

Our Broken Grasslands

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Did you know our Grasslands is one of the most threatened ecosystems on the planet. Hi, I'm Johnathon Neuharth, I am 14 years old and live in west central, South Dakota. Today I will tell you about "Our Broken Grasslands".

I am going to tell you about where some of the grasslands are in North America, and some of the history of them. Wildlife Habitat, the importance of our grasslands, and how we can maintain and protect them. As well as what we can do to help restore them to the best we can.

Here are where a few of the different grasslands are located. I live in the short grass prairie of South Dakota. The Sandhills are in the Mixed-Grass Prairie area in north-central Nebraska. And the Osage Hills are in north-eastern Oklahoma, they are tall grass prairie.

How grasslands formed? Grasslands formed because they were too dry to become a rainforest and too wet to be a desert. Erosion from the mountains to the east and west of the plains carried sediment down into the plains creating the Great Plains. In the past with intensive grazing by the buffalo, droughts, and prairie fires the presence of trees was limited before the Europeans came. With these processes happening our Grasslands were formed, some might think grasslands seem boring, but once you spend time in them you can see and feel all the life, beauty, and diversity it holds.

When Lewis and Clark came to this area in the early 1800s, they came into a sea of grasses by stories of cities of gold. Not mineral gold, but a wealth of fertile soil and abundant wildlife. Grasses covered the landscape from horizon to horizon, and some were as tall as a person. They traveled within 30 miles of our farm on their journey.

Grassland habitats can be, in some spots, every bit as diverse and complex as a rainforest. Every plant and animal have a purpose. We may not understand the importance of it, but it's there for some reason. Prairie Chickens have a legendary dance during their mating season you won't ever forget if you get to experience it. And many of the Native American Tribes believe that the Meadowlarks song is to bring good luck so whenever I hear or see one, I like to think something good is coming my way.

"Prairie was, in fact, a community of wild animals and plants so organized, as to build, through the centuries, the rich soil which now feeds us." –Aldo Leopold the Father of Wildlife Ecology.

All the plants, the pasqueflower, milkweed, and all the animals, have all lived and died cycling nutrients. Aldo Leopold would have been horrified to find out what's happening!

So, What is Happening? There are two main threats, the conversion to cropland and woody encroachment. Both sadly are man-made. The conversion to cropland is an intentional problem and the woody encroachment is not intentional, however, early settlers believed the grasslands needed to be improved so trees were introduced which created a future and current problem.

Our grassland birds are our Canary in the Coalmine danger indicators. Grassland birds have continued to decline since the 1970s, a graph showed me. And it's not just our grassland birds that are affected, many other animals are too including our pollinators, but why should we care? Well, over 100,000 species provide free pollination services: bats, bees, birds, butterflies to name a few. The value of their ecosystem services is \$4-\$6 billion per year. About 1/3 of human food comes from plants pollinated by wild pollinators.

The Central Grasslands Roadmap shows the areas affected and how much loss we are suffering. Our core grasslands acres are about 152 million acres, our vulnerable acres are about 157 million, and the acres already converted or altered are about 398 million acres.

Tilling and converting our grasslands to cropland use has been an issue since the homesteaders arrived. Have you ever driven down the road and seen blow dirt in the ditch along the fence lines? Sadly, this is still happening today. And a newer problem for the grasslands has been the encroachment of woody trees and brush. They are taking over our grasslands quickly.

The plow that broke the plains. In 1837, John Deere invented the first steel plow. People were plowing the land and growing crops. Grain elevators and railroads enabled the buying and selling of crops and this all grew larger than anyone ever imagined. Quickly soil started to become mined of their nutrients and native grasslands disappeared.

It all came to a head in the 1930s. Over plowing the land destroying all the deep-rooted grasses and soil structure led to the "black blizzards" of the dust bowl. The dust bowl taught the country a hard lesson: Soil Health Matters! Recently the WWF says that – "Humans have been responsible for the loss of 50% of all topsoil."

As a direct result of the dust bowl, our government along with our President, Franklin D. Roosevelt started the Soil Erosion Service in 1933 now called NRCS (Natural Resource Conservation Service) to help farmers implement new techniques to help prevent erosion.

