

# Wisconsin Wildfire Toolkit



Wisconsin  
Department of Health Services

Division of Public Health

Bureau of Environmental and Occupational Health

P-00666 (5/2014)

## Acknowledgements

The Wisconsin Wildfire Toolkit was made possible through funding from cooperative agreement 5UE1/EH001043-02 from the Centers for Disease Control and Prevention (CDC) and the commitment of many individuals at the Wisconsin Department of Health Services (DHS), Bureau of Environmental and Occupational Health (BEOH), who contributed their valuable time and knowledge to its development.

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Cover Photos credit: [Wisconsin DNR](#)



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# Introduction

## Purpose

The purpose of this wildfire toolkit is to provide information to local governments, health departments, and citizens 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. These disasters are capable of property and infrastructure destruction, air and water pollution, and human harm; therefore, wildfires have a major impact on Wisconsin's economy. In 2013, the Germann Road fire in Douglas and Bayfield counties destroyed 47 structures, including 17 homes and 15 garages.<sup>1</sup> This fire consumed a total of 7,442 acres and displaced many families in the area.<sup>1</sup>

Based on these data, preparing for wildfires is a priority for Wisconsin governmental units, citizens, and businesses.

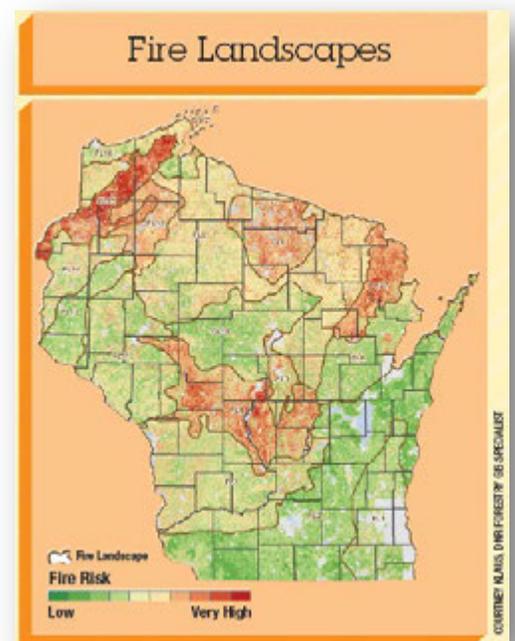


Image source: [Wisconsin DNR](#)

## Climate Trends

Long-term trend analysis of Wisconsin's climate indicates the state is becoming warmer. After analyzing historical climate data from 1950 to 2006 and developing downscaled local climate models, University of Wisconsin climate scientists created potential climate projections based on the historical trends and scientifically validated models.<sup>2</sup> According to these models, over the past 50 years, Wisconsin has warmed an average of 1°F; and average precipitation has decreased in northern Wisconsin, enhancing the dryness of the region. 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.

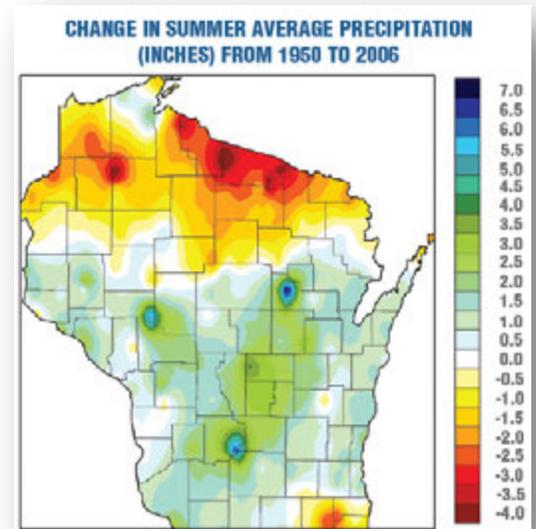


Image source: [WICCI](http://www.wicci.org)

## 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.<sup>3</sup> 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.

## **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/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.



Image source: [National Park Service](#)

## Guide 1: National Fire Danger Rating System (NFDRS)<sup>4</sup>



### 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.

## Guide 2: Burning Safety

### SAFETY TIPS:

- Always contact the DNR at 1-888-WIS-BURN or check online for daily burning restrictions.
- Burn piles should be 6 ft x 6 ft or smaller.
- Never leave a fire unattended.
- Never burn during windy conditions.
- Remove any flammable material from around the burn pit area.
- Cooking and warming fires do not require burning permits, unless used to burn debris.

