of the buff-breasted sandpiper. But habitat in one location won’t be enough to ensure the survival of a bird that travels more than 10,000 miles each direction during migration. Continued, coordinated efforts across state, country and continental lines is required. Your support of The Nature Conservancy’s work in Kansas makes that possible.



Original infographic © MIRÁ Design e Ideias and Mosaico Fluido
Special thanks to SAVE Brasil for allowing us to reprint it here.

Your donation can go twice as far when you donate to the Generations campaign.

Thanks to generous matching gifts from two Kansas families, your donation to support Land priorities in the Generations campaign can have double the impact.

Seven generations ago, Kansas was an endless landscape bursting with wildflowers and teeming with wildlife.

Five generations ago, settlers began converting the native grassland to farm a land of plenty.

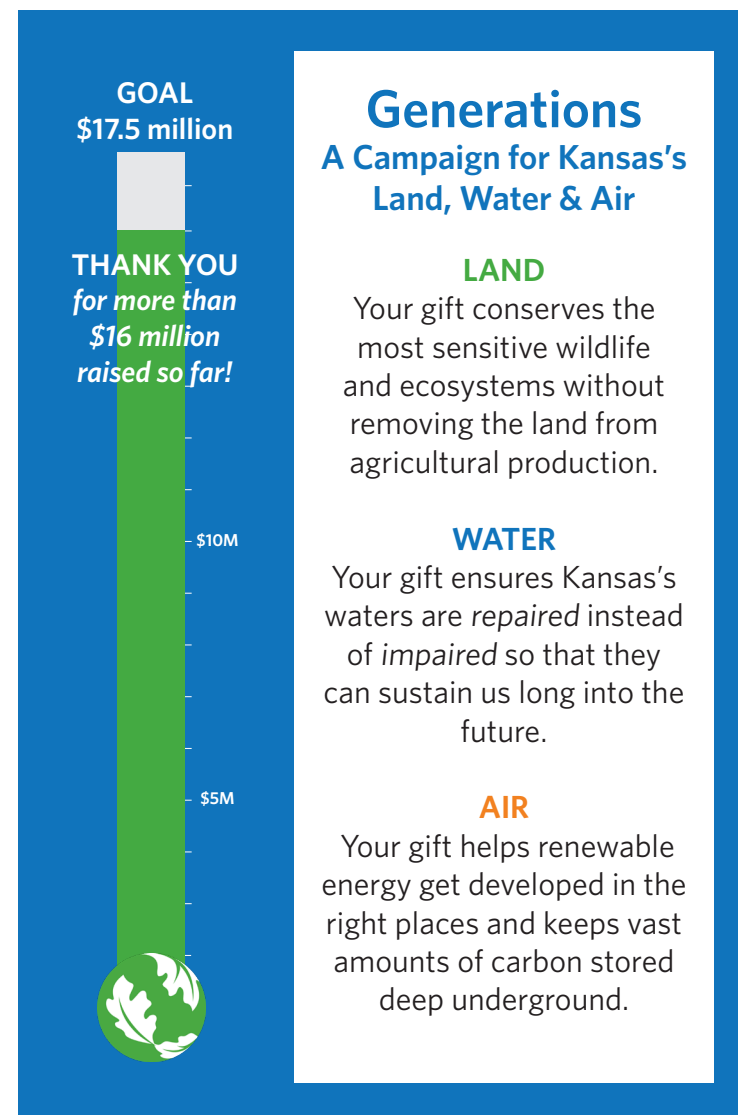
One generation ago, dedicated volunteers established a Kansas chapter of The Nature Conservancy. They wanted future generations to inherit a biologically rich world, and they knew that time was slipping away.

Today, The Nature Conservancy reaches beyond the borders of our nature preserves to inspire private land conservation on a vast scale.

Through the *Generations* campaign, The Nature Conservancy is raising \$17.5 million to build on the previous generation of conservation successes in Kansas and double our conservation impact in just five years. Your help is critical.

To inspire others to give to the campaign, two anonymous Kansas families have devoted a total of \$1 million to match contributions for land priorities at a rate of 1 to 1.

For your gift to be matched, just check the box next to *Land* on the enclosed envelope when you mail your donation to our Topeka, Kansas office. You can also call us at 785-233-4400 to make a gift over the phone or discuss other ways of giving.



