

DEQ operates a statewide air monitoring network

**Prescribed burning** is the strategic application of fire by an experienced fire crew to a predetermined area for natural resource management.

**Smoke triggers** many issues that may affect health and safety.

The two main **pollutants** of concern emitted by burning are **particulate matter (PM)** and **ozone** precursors.

**The burn manager is responsible for managing smoke**, which is key to protecting a fire crew, sensitive areas, and public health and welfare.

In Oklahoma, organizations such as the **Prescribed Fire Council** and **Prescribed Burn Associations** are available to support land owners and land managers with safety and tools.

- Prescribed burning is an effective land management tool
- Land managers are responsible for smoke impacts
- Fires emit air pollutants like ozone precursors and PM
- Health and safety issues can tarnish public perception of prescribed fire
- Use Basic Smoke Management Practices (BSMPs) to mitigate smoke
- Find BSMPs in the Oklahoma Smoke Management Plan at [go.usa.gov/xnvvbk](http://go.usa.gov/xnvvbk)

**The use of BSMPs balances the need for safe and effective prescribed burns and protection of the health and welfare of Oklahomans.**

### Contacts and Resources

Oklahoma Department of Environmental Quality  
Air Quality Division  
405-702-4100  
[www.deq.state.ok.us/aqdnew/smoke](http://www.deq.state.ok.us/aqdnew/smoke)

Oklahoma Department of Agriculture,  
Food, and Forestry  
Forestry Services Division  
(405) 522-6158  
[www.forestry.ok.gov/](http://www.forestry.ok.gov/)

Oklahoma Smoke Management Plan  
[go.usa.gov/xnvvbk](http://go.usa.gov/xnvvbk)

Kansas Flint Hills Smoke Management  
[www.ksfire.org](http://www.ksfire.org)

Oklahoma Prescribed Fire Council  
*support for prescribed burning*  
[oklahomaprescribedfirecouncil.okstate.edu](http://oklahomaprescribedfirecouncil.okstate.edu)

Oklahoma Prescribed Burn Association  
*provides membership, training, and equipment*  
[ok-pba.org](http://ok-pba.org)

OK-FIRE  
*weather, fire prescription planner, burn ban map*  
[okfire.mesonet.org](http://okfire.mesonet.org)

This publication is issued by the Oklahoma Department of Environmental Quality authorized by Scott A. Thompson, Executive Director. Copies have been prepared at a cost of \$0.106 each. Copies have been deposited with the publications clearinghouse of the Oklahoma Department of Libraries. (AQD)Smoke Management Brochure.indd 3/2018)

# Smoke Happens

## Balancing the Use of Fire and Clean Air



Good Smoke Dispersion



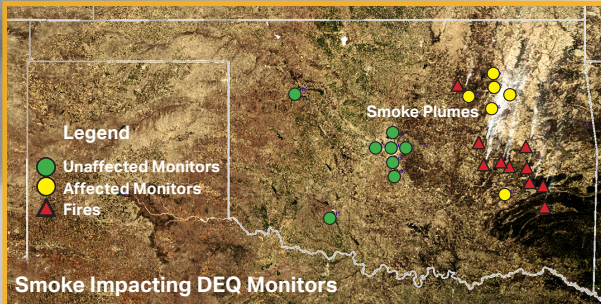
**Fire is considered an essential tool for land management.** Experts now encourage prescribed burning to maintain healthy ecosystems and prevent catastrophic wildfires.



Smoke Across Road

**Smoke triggers many issues** that can create negative public perception, such as health, personal safety, and a decreased use of recreational areas.

Prescribed fires produce smoke, which contains **pollutants** such as **particulate matter (PM)** and **ozone precursors**.



Smoke Impacting DEQ Monitors

**Smoke management** is very important to a successful prescribed burn. **Smoke from a burn is the responsibility of the land owner or land manager.** Safe and effective burns utilize Basic Smoke Management Practices (BSMPs) in order to be successful.

The Oklahoma Department of Environmental Quality (DEQ) and Forestry Services Division of the Oklahoma Department of Agriculture, Food, and Forestry (ODAFFF) developed a **Smoke Management Plan (SMP)** with federal and private stakeholders to help mitigate smoke emissions.

Naturally occurring fires have historically been an important factor in determining plant and animal distribution as well as ecosystem composition in Oklahoma.

Some plants require fire in order to germinate, while some animals have specific vegetation requirements and rely on fire to maintain their habitat.

Smoke produces chemicals that form PM and ozone. Therefore, smoke mitigation is key to reducing smoke impacts, PM, and ozone.

PM2.5 are particles and droplets 2.5 micrometers or smaller in width, finer than a human hair. PM2.5 can reach deep in the lungs and enter the bloodstream.

Ozone is a gas made of three oxygen atoms. Ground-level ozone is created by reactions between oxygen and ozone precursors in the presence of sunlight.

PM and ozone exposure affects both the lungs and heart:

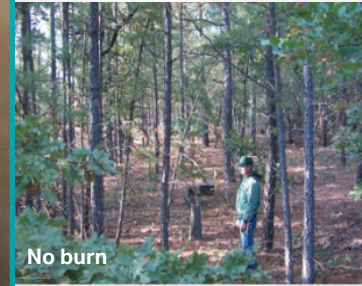
- irritation of the respiratory system
- decreased lung function
- coughing or difficulty breathing
- asthma and other lung diseases
- irregular heartbeat
- heart attacks
- premature births and deaths

### Basic Smoke Management Practices

- **Evaluate weather conditions** before, during, and after the burn.
- **Monitor effects** of fire on air quality to ensure proper dispersion.
- **Record BSMPs** used and fire activity with a burn plan.
- **Communicate with and notify authorities and affected public** before, during, and after the prescribed fire if weather conditions change.
- **Use emission reduction techniques** like wood chipping, grazing, hay baling, and patch burning.
- **Collaborate** with neighbors, voluntary firefighters, and other land owners in conducting prescribed burns by joining a PBA.

For more information on conducting safe burns, smoke mitigation, tools, and resources, download the voluntary **SMP** at [go.usa.gov/xnvvbk](http://go.usa.gov/xnvvbk).

### Fire Frequency is the Key to Land Management



No burn



Three-year burn frequency



Two year burn frequency



One year burn frequency

Since the early 1940s, people were warned against using fire. As a result, years of suppression made fire-dependent ecosystems unhealthy.

As fuels (flammable vegetation) build up in an area, there is a higher risk for very large wildland fires. In order to prevent wildland fires and manage native plant communities, land owners and land managers utilize different prescribed fire frequencies as a tool to support desired plants and animals, prevent the spread of invasive vegetation, and control pests.



The **Oklahoma Prescribed Fire Council** helps land owners and local citizens establish **Prescribed Burn Associations (PBAs)**. PBA members gain access to support, training, and shared equipment to safely implement prescribed fire.