The Nature Conservancy

Leola Hills

Climate Adaptation Plan

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Overview

1,020 mi² | ND, SD

The Leola Hills conservation area is located in the Missouri Coteau, spanning parts of North Dakota and South Dakota. The area is the ancestral and current homeland for the Očhéthi Šakówiŋ, specifically the Tanktonai Dakota.

It features a true **prairie pothole** terrain with rolling, rocky upland prairie interspersed with wildlife-rich pothole wetlands. The area is home to **a diversity of wildlife**, including mixed-grass prairie, pothole wetlands, prairie butterflies, critical pollinators and grassland birds.

The major threats in this area are the **conversion of habitat to agricultural land and the loss of habitat quality**. Between 2008-2021, the conservation area lost about 60,000 acres of grassland (9% of the area) to corn and soybean production. Invasive species and the degradation of grassland and wetland habitat also threatens the area's wildlife, particularly bird populations. Climate change is expected to exacerbate current threats and create challenging conditions.

Still, Leola Hills retains a large percentage of intact grassland relative to other parts of eastern South Dakota. The area largely falls within TNC's mapped **Resilient and Connected Network** (Fig. 1), meaning it supports a high level of biodiversity and can facilitate plant and animal movement for climate adaptation—making it an area of high priority for conservation.

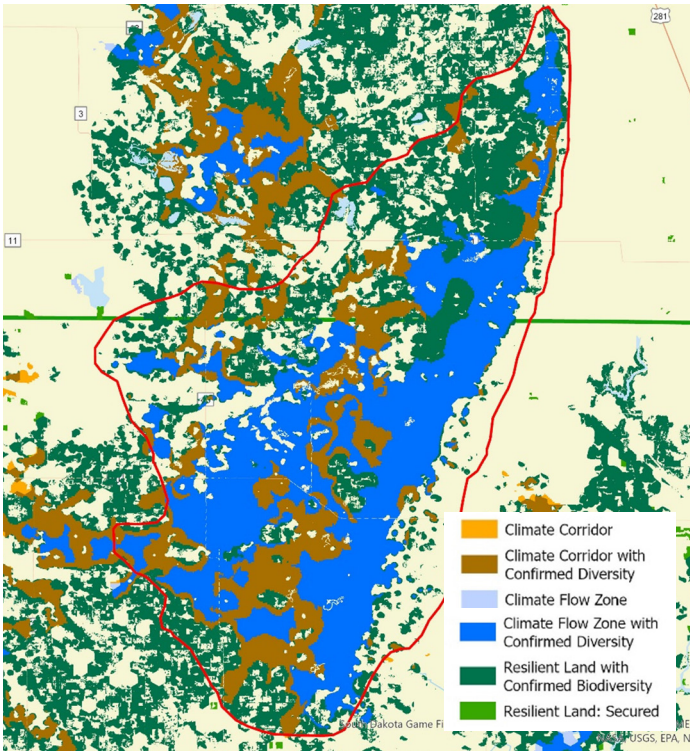

Fig. 1. 74% of the Leola Hills conservation area is within TNC's Resilient and Connected Network.

Pasque flower

Western meadowlark

Sharp-tailed grouse

Climate Impacts & Projections

Already observed climate trends:

The Dakotas have already seen at least 2°F of warming since the beginning of the 20th century and trends toward greater precipitation.

Warming has occurred mostly in the winter and in minimum nightly temperatures. Intense rain events have also increased in frequency.

Future climate projections:

Annual temperatures are expected to rise, with winter and nighttime temperatures increasing the fastest (Fig. 2). Heat waves and extreme precipitation events are expected to increase, while summers may bring more severe droughts. The growing season could lengthen by about a month, which may accelerate grassland and wetland conversion to agriculture and increase the spread of invasive species.

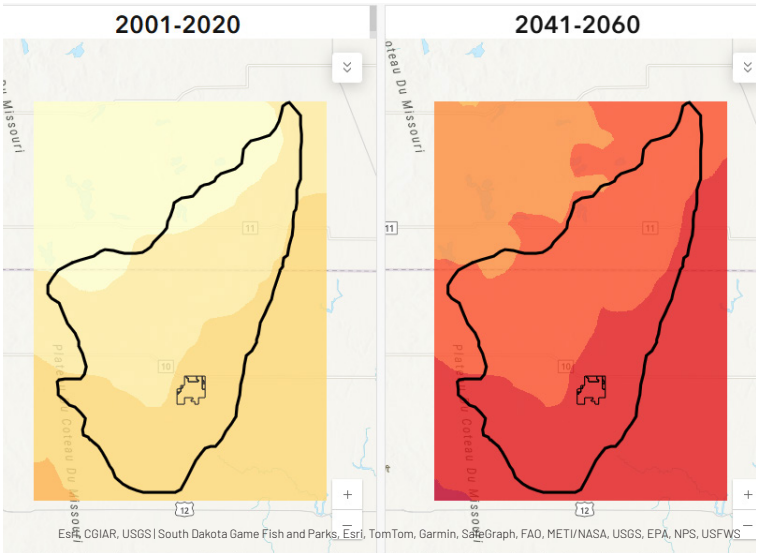

Fig. 2. Average minimum temperature (F) in winter in the Leola Hills area (with TNC's Ordway Preserve outlined) ranging from 2.1° F (light yellow) to 10.5° F (dark red) under a moderate emissions scenario.

Climate Adaptation & Conservation Strategy

By 2030, we want to **improve and conserve existing grassland and wetland habitat** to promote diversity and climate adaptation. Additionally, we want a diversified rancher community to benefit from improved native biodiversity in the Leola Hills area.

Key conservation and climate adaptation strategies are summarized below. For the full plan with detailed objectives and metrics, contact mahlering@tnc.org.

1 Manage ecosystems for biodiversity

Example tactics:

- Restore a diversity of native plant species and prevent the spread of invasive plants and woody species.
- Restore climate-adapted grassland and wetland plant communities with public, private and NGO partners.
- Adjust the timing, frequency or intensity of prescribed fire to align with climate conditions.

2 Improve or maintain connectivity

Example tactics:

- Protect or enlarge existing intact grassland habitats and prevent conversion of grassland to agriculture or development.
- Restore grassland and wetlands adjacent to existing protected lands to enhance connectivity and support species movement and range shifts.

3 Support landowners and ranchers in improving land condition and economic viability

Example tactics:

- Support planning processes that reduce the economic impact of extreme weather events.
- Support the demographic, gender and racial/ethnic diversity of landowners and ranchers.

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Find climate adaptation plans for all of our priority landscapes at **nature.org/mnclimate**.