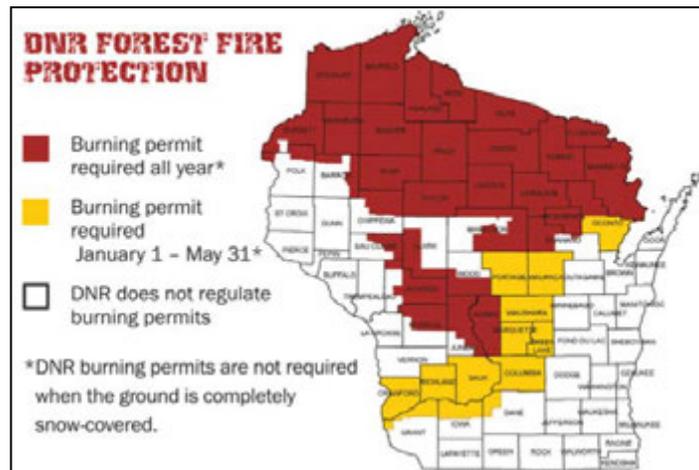
Burning Permits - DNR

Contact local fire officials before burning. If you are told a permit is required to burn, call 1-888-WIS-BURN (1-888-947-2876), contact your local fire warden, DNR ranger station, or visit [dnr.wi.gov/wisburn](http://dnr.wi.gov/wisburn)

Burning permits are issued for people who burn on the ground and in barrels when the ground is not completely snow covered.



Note: The Wisconsin Department of Natural Resources highly discourages burning in barrels, as it releases gases and particulates that are dangerous to your health.



**WHAT CAN I BURN WITH MY PERMIT?**

Allowed	Prohibited
Brush	Garbage
Leaves	Plastics
Needles	Shingles
Grass	Foam
Clean wood	Structures
Unrecyclable paper*	Furniture
Unrecyclable cardboard*	Wire
	Metal
	Electronics
	Vinyl products
	Rubber products
	Oil-based products
	Painted, stained or treated wood

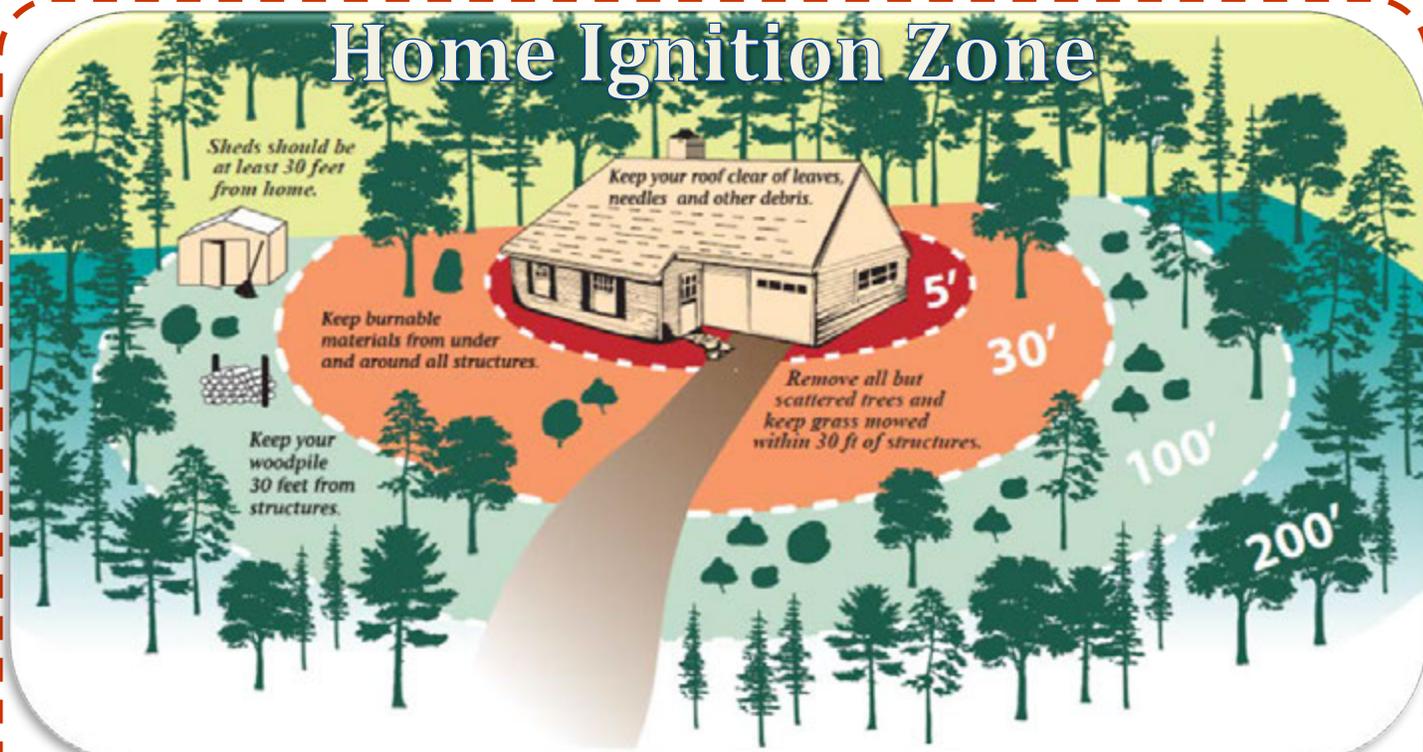
**YES**

**NO**

\*Recycling of clean paper and cardboard is required!

