



Wildfire Toolkit

A planning guide for health, climate, and
emergency response professionals

Wisconsin Climate and Health Program



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Introduction

Purpose

The purpose of this wildfire toolkit is to provide information to local governments, health departments, and residents about preparing for and responding to wildfire events in Wisconsin. The toolkit provides background information, practical guidance, strategies, media releases, talking points, definitions, and useful reference materials on this topic.

The guides in this toolkit may be copied and printed onto local government or health agency letterhead for distribution to residents affected by wildfires. Additional documents may be found in Appendix B, Additional Resources.

Background

Wisconsin's forests and grasslands are vulnerable to wildfires that arise when the ground is no longer snow-covered. Wildfires are primarily caused by human action, but can also be attributed to lightning strikes. Major weather factors that affect the status of wildfires are temperature, precipitation, humidity, and wind speed. Wildfires are capable of property and infrastructure destruction, air and water pollution, and human harm, and have a major impact on Wisconsin's economy. From 2014 to 2024, more than 22,000 acres have burned in Wisconsin¹. Based on these data, preparing for wildfires is a priority for Wisconsin state and local government, Tribal communities, citizens, and businesses.

Wildfires are capable of property and infrastructure destruction, air and water pollution, and human harm; they are a major impact on Wisconsin's economy

Climate trends



Long-term trend analysis of Wisconsin's climate indicates the state is becoming warmer. After analyzing historical climate data from 1950 to 2021 and developing downscaled local climate models, University of Wisconsin climate scientists created potential climate projections based on the historical trends and scientifically validated models². According to these models Wisconsin has warmed an average of 3°F since 1950. In that same time frame average precipitation, mostly in winter, has increased 17%, about 5 inches. Over the next 50 years, models suggest increasing temperatures and more heavy rainfall events are likely. Since total summertime rainfall is not predicted to change, there may be more dry days during Wisconsin's summer. Increasing temperatures and an increasing number of dry days could augment wildfire conditions in Wisconsin. Distant wildfires affect Wisconsin's air quality and large wildfires as far away as Canada or California will continue to impact Wisconsin's air.

Health impacts

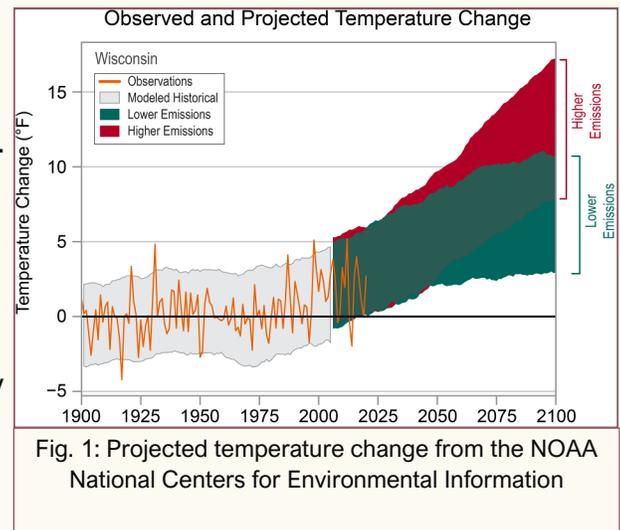
The primary causes of human health impacts during wildfires are heat, smoke, and the destruction of property. Direct contact with wildfire flames can cause life-threatening burns. The smoke resulting from wildfires contains carcinogens and particulates (small and large) that contribute to air and water pollution. The particulates found in smoke can aggravate cardiorespiratory conditions like asthma and chronic obstructive pulmonary disease (COPD). Furthermore, as foliage burns, particulates can contaminate the water supply.³ Wildfires cause mental health harm due to traumatic destruction of property and extreme stress levels. Emergency planning is necessary to lessen or prevent the harmful health effects of wildfires.

