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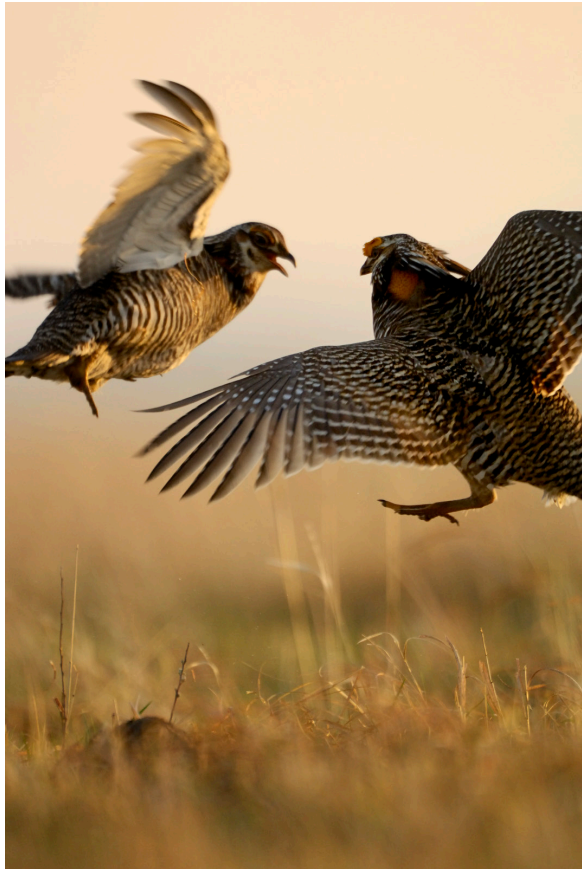
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Prairie-Chicken Mating Rituals
Jim Richardson

2014 — Flint Hills Land, Sky and People

A TENUOUS FOOTHOLD IN THE FLINT HILLS: THE GREATER PRAIRIE-CHICKEN

VIRGINIA (WINDER) HUDDLESTON

As I read Virginia Winder's essay, I was struck by the accuracy of her writing and the sincere upwelling of emotion it created. For over a decade, I have had the privilege of working beside staff and volunteers associated with Symphony in the Flint Hills. I admire their thoughtful approach and devotion when educating attendees about the prairie and the many species that depend upon these grasslands for survival. We have a great responsibility to protect one of the most threatened ecosystems in the world, our grasslands. Thoughtful educational pieces not only inform the reader about the interdependence between flora and fauna but also inspire hope by touching upon important solutions to a significant crisis facing our world today, biodiversity loss.

— Ben Postlethwait

The stars become perceptibly duller while the faintest tinge of gray appears in the eastern sky.

An eerie, low, booming sound resonates across the cold prairie hills. More booming voices join in. The sky lightens, soft gold and pink tones flood the banks of grass and a new day begins at the leks of Greater Prairie-Chickens.

Greater Prairie-Chickens are members of the scientific order *Galliformes*, along with quail, pheasants, turkeys and domesticated chickens, and closely related to the extinct Heath Hen, endangered Attwater's Prairie-Chickens and Lesser Prairie-Chickens (currently considered for Endangered Species

Act listing). From that single, ominous sentence, the casual reader can surmise that the track record for this group of birds is less than stellar when it comes to persisting in the face of anthropogenic challenges. Though Greater Prairie-Chicken populations are declining, they are not yet gone, and we have a unique opportunity in the Flint Hills to turn that trend around.

Greater Prairie-Chickens are a species of prairie grouse, well-known for their exceptional breeding displays. Each spring, males gather at communal display sites, known as booming grounds or leks, and perform elaborate demonstrations for nearby females. The lek mating system provides males a chance to put their sexiest foot forward in the presence of multiple potential mates, and provides females a chance to compare directly one male to another, and choose the most-fit sire for her clutch of eggs. Males inflate their throat patches, revealing bright, bulging ochre patches of skin, raise their elongated ear feathers (pinnae) and tails, and cup their wings out, making their bodies look as large and impressive as possible. Males also perform an intricate dance, involving foot-stomping, running and turning, plus booming and cackling vocalizations.

Sparring matches are common as males test territory boundaries and attempt to fight their way to the middle of the ring.

Fighting males flutter-jump several feet into the air, tearing at opponents' chests and throats with raised feet, resulting in shed feathers and blood but rarely in serious injury. Ultimately, the loser slinks to a far corner of the lek, while the winner moves on, attempting to capture a female's good graces. All the while, females typically wander around the edges of the lek, seemingly preoccupied with picking at grass or preening themselves. Males bustle around the outwardly indifferent females, making obvious advances. These advances may be ignored day after day until the female has done her due diligence and chosen her mate. After mating, the female alone selects a nest site, builds a nest, lays, incubates and protects her clutch of about a dozen eggs, then cares for the hatched chicks. All females attempt a yearly nest, but only one or two males at each lek contribute their genes to the next generation.