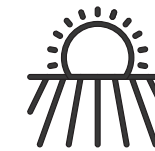
“ We have never won the lottery or received an inheritance but worked hard and saved. We want to use our savings to make the world better. I hope others will join us in supporting The Nature Conservancy.

Howell Johnson
Nature Conservancy donor from Topeka, Kansas

Donations to the Generations campaign have already:



Increased land protection at places like Cheyenne Bottoms Preserve, where endangered whooping cranes find respite during their migration.



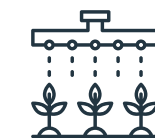
Secured Terrace Lane Farm and began preparing it to be a cutting-edge research and demonstration farm for sustainable agriculture.



Safeguarded more than 2,000 acres of tallgrass prairie in the Flint Hills with conservation easements.



Expanded the award-winning Site Wind Right tool to include solar energy opportunities so Kansas can continue to provide renewable energy while still conserving wildlife habitat and natural areas.



Supported farmers in the Rattlesnake Creek watershed as they transitioned to more efficient water use.

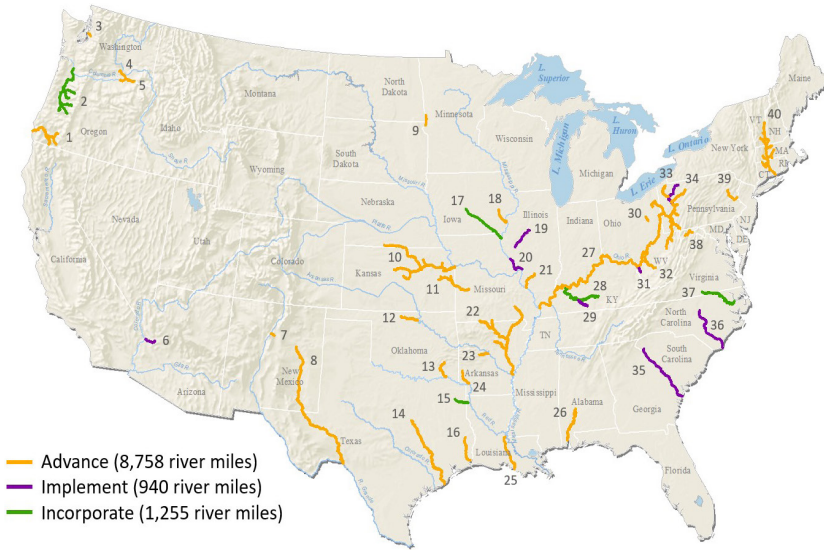


Established the first conservation easements in the chalk bluffs around Smoky Valley Ranch and Little Jerusalem Badlands State Park.



Helped K-State researchers develop a model that predicts the impacts of different development scenarios, including the severity of floods, for the Blue River in Kansas City.

OSAGE RIVER JOINS SUSTAINABLE RIVERS PROGRAM



Twenty years after The Nature Conservancy and the U.S. Army Corps of Engineers established the Sustainable Rivers Program to manage the nation’s river infrastructure more sustainably, a second river system in Kansas has been added.

For much of the 20th century, the United States built thousands of large dams and other water projects to meet the nation’s growing need for water, food, flood risk reduction, hydropower and navigation. But since their construction, the operations of very few public dams have been thoroughly reviewed and updated to meet current needs. The Sustainable Rivers Program is designed to fix that.

Too often, river infrastructure-like dams, locks and levees-disrupts natural flow patterns that are critical to the health of rivers. Seasonal patterns of high and low flows support animal and plant lifecycles, preserve water quality and maintain diverse habitats. By artificially stabilizing river levels, dams can set off cascading effects that negatively impact fish and wildlife, ecosystems and the diverse array of benefits they provide to people. Alterations to river flows are the principal reason why 40 percent of the nation’s fish and 70 percent of freshwater mussel species are listed as imperiled.

The Sustainable Rivers Program focuses on determining unique flow requirements for rivers and then creating operating plans for dams that incorporate environmental flows. These “e-flows” are scientific prescriptions for the timing, quantity and quality of water flow that must occur both downstream and upstream of dams to sustain critical ecological functions and habitat for species. The program is successful because it combines scientific expertise with a collaborative approach that engages stakeholders in reviewing and determining new flow patterns.

