

## Prairies Region

### Sac and Fox Nation of Missouri

#### Life in the Midwest and on the Great Plains

The Reservation for the Sac and Fox Nation of Missouri in Kansas and Nebraska spans the boundary of Kansas and Nebraska, covering approximately 25 square miles of rural landscape. Of the 450 tribal members, about half live on or within a 20 mile radius of the Reservation, and most of them are split between two villages. Although the Tribe has both bison and a casino, the primary economic resource is agriculture, which is almost exclusively comprised of corn and soy monocrops. The tribe owns several hundred acres of farmland that they lease out, and are therefore heavily dependent on the market forces affecting corn and soy.



#### Changes in Precipitation Patterns

The Fourth National Climate Assessment (NCA4) has highlighted the risks to agriculture across the Midwest and the Great Plains, resulting from changes in precipitation patterns and extreme weather events. (USGCRP 2018) Consistent with that assessment, the Sac and Fox Nation of Missouri has seen more intense rainfall events than in the past, scattered among the seasons. Farmers have had difficulty getting crops in their fields due to road closures from heavy rainfall events and a shifting growing season besought with soggy fields at planting time. The growing season and harvest time have shifted by two to three weeks over the last twenty years.

The NCA4 describes the sensitivity of the Upper Missouri River Basin to climatic fluctuations. The health of the soil and the region's resilience has degraded to an alarming level due to the reliance on monocultures. The reliance on monocultures, coupled with climatic fluctuations and extreme weather impacts, are tipping the scales towards radical change. The Sac and Fox Nation of Missouri has experienced this first hand, as the Missouri River seems to have lost resiliency, stream banks are washing away with more frequency, and more intense flooding is causing the Missouri River to back up on local rivers and creeks, which are adjacent to the Tribe's buffalo farm.



*This is well-travelled road near the tribe's Bison Farm which is adjacent to Noharts Creek. The left frame is during the flash flood on May 28, 2019, and the right is the day after. It was extremely difficult to access the animals and feeding them was nearly impossible for several days. (Photos by Mark Junker)*

### **Local Impacts Too Big to Manage**

The most extreme weather impact the Sac and Fox Nation of Missouri has experienced in recent times was a flash flood that occurred on May 28, 2019. Rain had recently saturated the soils, so when the sudden and extreme downpour came, the soil was unable to soak up any more moisture. Tribal office buildings were inundated by overflow from septic leach fields, and there was extensive flooding in buildings across the Reservation, including stores and the trading post. Their buffalo farm was completely inundated, and the pasture turned to mud, rendering it unable to grow any feed for the buffalo. The Tribe worked with Brown County to declare an emergency, and contributed \$20,000 to respond to a two-day emergency event. In the past, impacts from flooding had been manageable. This time, the Tribe was unable to be autonomous in their recovery, and needed to rely on assistance from the County.



*The Sac and Fox Environmental Department staff surveyed damages following the flash flood event that dropped six inches of rain in 48 hours on the reservation and surrounding areas. This road crosses the Nemaha River and was closed for several days. Local bridges over the Missouri River at Rulo and Brownville remain closed and will not reopen until January 2020. (Photo by Mark Junker)*

### **Environmental Program Collaboration**

Climate related impacts such as the flooding event experienced by the Sac and Fox Nation in 2019 have been anticipated for many years. In 2014, the Environmental Department of the Sac and Fox Nation of Missouri attended a training related to the Missouri River Basin, and another shortly thereafter under the guidance of the National Oceanic and Atmospheric Administration (NOAA). It was there that they heard another tribe in EPA Region 7 (the Prairie Band Potawatomi) describing the changes they were seeing: decreases in the types of birds that used to be abundant, decreases in mushrooms, not being able to use rivers like they had in the past, and the astonishing disappearance of a huge butterfly migration that used to occur every September, and has not been seen in 20 years.