## Guide 3: Wildfire Preparation

# Home Ignition Zone



**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.

## Home Safety Tips



### HOW TO PROTECT YOUR HOME FROM WILDFIRES

Create a "fuel-free" buffer zone (area clear of vegetation) of at least 30 feet around your home.

Make sure you have a nonflammable roof.

Clean out gutters and downspouts of debris and leaves.

Remove dead leaves, dry grass near your home.

Prune trees so that lowest branches are at least 6 to 10 feet high.

Source Firewise Communities, [www.firewise.org](http://www.firewise.org)  
DOYLE RICE, JULIE SNIDER AND SAM WARD, USA TODAY

 **CHECK YOUR WEEKEND FORECAST**  
[WEATHER.USATODAY.COM](http://WEATHER.USATODAY.COM)

An infographic titled "HOW TO PROTECT YOUR HOME FROM WILDFIRES" showing a house with various safety tips. A person is shown cleaning gutters, another is pruning a tree, and a third is removing debris. A 30-foot buffer zone is indicated around the house. The infographic includes text boxes with tips and a source attribution.

- Regularly trim trees, mow lawns, rake debris, keep gutters clean, and keep roof clear.
- Trim trees that hang over the house.
- 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, 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.

Image and information

Source: [CDC](https://www.cdc.gov)

## Guide 4: Preparing for an Evacuation

### Step 1: Make an emergency kit

### 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

- ▼ Back your car into your driveway for easy access.
- ▼ 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.

Image source: [readyforwildfire.org](https://www.readyforwildfire.org)

#### Emergency Supply Kit Checklist:

- Three-day supply of non-perishable food and three gallons of water per person
- Map marked with at least two evacuation routes
- Prescriptions or special medications
- Change of clothing
- Extra eyeglasses or contact lenses
- An extra set of car keys, credit cards, cash or traveler's checks
- First aid kit
- Flashlight
- Battery-powered radio and extra batteries
- Sanitation supplies
- Copies of important documents (birth certificates, passports, etc.)
- Don't forget pet food and water!

## Guide 5: 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.<sup>5</sup>

## Guide 6: 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.



## Guide 7: Talking Points for a Wildfire-related Fatality

If you are approached by the media regarding a reported wildfire-related fatality in your jurisdiction, the following talking points may be used.

1. We were notified by the Medical Examiner/Coroner about a fatality possibly due to a wildfire. Our condolences go out to the family.

*and*

2. Out of respect for the family, we are unable to share any details.

*or*

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

Any of the above can be followed up by these points:

4. Burns can be rapid and fatal. People should remain safe by:

- a. Listening to local authorities and evacuating when ordered.
- b. Burning debris safely outside by limiting your burn pile to a 6 ft. by 6 ft. area.
- c. Preparing homes and landscapes using fire prevention techniques.

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



## Guide 8: Message Maps about Wildfire-related Safety

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 and easy-to-understand fashion.

### General guidelines to follow when creating a message map include:

- Stick to three key messages or one key message with three parts for each underlying concern or specific question.
- Keep key messages brief. The reader should ideally spend less than 10 seconds per line.
- Develop messages that are easily understood by the target audience. (For communications with the general public, use a 6<sup>th</sup> to 8<sup>th</sup> grade readability level.)
- 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. Try to balance negative messages with positive ones.
- Avoid unnecessary uses of the words no, not, never, nothing, and none.<sup>6</sup>



The following is a message map that could be used when addressing the general public regarding wildfire-related safety.

**Main Message:** “Since March/April/May/June/July/etc. \_\_, there has/have been \_\_ wildfire fatalities in Wisconsin. To help you and your loved ones stay safe during this wildfire season ...”