It’s a lengthy but rewarding process that has been underway for the Kansas River since 2017. Now, the Osage River has been added to the program, and freshwater scientists for The Nature Conservancy in both Kansas and Missouri are digging in.

“We’re looking at the entire watershed for the Osage River. That means starting with the Marais des Cygnes River in eastern Kansas,” says Heidi Mehl, director of water and agriculture programs for The Nature Conservancy in Kansas.

The Marais des Cygnes and Little Osage rivers flow across the state line and come together to form the Osage River in Missouri. After flowing past the Lake of the Ozarks,

the Osage River joins the Missouri River near Jefferson City, MO. Three of the reservoirs in the river basin are in Kansas, and four are located in Missouri.

“Getting the Osage accepted into the Sustainable Rivers Program is just the start,” says Steve Herrington, director of science and impact measures for The Nature Conservancy in Missouri. “Next comes an extensive review of ecological data.”

Ultimately, river flow recommendations will be developed and implemented for the Osage River. The Sustainable Rivers Program is just one way The Nature Conservancy uses your donation to repair Kansas’s streams.

SUSTAINABLE RIVERS PROGRAM

- | | |
|----------------------------------|-----------------------------------|
| 1. Rogue River | 20. Mississippi River |
| 2. Willamette River | 21. Kaskaskia River |
| 3. Ballard Locks | 22. White/Black/Little Red Rivers |
| 4. Yakima River Delta (McNary) | 23. Fourche LaFave River |
| 5. WallaWalla River (Mill Creek) | 24. Cossatot River |
| 6. Bill Williams River | 25. Atchafalaya River |
| 7. Galisteo Creek | 26. Alabama River |
| 8. Pecos River | 27. Ohio River |
| 9. Bois de Sioux River | 28. Green River |
| 10. Kansas River | 29. Barren River |
| 11. Osage River | 30. Sugar Creek |
| 12. Salt Fork Arkansas River | 31. Twelve Pole Creek |
| 13. Kiamichi River | 32. Kanawha River |
| 14. Brazos River | 33. French Creek |
| 15. Big Cypress Bayou | 34. Upper Ohio River |
| 16. Neches River | 35. Savannah River |
| 17. Des Moines River | 36. Cape Fear River |
| 18. Iowa River | 37. Roanoke River |
| 19. Farm Creek | 38. Potomac River |
| | 39. Lehigh River |
| | 40. Connecticut River |

Welcome, Tim Marshall!

From the grasslands and savannas of California to the prairies of the Great Plains and pastures of Florida, grazing lands are found throughout the United States. These iconic lands—totaling about 775 million acres nationwide—and the ranching families who care for them are the backbone of rural economies, as well as a crucial key to a healthy future. Grazing lands provide food for people, secure clean water and wildlife habitat, and store carbon in the soil, which helps to mitigate climate change. The Nature Conservancy is working with ranchers and other key leaders in the beef supply chain to adopt a sustainability framework that keeps grasslands ecologically intact and economically productive, safeguarding the future of ranching families and feeding a growing world.



Tim Marshall was hired in November to lead The Nature Conservancy’s Sustainable Grazing Lands program and Red Hills Initiative in Kansas. He is a fourth generation rancher on a family farm in Medicine Lodge and previously worked as the Barber County Extension Agent.

How did you get involved in farming and ranching?

Tim Marshall: I was born into it. I started my own cow herd while still in high school but didn’t really expand until I moved back in 2001. My family is involved in agriculture on both sides, and I’m the fourth generation living and working on our place near Medicine Lodge. Our family operation was the typical small traditional type before I came back. I wanted to do things differently to grow it and be a good steward. We started rotational grazing and using prescribed fire just a few years after I was back.

What do you hope to accomplish working with The Nature Conservancy?

Tim: I want to help bridge the perceived gap between people involved in production agriculture and those in conservation. Through honest conversation, we can realize we’re allies working toward the same outcomes.

What does cattle ranching have to do with conservation?