Human impacts

While no one is immune from the risks of wildfires and wildfire smoke, some people may experience more adverse effects than others. Individuals most at risk from the health impacts of wild fire smoke are children, older adults and those with asthma, COPD and bronchitis or a chronic heart disease or diabetes. Wildfire smoke can be extremely harmful to the lungs due to the pollutants found in wildfire smoke. One of the many pollutants found in wildfire smoke is particle pollution, which is a mix of very tiny solid and liquid particles suspended in air. These particles are so small that they enter and lodge deep in the lungs, triggering asthma attacks, heart attacks, and strokes. Another threat from forest fire smoke is carbon monoxide (CO)—a colorless, odorless gas. Inhaling CO reduces oxygen delivery to the body's organs and tissues and can lead to headaches, nausea, dizziness and, in high concentrations, premature death. Wildfires spread many other harmful emissions, including nitrogen oxides and many hazardous air pollutants.

Low-income individuals and communities are disproportionately affected by wildfires, experiencing heightened vulnerability due to a combination of factors including limited resources, lack of insurance, older or poorly built housing, and less access to educational resources. The financial strain of rebuilding or finding a new place to live after a fire can be overwhelming. For those living in shelters or the unhoused, wildfires can severely limit access to health care and clean water for drinking and hygiene. Wildfires can also create further displacement, and a loss of personal items like tents and sleeping bags. Unhoused populations are disproportionately impacted by wildfire smoke due to the lack of clean indoor shelter space available.

While mobile homes, also known as manufactured homes, are not inherently more susceptible to wildfire, their proximity to other structures, limited green space, and potential for undercarriage fires can increase their risk. Mobile homes are often a crucial source of affordable housing, and the loss in a wildfire can have devastating consequences for low-income residents as mentioned above.



Wildfire response and recovery guidance

Under the Wisconsin “Home Rule” principle, wildfire preparedness and response are local activities. The local or county emergency management office, health agency, or police and fire first responders will be the lead agency during a wildfire event. However, when requested, state resources will be provided to assist and support the local response.

Definitions

Wildfire

Any free-burning, uncontrollable fire not prescribed for the area, which consumes the natural fuels and spreads in response to its environment.

Ground fire

An underground fire that burns peat, coal, tree roots, or other materials found underground.

Surface fire

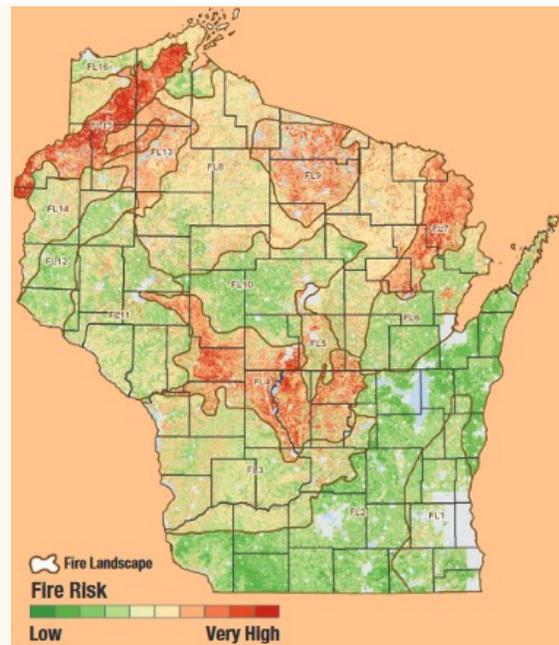
A fire that burns on the surface of the ground. Surface fires can range from low to high-intensity fires.

Crown fire

An extreme intensity fire that burns and spreads throughout the tree canopy.

Air quality index

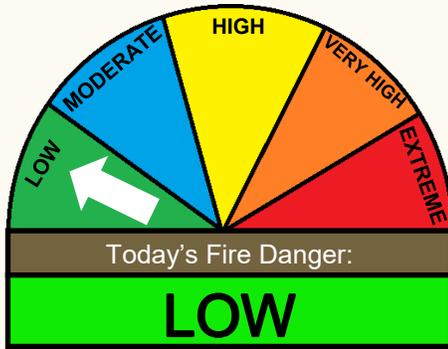
Large wildfires release harmful pollutants that can travel in the air over long distances. Pollutants are measured and calculated in the Air Quality Index (AQI). Lower AQI numbers are healthiest. Even mildly polluted air can cause harm to people in sensitive groups: small children, older adults, people who work outdoors, people who are pregnant or those with respiratory and heart conditions. As the AQI increases, more people will experience health effects from breathing unhealthy air.