Key Messages (3 key messages)	Supporting Information (3 items of supporting information for each key message)
<p><b>Message 1:</b> <i>Prepare your home and landscaping with fire prevention in mind.</i></p>	<p><b>Supporting Information 1</b> <i>Fuel breaks between your landscaping and home can prevent the spread of wildfires.</i></p> <p><b>Supporting Information 2</b> <i>Using fire-resistant materials may help your home survive a wildfire.</i></p> <p><b>Supporting Information 3</b> <i>Weekend activities, like pruning trees and mowing the lawn, can aid in wildfire prevention.</i></p>
<p><b>Message 2:</b> <i>Be careful while burning debris and follow the directions of the Wisconsin Department of Natural Resources.</i></p>	<p><b>Supporting Information 1</b> <i>Call 1-888-WIS-BURN to check on daily burning restrictions.</i></p> <p><b>Supporting Information 2</b> <i>Never burn on a windy day, as embers and sparks may ignite surrounding vegetation and start a wildfire.</i></p> <p><b>Supporting Information 3</b> <i>90% of wildfires are caused by human activity.<sup>7</sup></i></p>
<p><b>Message 3:</b> <i>Prepare for evacuation and leave when local authorities advise.</i></p>	<p><b>Supporting Information 1</b> <i>Burns from wildfires can be life threatening.</i></p> <p><b>Supporting Information 2</b> <i>Preparedness efforts, including an emergency plan and kit, will save you time during an emergency.</i></p> <p><b>Supporting Information 3</b> <i>Wildfire conditions can change rapidly. Leaving early can save lives.</i></p>



## Appendix A: References

1. Wisconsin Department of Natural Resources. Germann Road Fire. <http://dnr.wi.gov/topic/forestfire/documents/GermannFireMap.pdf>
2. Climate projections in this toolkit come from: Wisconsin's Changing Climate: Impacts and Adaptation. 2011. Wisconsin Initiative on Climate Change Impacts. Nelson Institute for Environmental Studies. UW-Madison and Wisconsin Department of Natural Resources, Madison, WI.
3. Finlay SE, Moffat A, Gazzard R, Baker D, Murray V. [Health Impacts of Wildfires](#). PLOS Currents Disasters. 2012 Nov 2. Edition 1. doi: 10.1371/4f959951cce2c.
4. National Park Service. Fire and Aviation Management. Understanding Fire Danger. <http://www.nps.gov/fire/wildland-fire/learning-center/fire-in-depth/understanding-fire-danger.cfm>.
5. Ready: Wildfires. <http://www.ready.gov/wildfires>.
6. Covello VT. Message mapping. Accessed March 7, 2014, at: [http://www.orau.gov/cdcynergy/erc/content/activeinformation/resources/Covello\\_message\\_mapping.pdf](http://www.orau.gov/cdcynergy/erc/content/activeinformation/resources/Covello_message_mapping.pdf).
7. National Park Service. Fire and Aviation Management. Wildfire Causes. <http://www.nps.gov/fire/wildland-fire/learning-center/fire-in-depth/wildfire-causes.cfm>.

## Appendix B: Additional Resources

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

Wisconsin Emergency Management (WEM)  
[http://readywisconsin.wi.gov/Informed/wildfire\\_during.asp](http://readywisconsin.wi.gov/Informed/wildfire_during.asp)  
608-242-3232

American Red Cross  
<http://www.redcross.org/prepare/disaster/wildfire>  
1-877-618-6628

American Red Cross Wildfire Safety Checklist  
[http://www.redcross.org/images/MEDIA\\_CustomProductCatalog/m4340149\\_Wildfire.pdf](http://www.redcross.org/images/MEDIA_CustomProductCatalog/m4340149_Wildfire.pdf)

Federal Emergency Management Agency (FEMA)  
<http://www.fema.gov/>

FEMA Spanish Language Portal  
<http://www.fema.gov/es/>

Centers for Disease Control and Prevention (CDC)  
<http://emergency.cdc.gov/disasters/wildfires/>

Environmental Protection Agency (EPA)  
<http://www.epa.gov/wildfire/>

List of Wisconsin Local Public Health Departments  
<http://www.dhs.wisconsin.gov/localhealth/>

List of Wisconsin Tribal Health Directors  
<http://www.dhs.wisconsin.gov/localhealth/>

List of County Building, Code, and Zoning Officials  
[http://www.wccadm.com/staff\\_directory.htm](http://www.wccadm.com/staff_directory.htm)

Refugee Health Information Network (RHIN)  
<http://rhin.org/AZIndex.aspx>

Wisconsin Department of Natural Resources (DNR): Burning Permits

<http://dnr.wi.gov/topic/ForestFire/permits.html>

1-888-WIS-BURN

Wisconsin Department of Natural Resources (DNR): Wildfire: The Next Storm

<http://dnr.wi.gov/topic/forestmanagement/documents/pub/FR-492a.pdf>

Firewise Communities Program

<http://www.firewise.org>