Nest success rates vary by year and location, depending on weather, habitat and predators. Typically, about one in three nests survives to hatching, but only 10–20 percent of those broods will produce one or more birds that reach adulthood, typically living two to three years. Prairie-chickens spend their entire lives in open landscapes, and despite the camouflage their feathers provide, are vulnerable to predators attacking from both ground and air. Common predators



Male Greater Prairie-Chicken
Casey Wilson



Greater Prairie-Chickens Booming Ground
Casey Wilson

include carnivores, such as coyotes, foxes, badgers and skunks; raptors, such as Red-tailed Hawks, Northern Harriers and owls; and snakes.

The range of Greater Prairie-Chickens historically stretched from Canada through the central third of the United States. Their current distribution is greatly diminished, with fragmented populations in 11 states. The core range exists in Kansas, its foothold in the Flint Hills. A stretch of rolling hills about 200 miles north to south and 50 miles west to east holds the bulk of what promise there is for the future of Greater Prairie-Chickens in the wild.

Drastic declines in prairie-chicken populations can be traced to loss of habitat from human changes to the landscape. Tallgrass prairie once covered 170 million acres of North America. Today, less than four percent remains, mostly in the Flint Hills. Throughout the 1800s and early 1900s, prairie was converted to cropland at an astounding rate. The Flint Hills tallgrass prairie was spared this fate by virtue of its shallow layers of limestone and shale, making plowing unprofitable.

Other human land use and development pose imminent threats to prairie-chicken populations. Though the Flint Hills cannot be plowed, they provide high quality cattle forage. Annual burning and intensive early cattle grazing

have become the predominant forms of rangeland management over the past four decades, promoting landscape homogeneity — low, uniform vegetation heights and plant communities reduced to species that thrive under frequent disturbances. The intricate threads that once formed the web of the tallgrass prairie ecosystem begin to unravel.

Kansas Department of Wildlife, Parks and Tourism estimates that Greater Prairie-Chicken population density has decreased by 50 percent in the Flint Hills since this grazing system became standard. Prairie-chickens are considered an umbrella species for prairie ecosystems. Their population trends are a measure of overall ecosystem health providing a way to evaluate rangeland management decisions.

Prairie-chickens require a mosaic of habitat types for successful reproduction and survival: open sites for display arenas used for lekking, dense vegetative cover for concealment during nesting and areas of intermediate vegetative structure rich in forbs for foraging and rearing young. Common rangeland management practices don't provide these habitats, but other economically viable systems are more wildlife friendly. Patch-burn grazing is one; pastures are divided into patches using fire breaks instead of fences, and one patch is burned each year, rotating the burning pattern so that each patch

is burned once every three years or twice every five years. Cattle spend most of their time in the most recently burned patches, decreasing grazing pressure and disturbance in the unburned patches allowing for juxtaposition of various habitat types within a single pasture, precisely what prairie-chickens require.

The most basic conservation action to stimulate prairie-chicken population growth is maintaining large tracts of heterogeneous prairie. Over 95 percent of the land in Kansas is privately owned, leaving ranchers ultimately and directly responsible for carrying out this conservation action. But we cannot expect ranchers to do all the heavy lifting. We must promote wildlife conservation that assists ranchers with wildlife-friendly stocking regimens, invasive tree control, resistance to selling smaller land parcels and, above all, education.

Virginia (Winder) Huddleston, Professor of Biology at Benedictine College in Atchison, Kansas, spent a year as a postdoctoral researcher at Kansas State University assessing the effect of anthropocentric disturbances on Greater Prairie-Chickens. She received her Bachelor of Science in Biology from Benedictine College and holds a Ph.D. in Marine Biology from the University of North Carolina at Wilmington.

Ben Postlethwait serves as The Nature Conservancy's Great Plains Division Director for the North American Region. He previously led the Green Team, an Evergy volunteer group critical to the successful setup and teardown of the Symphony in the Flint Hills Signature Event. Ben, with his wife Kacy and daughters Linkan and Palmer, value their lives in the Great Plains and all the region has to offer.

We do not often succeed in bringing a species back from the brink of extinction; it is better to avoid that situation entirely. We are currently at an enviable position in the history of prairie-chicken conservation: not yet at the brink, but it's in our line of sight. We have a relatively short window of opportunity to turn population trends around before they get to that critical point.

Oranges and purples streak low across the western sky, the shadows of grass and fence posts grow long and the air cools. The booming sounds of male Greater Prairie-Chickens begin to roll across the landscape again. The beauty and wildness of this scene are far from secure and by no means guaranteed. If we are careful and willing to push change, we can preserve them.



Goldenrod at Dusk
Kelly Yarbrough