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## A Tenuous Foothold in the Flint Hills: The Greater Prairie-Chicken

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PRAIRIE CHICKEN

*All illustrations by Lisa Grossman  
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A TENUOUS FOOTHOLD IN THE FLINT HILLS:

## *The Greater Prairie-Chicken*

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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. And more still. The sky lightens, soft gold and pink tones flood the otherwise quiet banks of grass, and a new day's struggle 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. Greater Prairie-Chickens are closely related to the extinct Heath Hen, endangered Attwater's Prairie-Chickens, and Lesser Prairie-Chickens (currently being considered for listing under the Endangered Species Act). 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. That is the reality. But another aspect of reality is the fact that though populations of Greater Prairie-Chickens are declining, they are not gone yet, and we have a unique opportunity here in the Flint Hills to turn that trend around before it is too late.

Greater Prairie-Chickens are a species of prairie grouse that may be most well-known for their exceptional breeding displays. Each spring, males gather at communal



PRAIRIE CHICKEN PREDATORS: HAWK, BADGER, AND COYOTE

display sites, known as booming grounds or leks, and perform elaborate demonstrations of their talents for nearby females. The lek mating system provides a chance for males to put their sexiest foot forward in the presence of multiple potential mates, and it provides females with a chance to compare directly one male to another, and so best 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 at a short distance away from their sides, all in an attempt to make their

bodies look as large and impressive as possible. As if this were not enough to get the girls' attention, the males also perform an intricate dance, involving foot-stomping, running, and turning movements as well as booming and cackling vocalizations.

Sparring matches are common events at leks as males test the boundaries of territories and attempt to fight their way to the middle of the ring. Together the fighting males flutter-jump several feet into the air, tearing at their 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 to attempt the capture of a female's good graces. All the while, females typically wander around the edges of the lek, seemingly preoccupied with picking at the 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 is on her own to select a nest site, build a nest, lay, incubate, and protect her clutch of about a dozen eggs, then care for the hatched chicks. All females attempt a nest each year, but only one or two males at each lek have the honor of contributing their genes to the next generation.

Rates of nest success vary among years and locations depending on weather, habitat features, and the predator community. Typically, about one in three nests survives to hatching, but only about ten to twenty percent

of those broods will have one or more surviving individuals by the time the fledglings become completely independent of their mother, around sixty days after hatching. Birds that reach adulthood typically live two to three years. Prairie-chickens spend their entire lives in open landscapes, and despite the camouflage their feathers provide, this leaves them vulnerable to predators attacking from both the ground and the air. Common predators 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 the prairie provinces of Canada through the central third of the United States, from North Dakota east to Michigan and south to parts of Texas and Arkansas. Their current distribution is greatly diminished compared to pre-settlement times, and fragmented populations exist in eleven states. The core of the

current range exists in Kansas, with the foothold of that core being located in the Flint Hills. A stretch of rolling hills about 200 miles north to south and fifty miles west to east—roughly 10,000 square miles—holds the bulk of what promise there is for the future of Greater Prairie-Chickens in the wild.

Like many wildlife populations, the drastic declines in prairie-chicken populations can be traced to the loss of habitat due to human changes to the landscape. Tallgrass prairie once covered 170 million acres of North America. Today, fewer than seven million acres (4 percent) remain, and most of those are located in the Flint Hills of Kansas. Throughout the 1800s and into the early 1900s, prairie was converted to cropland at an astounding rate. The tallgrass prairie in the Flint Hills was spared this fate by virtue of its shallow layers of limestone and shale, making plowing unprofitable. There but for the grace of rocks go the Flint Hills prairies.

Unfortunately, we cannot simply breathe a sigh of relief at the cleverness of our soils for holding enough limestone and shale to resist the cultivation of row crops. Other forms of human land use and development continue to pose imminent threats to Flint Hills prairie-chicken populations. Though the Flint Hills region cannot be plowed, it provides high quality forage for cattle. And annual burning and intensive early cattle grazing have become the predominant forms of rangeland management for much of the Flint Hills over the past four decades. These practices promote homogeneity on the landscape—vegetation heights are low and uniform, plant communities are reduced to those species that thrive under frequent disturbances, and 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 the population density of Greater Prairie-Chickens has decreased by 50 percent in the Flint Hills since this grazing



PRAIRIE CHICKENS  
*Casey Wilson*

system became the standard. Prairie-chickens are considered an umbrella species for prairie ecosystems—their population trends serve as a measure of overall ecosystem health and a way to evaluate management decisions that affect many different kinds of wildlife species. In this case, our prairie umbrella species is telling us in no uncertain terms that the prairie ecosystem is not doing well.

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

that are rich in forbs for foraging and rearing young. The pervasive form of rangeland management in the Flint Hills simply does not provide these heterogeneous habitats. Happily, there are other economically viable management systems that have been shown to be more wildlife friendly. Patch-burn grazing is one such system—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



PRAIRIE CHICKENS  
Casey Wilson

patches. This method allows for the juxtaposition of various types of habitat within a single pasture, precisely what prairie-chickens require.

The most basic conservation action to stimulate prairie-chicken population growth is to maintain 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, standing up as good stewards of our prairie ecosystems. But we cannot sit back and expect ranchers

to do all of the heavy lifting. We must promote wildlife conservation that cooperatively assists ranchers with the on-the-ground challenges of wildlife-friendly stocking regimes, prevention of tree invasion, resistance to selling land in smaller parcels, and, above all, education.

We do not often succeed at bringing a species back from the brink of extinction in the wild. Past performance shows that it is better to avoid that situation entirely. We are currently at an enviable position in the history of prairie-chicken conservation in the Flint Hills. We are not yet at that brink, but it is 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. If you do not believe me, contact wildlife managers in Illinois, Wisconsin, Minnesota, or Missouri—the homes of relictual, “museum” populations of Greater Prairie-Chickens—and ask them what they would give to have the habitat and comparatively stable

populations that we are privileged to enjoy in the Flint Hills.

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. Males repeat their courtship performance, practicing their routine in a scenario where little is at stake. Females will not attend the lek until dawn. The beauty and wildness of this scene are far from secure, they are by no means guaranteed, and we do not deserve them. But if we are careful, willing to push change, and really very careful, we can preserve them.

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*Virginia Winder, an Assistant Professor at Benedictine College in Atchison, Kansas, spent a year as a postdoctoral researcher assessing the effect of anthropogenic disturbances on Greater Prairie-Chickens. She received her Bachelor of Science in Biology from Benedictine College and holds a PhD in Marine Biology.*