Some of the programs developed to help with erosion were the Sodbuster, Super Sodbuster and CRP Programs. CRP is one of the most successful programs. This program puts cropland back into grass for 10-15 years. CRP won't bring the original grasslands back, but it has helped restore some areas to a healthier environment.

However, chasing high crop prices encouraged farmers to take their land out of CRP and back into their cropping system. There is no law against breaking grasslands, and no unified plan for protecting the region's plant and animal populations. If the government offers you \$50 per acre for CRP, but you can rent the land for cropping for \$75 per acre, chances are the grassland will lose out. This tells us that crop markets are an important driver in the loss of our grasslands.

Another nemesis to the grasslands is Woody Encroachment. Grasses and trees do not co-exist on large scales, long term the woody areas will win and take over the grass. Which will affect forage production for the animals, wild and domestic as well as lose its diversity in plants.

With more fire fuel in woody transitions, it is at higher risk for extreme wildfire behavior. Woody encroachment is becoming a global threat to the grasslands.

To give you an idea of how fast woody encroachment can take over think about this. A tree reaches seed bearing age at about 6 years old or 5 foot tall and a mature eastern red cedar can produce more than 1.5 million seeds per year. In an encroached area about 90% of the seeds will grow within 200 yards of the source. This creates your contaminated acres which are creeping in on our intact grassland acres.

They have tried many methods of control such as grazing, mechanical, and burning. Some methods have helped, but only fire has the potential to manage large landscapes in the most economical way. More than 100 Prescribed Burn Associations have been founded in 18 states across the US. They provide training, equipment, and labor to apply fire safely as a rangeland management tool to help control these woody transitions.

To restore our grasslands, we need to look out into Mother Nature and see what she does, she has been doing it better way before we came along and if we left, she would do so again. She loves diversity in plants and animals. Consider these things when managing the landscape. Look at planting cropland back to grasslands with more of a natural habitat appealing for wildlife. Try and plan for the future and future generations not just what works for today.

Also look into the Central Grasslands Roadmap and all the partnerships, research, and policy work they plan to do over the next 10 years to help improve our grasslands. This initiative will benefit the grasslands all across North America to identify problems and help create strategies to help them. It's collaborative work like this that brings people together for the betterment of our environment working across borders of countries, states, and organizations.

Together we can make a difference for our grasslands.

In summary, we learned where some of our grasslands are in North America, some history of them. Wildlife habitat and the importance of our grasslands, and how we can maintain, protect, and restore them to the best we can.

What Lewis and Clark saw in its full grandeur, grasslands teaming up with wildlife and how Aldo Leopold taught that conservation is a harmony between men and land, and to listen to what nature is telling us.

“It is my responsibility as the third-generation of Prairie Paradise Farms to join the new partnerships, initiatives, policies and research to help restore the grasslands to its natural beauty.”

- Johnathon Neuharth

Reference List

- Americas Grasslands Conference, Bismarck, ND 2019
- Beck, D. (2022, October 4). Interview with Mr. Beck, Manager. Dakota Lakes Research Farm SD.
- [Meadowlark Spiritual Meaning | Detailed Information \(2023\)](#)
 - <https://spiritanimalsandsymbolism.com/meadowlark-spiritual-meaning>
- Great Plains Grassland Biome USDA booklet p. 9 figure 4
- Bird Population Graph
 - https://www.salon.com/2014/09/09/our_birds_are_in_trouble_and_thats_bad_news_for_us/
- Central Grasslands Roadmap
 - [The+Central+Grasslands+Roadmap_Summit+Update_6_20_22 \(squarespace.com\)](#)
- [USDA ERS - Conservation Programs](#)
- [In the Dirt: Introduction to Sodbuster - National Agricultural Law Center \(nationalaglawcenter.org\)](#)
- Reducing Woody Encroachment in Grasslands (Guide)
- Meeting with Dr. Dirac Twidwell on Woody Encroachment (Chamberlin, SD) Dec. 2022