<https://dnr.wisconsin.gov/topic/forestfire/fireassessment>

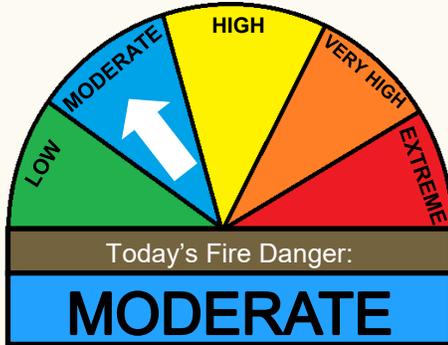
Air Quality Index	Who needs to be concerned?	What should I do?
Good 0-50		It's a great day to be active outside.
Moderate 51-100	Some people who may be unusually sensitive to particle pollution	Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier. Everyone else: It's a good day to be active outside.
Unhealthy for sensitive groups 101-150	Sensitive groups, including people with heart or lung disease, older adults, children, and teenagers	Sensitive groups: Reduce prolonged or heavy exertion. It's OK to be active outside, but take more breaks and do less intense activities. Watch for symptoms such as coughing or shortness of breath. People with asthma should follow their asthma action plans and keep quick relief medicine handy. If you have heart disease: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.
Unhealthy 151-200	Everyone	Sensitive groups: Avoid prolonged or heavy exertion. Move activities indoors or reschedule to a time when the air quality is better. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
Very unhealthy 201-300	Everyone	Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when the air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or reschedule to a time when the air quality is better.
Hazardous 301-500	Everyone	Everyone: Avoid all physical activity outdoors. Sensitive groups: Remain indoors and keep activity levels low. Follow tips for keeping particle levels low indoors.

Fire danger rating system



Low fire danger: Green

- Fires are unlikely.
- If a fire ignites, it will spread slowly with low intensity.
- Easy to control.



Moderate fire danger: Blue

- Some wildfires may be expected.
- Moderate intensity and speed of spreading.
- Usually not difficult to control.



High fire danger: Yellow

- Wildfires are likely.
- Difficult to control under windy conditions when fuel is present.



Very high fire danger: Orange

- Fires begin easily.
- High spreading speed and intensity of flame.
- Very difficult to control.



Extreme fire danger: Red

- Fires will start and spread quickly.
- High intensity, potential to become large, erratic.
- Very difficult to control.

Burning safety

Before burning

- Always contact the WI Department of Natural Resources (DNR) at 1-888-WIS-BURN or visit [the current fire situation page](#) for daily burning restrictions.
 - ⇒ Burning permits are issued for people who burn on the ground and in barrels when the ground is not completely snow covered. Visit the [forest fire permits](#) page permits for more information on permits.
 - ⇒ The Wisconsin DNR highly discourages burning in barrels, as it releases gases and particulates that are dangerous to our health.
 - ⇒ Cooking and warming fires do not require burning permits, unless used to burn debris.
- Find alternatives to burning debris before deciding to burn, like composting.
- Make certain you are burning only legal materials.
- Watch the weather and never burn during windy conditions.
- Make sure the area you are burning in is free of all other flammable items.

During burning

- Have a water source and other firefighting tools nearby.
- Burn piles should be six feet by six feet or smaller.
- Never leave a fire unattended.
- If it becomes windy during burning, put the fire out immediately.
- If your fire escapes, call 911 immediately.

After burning

- Make sure the burn is completely out before leaving. Use lots of water to drown, stir and repeat until cold.
- Go back a few hours later and the next day to check for any remaining smoke or embers.



Wildfire preparation

Heat Zone 1: 3-5 feet around home

Remove any landscape or man-made item that is flammable. If planting is necessary, plant only deciduous plants.

Zone 2: 30 feet around home

Mow often, prune trees, remove debris, and water plants. Deciduous foliage is better than evergreens.

Zone 3: 30-100 feet around home

Plant low-growing vegetation. Twenty feet should remain between each tree. Deciduous vegetation is better than evergreens.