Tim: Livestock grazing on intact, working grasslands can help achieve conservation goals like clean water and wildlife habitat. And ensuring the sustainability of livestock agriculture is vital to feeding a growing world. In my mind, true sustainability means that your management must be both environmentally and economically sustainable. It is a common belief amongst those involved in ag to “leave the ground better than you found it,” and I completely agree with that. But the reality is that this is a business, so everything must be economically sound, as well, for an operation to be truly sustainable. Sustainable grazing involves managing the growth and harvest of forage, monitoring both to keep the system healthy and balanced. Doing the right things above ground will translate below ground.

How can other ranch operators make a difference for the health of their rangeland?

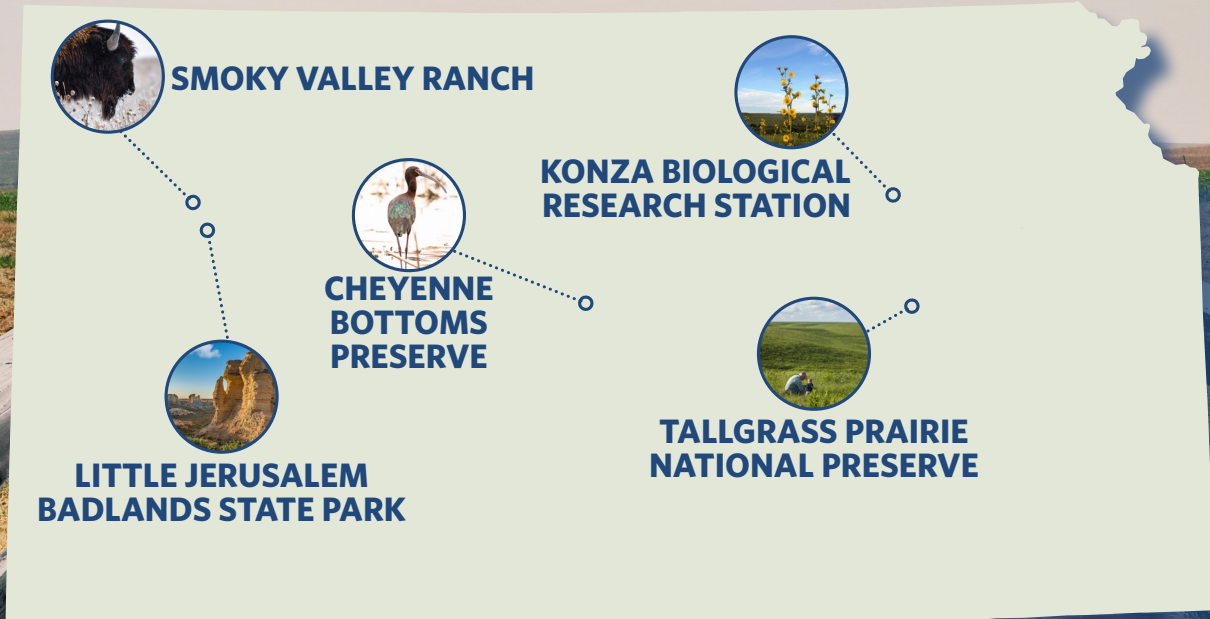
Tim: I think of the saying, “a journey of a thousand miles begins with a single step.” It starts with developing a management plan and breaking it down into steps. When something works for one person, it gets noticed by others. Then the dominos will begin to fall, and more and more people will start to adopt sustainable grazing practices. I’m here to help people get started. If someone wants to learn more about sustainable grazing practices, they can contact me at tim.marshall@tnc.org.



Tim with his youngest daughter, Paisley.
Photo © Stephanie Marshall

Explore the places we protect in Kansas.




Plan your visit at nature.org/kspreserves






FRONT COVER: Primroses blooming at Tallgrass Prairie National Preserve © Chris Helzer/TNC; BACK COVER: Wood Bridge at Tallgrass Prairie National Preserve © Laura Gilchrist/CC by 2.0; Bison © Justin Roemer/TNC; Konza Wildflowers © Joanna Gilkeson USFWS/CC by 2.0; White-faced Ibis © Tom Blandford; Little Jerusalem Badlands State Park © Bruce Hogle; Grandfather & grandson in the Flint Hills © Ryan Donnell



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