

U.S. Fish & Wildlife Service

Keeping Fire on Our Side

*Fire Management
at National Wildlife
Refuges in Oklahoma
and Northern Texas*

Prescribed fire maintains wide open spaces where native grasses and wildflowers ripple in the wind and the song of the meadowlark drifts over the plains.

© by Kirk Rogers



Prescribing Fire for a Healthier Refuge

Pairing the word “fire” with “health” may seem like a contradiction. Yet, flames have shaped our ecologically rich landscape—from nesting habitat for the endangered black-capped vireo to foraging areas for the Ozark big-eared bat.

Without regular burns, eastern red cedar overtakes grasslands. As more unburned trees and brush build up, wildland fires will burn more intensely and have a higher likelihood causing harm to people and wildlife.



Prescribed fire in forests removes the dangerous buildup of vegetation and maintains a diversity of tree species and ages.

For much of the last century, people have attempted to suppress fires to protect lands and people. But they also suppressed the natural role of fire in keeping habitats healthy and diverse.

Fire as Nature's Fertilizer

Why do we often see the first lush plants of the new growing season in recently burned areas? Just as farmers add fertilizers to soils, fire releases nitrogen and phosphorus, previously bound in dead plants, back to the earth. The blackened surface of a new burn warms the soils and aids this natural fertilization.

Prescribing Fires

Today, a team of fire experts uses prescribed burning to improve wildlife habitats and reduce the risk of harm to people and wildlife. They are returning the process of fire as a natural tool to restore grasslands, savannahs and woodlands that harbor a tapestry of bird and animal life.



Prescribed fire creates a mosaic of grass and woodlands that promotes healthier habitat which is more usable for wildlife.



Communication and coordination throughout a prescribed fire is essential to project objectives and maintain safety.

Learning from Historic Records

Fire managers study historical records to learn about fire processes. In the past, fire burned at different intensities based on rainfall and drought conditions.

Anthropologists recognize that Native Americans burned to manage animal movement, change plant communities, and improve soil for farming.



Prescribed fire creates better habitat for Ozark big-eared bats which need open forests to effectively find food.

How Often Did Fires Burn?

How often did fire occur on the landscape? What season of the year did fire occur? Research has shown that fire in the past occurred approximately every 4-6 years at Muleshoe NWR and about every 12 – 14 years at Ozark Plateau NWR. Differences in environmental conditions, like precipitation and site productivity, result in a range of fire frequencies at any given site. Historically, fires burned during both the winter months and the hot, dry months of summer.

Suppressing Fires Changed our Landscape

Suppressing fires allowed open grasslands to be invaded by trees, savannahs converted to closed canopy forests, and woodlands to become overgrown. This has resulted in a loss of landscape diversity and species that once called these areas home.

Fire and Species Diversity

We now understand that fire, more than any other natural disturbance, played a leading role in creating and maintaining the great diversity of plants and animals that inhabit the southern plains. Fire is the force that weaves together the complex pattern of change, diversity, and sustainability across the southern plains, leaving behind a rich mosaic of plant and animal communities.



“...stunted oak, not growing in a continuous forest, but interspersed with open glades, plateaus, and vistas of prairie scenery...”

(W.B. Parker 1854)

Goals for Refuge Fire Management

The Refuge Improvement Act directs National Wildlife Refuges to manage for overall biological integrity. Fire management goals are three-pronged: to revive the health of grasslands and savannahs; to restore forests, woodlands and shrublands; and to enhance wildlife habitat diversity across the landscape—with special attention to endangered species. Safety and protection of nearby communities is the top priority in all fire management actions.

Meet the Fire Management Team

Like the parts of a giant puzzle, a prescribed fire program comes together slowly and with much thought. Land managers know that returning fire to the landscape is the best way to manage for habitat diversity and stability. However, prescribed fire takes planning and coordination. Our fire management team includes biologists, ecologists, archeologists, hydrologists, as well as highly trained firefighters. This team develops and coordinates burn plans to restore the ecological role of fire for habitat diversity.



Nutrients released by fire combine with solar heating, of the blackened soil surface, to promote early spring greenup.



Hand ignition of backfire in Cross timbers habitat.

For More Information

For more information about fire management visit our website at:

www.fws.gov/southwest/refuges/oklahoma/wichitamountains/Fire%20Site/fire_index.html



Images above and right: Prescribed fire is used to stop the spread of Eastern red cedar into healthy grassland systems.





Optima NWR

Washita NWR

Buffalo Lake NWR

Wichita NWR

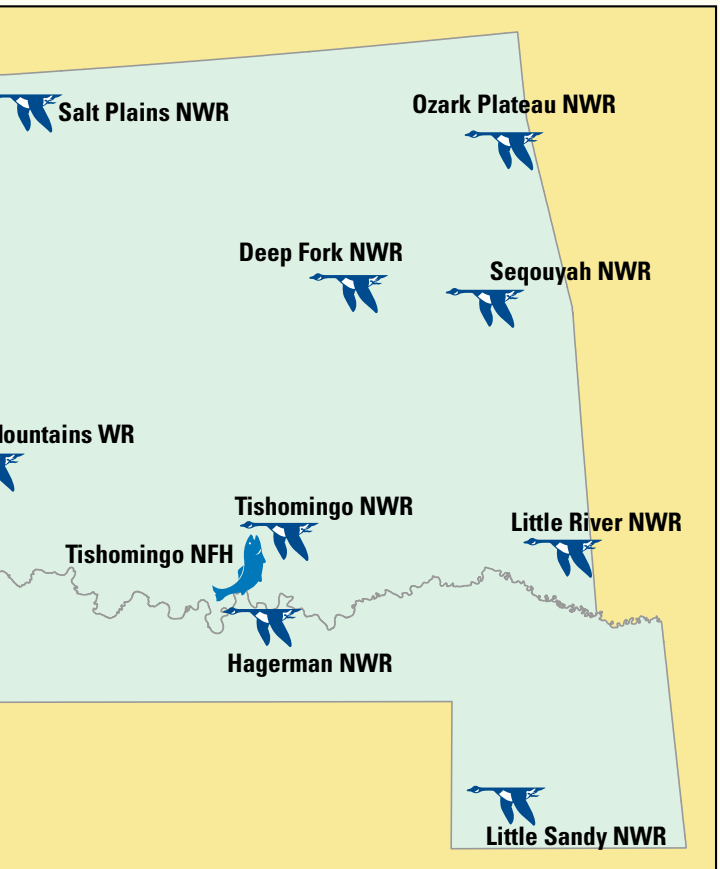
Grulla NWR

Muleshoe NWR

The Oklahoma/North-Texas Fire Management District coordinates fire program objectives on 14 National Wildlife Refuges and 1 National Fish Hatchery across Oklahoma and Texas.



Bison benefit from prescribed fire with high-quality forage and improved grassland habitat.



Diverse methods of prescribed fire create different fire intensities which provide better habitat for wildlife.

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For information on the
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1 800/344- WILD

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1 800/722-0353

Using fire in controlled conditions helps keep fire on our side.

All images are USFWS photographs unless noted.

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