Zone 4: 100-200 feet around home

Remove woody debris from forest floor. Plant thin trees in between larger trees to disrupt the tree canopy.



Wildfire preparation: At home

Home safety tips for homeowners and landlords

- Regularly trim trees (lowest branches should be 6-10 feet high), mow lawns, rake debris, keep gutters clean, and keep roof clear.
- Create a fuel-free buffer zone at least 30 feet around your home.
- Maintain a clear driveway that is wide enough to allow access by fire vehicles.
- If building or remodeling, use fire resistant or noncombustible materials on the exterior of your home, including any porches or balconies.
- Have your chimney inspected by a professional yearly.
- Install smoke alarms on each level of your home and check batteries monthly.
- Wood piles, grills, and barbeque and campfire pits should be at least 30 feet away from the home.
- Prepare fire evacuation plans and transport for your family, pets, and farm animals.

Home safety tips for renters

- Prepare by reviewing and learning your unit or building's evacuation plan.
- Understand your lease and what your landlord is responsible for regarding maintenance around the property and fire preparation.
- If you have renters' insurance, verify you are adequately covered for wildfire losses.
- Make sure valuable documents (such as your lease and insurance) are in an accessible place near your emergency kit.
- Remove all dead plants and weeds on your yard, patio, porch, or other outdoor space you have access to.

Wildfire preparation: At home

Home safety tips for people with limited mobility or disabilities

- Arrange furniture to ensure clear and easy access to exits.
- Create a support network of people who can help you. Keep a contact list in a watertight container in your emergency kit.
- Inform your support network where you keep your emergency kit. You may want to consider giving a trusted member a key to your house or apartment.
- Plan for accessible transportation that you may need for evacuation. Check with local transit providers as well as with your emergency management agency to identify appropriate accessible options.
- About half of all Americans take a prescription medicine every day. An emergency can make it difficult for you to refill your prescription or to find an open pharmacy. Organize and protect your prescriptions and over-the-counter drugs to prepare.
- Wear medical alert tags or bracelets. Also add pertinent medical information to your electronic devices.
- If you have a communication disability, consider carrying printed cards or storing information on your devices to inform first responders and others how to communicate with you.
- If you use assistive technologies, plan how you will evacuate with the devices or how you will replace equipment if lost or destroyed.



Wildfire preparation: For workplaces

Within 30 feet of buildings

Remove combustible material and reduce the volume of vegetation to a minimum. In doing so, stay clear of overhead lines (maintain at least 10-foot clearance) and use 29 CFR 1910.269 qualified line-clearance tree trimmers. Clear branches and shrubs that are within 15 feet of chimneys or stovepipes and remove vines from the walls of buildings. Frequently mowing grass and replacing vegetation with less flammable species can provide better protection against spreading wildfires.

From 30-70 feet away from buildings

Plant low-growing vegetation. Twenty feet should remain between each tree. Deciduous vegetation is better than evergreens.

Hazardous materials

Employers whose workers will be involved in emergency response operations for releases of, or substantial threats of releases of, hazardous substances regardless of the location of the hazard must comply with OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, 29 CFR 1910.120.

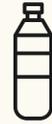


Preparing for an evacuation

Before an emergency, it is important to be prepared and ready to go at a moment's notice. It's important to understand your location's risks because no two communities face the same extreme weather conditions. You can find your local risks with [FEMA's National Risk Index](#).

Step 1: Make an emergency kit

- Three-day supply of water (one gallon of water per person, per day)
- Three-day supply of non-perishable food (and can opener)
- Battery-operated radio and extra batteries
- Cell phone and charger
- Flashlight and batteries
- First aid kit (bandages, gauze, tweezers, disinfectant, gloves, pain relievers, thermometer, etc.)
- Whistle to signal for help
- Dust mask
- Heavy gloves for debris protection if using a wheelchair
- If using a cane or walker, have a spare readily available
- Extra batteries for motorized wheelchairs or scooters, along with charting solutions
- Communication cards or additional assistive technologies for those with disabilities
- Survival blanket (also known as a space blanket)
- Extra cash (about \$50)
- Pocket knife
- Wrench to turn off utilities
- Medications, hand sanitizer, moist towelettes, plastic ties, and garbage bags
- Local maps for evacuation
- Change of clothes (including rain jacket, gloves, hat, etc.)