These meetings led the Tribe to secure a grant from the Bureau of Indian Affairs (BIA) to coordinate efforts between the Sac and Fox Nation of Missouri in Kansas and Nebraska and the three other tribes in Kansas: Kickapoo Tribe in Kansas, Iowa Tribe of Kansas and Nebraska, and Prairie Band Potawatomi Nation. The BIA grant focused on water management and resources by using aerial imagery of the major stream corridors, and then analyzed the data layers of that imagery. The findings from the aerial imagery provided a baseline that will be used to determine the impact of streambank erosion, using previous historical imagery with current layers to measure the extent of streambank changes.

Another piece of the grant through BIA is to conduct five trainings; the goal of the trainings is to

build the capacity for each tribe to assess their vulnerabilities and create a plan to adapt and respond to climatic changes. The first training will focus on Tribal Technical Teams, which consist of environmental staff, tribal elders, students, and youth. These teams will focus on gathering information from their communities, asking questions about perceived threats, and including responses in the process of risk assessment. The second training will focus on Drought Early Warning Systems (DEWS). The DEWS Workshop will be led by the National Integrated Drought Information System and will allow tribes to begin the process of setting action levels for community response to drought. Subsequent trainings will include a Climate Summary Workshop, GIS Training, and a capstone Adaptation Planning Course.

That original grant has been continued, and the Sac and Fox Nation of Missouri is now expanding their efforts of climate change adaptation by coordinating with all nine tribes in EPA Region 7. Collaboratively, they are working towards developing vulnerability assessments. Water resources and management continues to be a focus for the tribes, as data assessments from the previous studies will be used to identify priorities in protecting their water resources and included in tribal vulnerability assessments. Each tribe will gain a foundational knowledge of formal climate adaptation planning, become familiar with resources (such as partnerships, grants/funding, tools, and networks) to use in addressing climate change issues, and develop a draft action plan for addressing climate issues with input from the community, elders, youth, and relevant tribal agencies. The final goal will be for each tribe to develop and implement its own vulnerability assessments/adaptation plans.

The Sac and Fox Nation of Missouri in Kansas and Nebraska also produces quarterly climate summaries, which are currently directed towards the four tribes in Kansas but will soon include all nine tribes in EPA Region 7. The climate summaries have been developed to understand weather on a smaller, more local scale than is usually available from local weather services, climate centers, and NOAA. This information can be used to tell the stories about localized events, like the impacts that the Sac and Fox Nation experienced from flash flooding that inundated their soils and caused septic overflows. Although close in proximity, the tribe experiences different impacts to the different resources, and the climate summaries help the tribes not only tell their stories but prepare for future impacts as well.

### **Tribal Strength Despite Challenges**

Living in a remote, provincial area has made it difficult for the Environmental Department of the Sac and Fox Nation of Missouri to maintain viable, inquisitive, problem solving people. However, they have incredible support from within their own Tribe and the other Tribes in EPA Region 7.

Another important resource working in their favor is that the Tribe recently purchased land that had been part of the Conservation Reserve Program (CRP). The CRP is a federal program that enables farmland in environmentally sensitive areas to be removed from crop planting and restored to increase the health and diversity of the ecosystem. The land the Tribe purchased contains ponds that represent the cleanest water in Nebraska.

Additionally, the Tribe's casino has an impressive wetlands program that was begun in conjunction with the building of the casino in 1999. Every bird that has been sited in the state of Kansas has been found in those wetlands. The wetlands are in a tertiary lagoon system, which processes water from a truck stop and the casino back into the wetlands. It is a well managed, model system, with water quality so high that they have been permitted to reduce their monitoring levels.

Through tribal strength and cooperation with neighboring tribes, the Sac and Fox Nation in Kansas and Missouri will continue to care for their land and people.

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### **Resources and References**

USGCRP, 2018: *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018.

This profile was developed in 2019 by Dara Marks-Marino, Institute for Tribal Environmental Professionals, Northern Arizona University, with financial support from the Bureau of Indian Affairs. The profile is available on the Tribes & Climate Change website:

[www7.nau.edu/itep/main/tcc/Tribes/](http://www7.nau.edu/itep/main/tcc/Tribes/). The tribal climate change profiles featured on the website are intended to be a pathway to increasing knowledge among tribal and non-tribal organizations interested in learning about climate change mitigation and adaptation efforts.

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