

Bison on Konza Prairie fuel experiments to restore prairie ecosystem

November 29 2011, By John Briggs

The presence of bison at Konza Prairie Biological Station may seem iconic, a tribute to America's past when such herds roamed the range.

But the [bison](#) at Konza serve an important purpose by furthering the efforts of numerous experiments being conducted on-site, according to Kansas State University's John Briggs, director of the tallgrass prairie preserve.

"For example, we have a large group of individuals from a variety of universities who are comparing how one native ungulate -- bison -- impacts the tallgrass prairie versus native ungulates in South Africa, where they have many species grazing, everything from elephants to the smaller [antelopes](#)," Briggs said.

The main objective in several of the Konza experiments is to learn about the tallgrass prairie ecosystem by using the grazing patterns of bison. The role of the bison, Briggs said, is similar to the various burning treatments conducted annually at Konza.

"We're using the bison much like a treatment, just like fire," he said.

"They're part of our long-term [experimental design](#). Although Konza is large, it's really not large enough to study natural [herds](#) of bison. It's not really a good place to study the behavior of animals."

One of the challenges of conducting research on bison is their constant potential for unpredictable behavior, Briggs said.

"They're not like cattle," he said. "They're very [wild animals](#), so we have very strict protocol when people work with the bison. We never let people go in the bison area by themselves, and everyone is required to carry a radio with them. We haven't had any incidents with the bison, but they are unpredictable."

Much like a list of sports statistics, the biological history of Konza Prairie's bison herd is known inside and out.

With 30 bison introduced to the area in October 1987, the herd has grown to an average size of 294, mostly through natural reproduction. The heaviest bison in the herd weighed in at 2,050 pounds in 2006. Female bison in the herd can be up to 20 years old, while the males are only kept up to age 8.

Researchers also have found that the bison gain more weight in years with greater late-August precipitation but gain less weight in years with greater late-June and early-July precipitation. Bison also lose approximately 10 percent of their body mass over the winter -- except for the calves, which gain around 3 percent of their body mass.

Bison prefer to eat grasses, and their grazing increases the local plant diversity. They also prefer to graze in recently burned areas during the growing season but prefer unburned areas in the winter. Grazing by the bison increases the abundance of forb-feeding grasshoppers. It also increases the abundance of upland sandpipers and grasshopper sparrows on the prairie while lowering the number of Henslow's sparrows and dickcissels.

This level of factual data about the herd further drives academic traffic to Konza Prairie, Briggs said.

"We have a lot of information on this herd," he said. "We know the

performance level, and that's what attracts researchers. They know when they come here that we have a lot of background information for them so they can set up their experiments easily."

These grazing experiments, in addition to the plethora of other experiments being conducted on Konza, could lead to the conservation and possible restoration of the tallgrass prairie, which is an endangered ecosystem, Briggs said.

"We're kind of spoiled here in Kansas because we have so many prairie lands around us," he said. "However, some conservation experts think the tallgrass prairie is one of the most endangered ecosystems in North America, and that grasslands and savannas worldwide are threatened, too.

"The problem with grasslands is that they're wonderful places to grow our agriculture crops. Much of the original extent of tallgrass prairie has been converted to croplands, so there's only this small, little remnant of tallgrass still left in Kansas. We really need to understand this ecosystem and its importance before it's lost, because once it is lost, it's gone forever."

Provided by Kansas State University

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