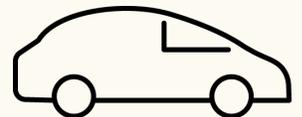
Step 2: Create an evacuation plan



Arrange meeting places, evacuation routes out of your house and community, and temporary housing for your family, pets, and farm animals. Arrange transportation of farm animals in the event of an emergency. Inform your family of this plan and practice it.

Step 3: Prepare your home (if time allows)

- If you have a car, back it into your driveway for easy access and make sure the gas tank is full. Keep a portable emergency kit in the car.
- If you do not have a car, plan how you will leave if needed. Talk with family, friends or your local emergency management office to see what resources may be available.
- Gather pets into one room so they may be readily accessed during evacuation.
- Move furniture to the center of the room and remove flammable window treatments.
- Close doors, windows, vents, and garages.
- Fill tubs, pools, and large containers with water. Place these containers around the outside of your home. Put outdoor sprinklers on the roof and on the lawn so that you can douse the exterior of your home with water.
- Turn outside lights on and leave a light on in each room to increase visibility in dense smoke.
- Turn off all utilities.
- Place a ladder on the outside of your house, in a visible location.



During an evacuation

- ❑ Download the [FEMA app](#) for a list of open shelters during an active disaster in your local area.
- ❑ Listen to a battery-powered radio and follow local evacuation instructions.
- ❑ Take your emergency supply kit.
- ❑ Leave early enough to avoid being trapped.
- ❑ Take your pets with you but understand that only service animals may be allowed in public shelters. [Plan how you will care for your pets in an emergency now.](#)
- ❑ If time allows: Call or email the out-of-state contact in your [family communications plan](#). Tell them where you are going.
- ❑ Secure your home by closing and locking doors and windows.
- ❑ Unplug electrical equipment such as radios, televisions and small appliances. Leave freezers and refrigerators plugged in.
- ❑ Leave a note telling others when you left and where you are going.
- ❑ Wear sturdy shoes and clothing that provides some protection such as long pants, long-sleeved shirts and a hat.
- ❑ Check with neighbors who may need a ride.
- ❑ Follow recommended evacuation routes. Do not take shortcuts, as they may be blocked.



Surviving a wildfire if unable to evacuate

In your car

- Alert local officials of your location.
- Do not get out of your car.
- Park in an area with few trees, shrubs, and flammable ground cover.
- Close windows and vents.
- Get on the floor and cover yourself with a blanket, or any material that could shield you from the heat of the fire.
- Wait until the fire passes.

In your home

- Alert local officials.
- Stay inside.
- Gather your family and pets into one room.
- Stay away from outside walls.
- Close doors, but keep them unlocked.

In the open

- Alert local officials of your location.
- Find an area with minimal flammable material.
- The backside of a steep mountain is safer.
- Lie face down and cover yourself.
- If near a road, lie face down on the uphill side of the ditch. If the road is cut between a mountain or hillside, lie face down against the cut.
- Do not get up until the fire passes.⁵

After a wildfire

Environmental hazards

Wildfires alter landscapes by destroying underbrush and other foliage in forests. This disrupts natural systems and allows for increased risk of **flooding** and **landslides**.

Re-entering your home

- Do NOT enter your home until officials tell you it is safe.
- If there is a color-coded sign on your home, speak to officials before entering.
- Check your roof and attic for hot spots, embers, or smoke.
- Maintain a “fire watch”—watch for sparks and embers that might reignite the fire.
- Avoid downed power lines and telephone poles.
- Avoid ash piles. Keep children and pets safe by accompanying them indoors and out, as they may be unaware of ash piles, hot spots, and embers in the area.
- Do not consume food or water that has been contaminated by heat, soot, smoke, or fire.
- Do not open safe boxes that are hot from a fire. Wait until they have cooled down.



Media relations

Talking points and message maps for wildfire-related fatalities

Message mapping is one of the most important risk communication tools that public health agencies can employ. The goal of a message map is to convey important information in a concise, easy-to-understand, and credible manner.



General guidelines for completing a message map

- Stick to one to three key messages. Underlying concerns or specific questions can be highlighted in the messages.
- Keep key messages brief. The reader should spend less than 10 seconds per line.
- Develop messages that are easily understood by the target audience. Use a 5th- to 8th-grade readability level for communications with the general public.
- Place messages within a message set. The most important messages should occupy the first and last positions.
- Develop key messages that cite credible third parties.
- Use graphics and other visual aids to enhance key messages.
- Keep a positive tone. Messages should be solution-oriented and constructive.
- Avoid unnecessary uses of the words no, not, never, nothing, none.
- Plan for making messages accessible for people who don't speak English as a first language or those who have visual impairments.

Sample message map

If the media approaches you regarding a reported heat-related fatality in your jurisdiction, the following talking points may be used or adapted. Start with message A1 or A2, then follow the instructions within that box.

A1

“We were notified by the medical examiner/coroner about a fatality possibly due to a wildfire. Our condolences go out to the family.”

Go to message B1 or B2.

A2

“We have *not* been notified of any recent fatalities linked to wildfires.”

Go to message C.

B1

“We are unable to share any details out of respect for the family.”

Go to message C.

B2

“On *(insert date)*, a *(insert gender)* *(insert “_ years old”*
OR *“between the ages of _ and _”*) died due to the wildfire in *(insert location)*.”

Go to message C.

C

Burns and wildfire smoke inhalation can be rapid and fatal. People should remain safe by:

- Listening to local authorities and evacuating when ordered.
- Burning debris safely outside by limiting your burn pile to a six foot by six foot area.
- Preparing homes and landscapes using fire prevention techniques.

For more information, visit *[insert relevant website]*.

Wildfire messages

Main message:

“Since June/July/August ____, there has/have been ____ wildfire fatalities in Wisconsin. To help you and your community stay safe during this wildfire season...”

Three key messages

Message 1:

“Prepare your home and landscaping with fire prevention in mind.”

Message 2:

“Be careful while burning debris and follow the directions of the Wisconsin Department of Natural Resources.”

Message 3:

“Prepare for evacuation and leave when local authorities advise.”

Supporting information:

Three supporting messages for each key message

1. Removing vegetation between landscaping and homes can prevent the spread of wildfires.
2. Using fire-resistant materials may help your home survive a wildfire.
3. Weekend activities, like pruning trees and mowing the lawn, can aid in wildfire prevention.

1. Call 1-888-WIS-Burn to check on daily burning restrictions.
2. Never burn on a windy day, as embers and sparks may ignite surrounding vegetation and start a wildfire.
3. Ninety percent of wildfires are caused by human activity⁷.

1. Burns and smoke inhalation from wildfires can be life threatening.
2. Preparedness efforts, including an emergency plan and kit, will save you time during an evacuation.
3. Wildfire conditions can change rapidly. Leaving early can save lives.

Resources

Wisconsin Department of Health Services (DHS)
608-258-0099

List of Wisconsin Tribal Health Directors
www.dhs.wisconsin.gov/lh-depts/contacts/tribal-health-directors.pdf

List of Wisconsin Local Health Departments
www.dhs.wisconsin.gov/lh-depts/counties.htm

Wisconsin Emergency Management
608-242-3232
<https://readywisconsin.wi.gov/wildfires/>

Wisconsin Department of Natural Resources
1-888-WIS-BURN

Burning Permits
<https://dnr.wisconsin.gov/topic/forestfire/permits>

Fire Management Dashboards
<https://dnr.wisconsin.gov/topic/forestfire/fireManagementDashboards>

Centers for Disease Control and Prevention
www.emergency.cdc.gov/disasters/wildfires/

Environmental Protection Agency
www.epa.gov/natural-disasters/wildfires

American Red Cross
1-877-618-6628
www.redcross.org/2cFHQyO

Federal Emergency Management Agency
www.fema.gov

Spanish Language Portal
www.fema.gov/es/

List of County Building, Code, and Zoning Officials
www.wccadm.com/contacts

Firewise Communities Program
www.firewise.org

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