



WILDFIRE TOOLKIT

A planning guide for public health and emergency response professionals

WISCONSIN CLIMATE AND HEALTH PROGRAM
Bureau of Environmental and Occupational Health

www.dhs.wisconsin.gov/climate | OCTOBER 2016 | dhsclimate@wi.gov

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CONTENTS

Introduction

Definitions

Guides

Guide 1: National Fire Danger Rating System

Guide 2: Burning Safety

Guide 3: Wildfire Preparation

Guide 4: Preparing for an Evacuation

Guide 5: Surviving a Wildfire

Guide 6: After a Wildfire

Guide 7: Talking Points for a Wildfire-Related Fatality

Guide 8: Message Maps about Wildfire-Related Safety

Appendices

Appendix A: References

Appendix B: Additional Resources

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Special thanks to:

Jeff Phillips, RS, Director of the Bureau of Environmental and Occupational Health, DHS

Megan Christenson, MS, MPH, Epidemiologist, DHS

Stephanie Krueger, Public Health Associate, CDC

Eleanor Ganz, BRACE LTE, DHS

For more information, please contact:

Colleen Moran, MS, MPH

Climate and Health Program Manager

Bureau of Environmental and Occupational Health

1 W. Wilson St., Room 150 | Madison, WI 53703

Colleen.Moran@dhs.wisconsin.gov

608-266-6761





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.¹ This fire consumed a total of 7,442 acres and displaced many families in the area.¹ Based on these data, preparing for wildfires is a priority for Wisconsin governmental units, citizens, and businesses.

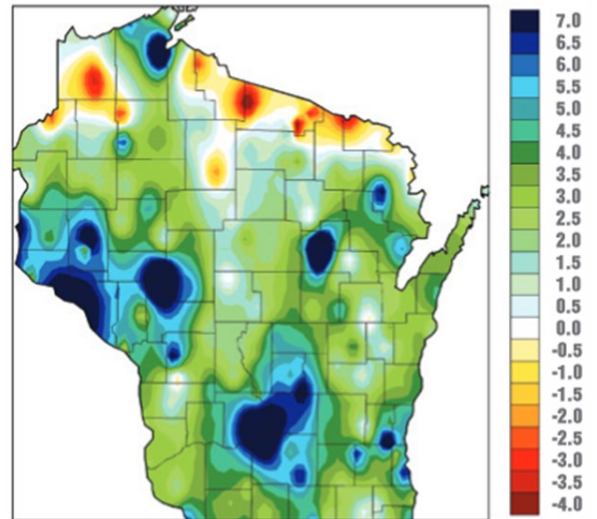
Wildfires are capable of property and infrastructure destruction, air and water pollution, and human harm; they have a major impact on Wisconsin's economy.

Climate Trends

Long-term trend analysis of Wisconsin's climate indicates the state is becoming warmer. After analyzing historical climate data from 1950 to 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.² 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.

Fig 1. Changes in Annual Average Precipitation (Inches) from 1950 to 2006¹



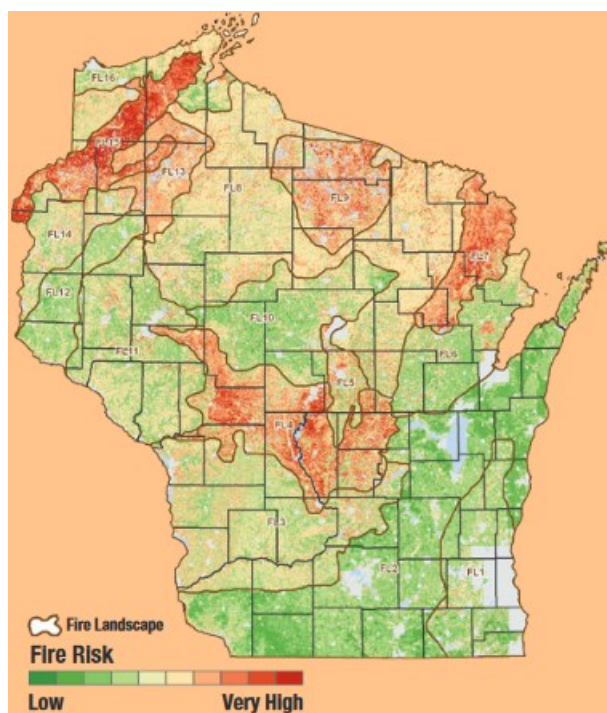
Health Impacts

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.

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.

GUIDE 1: NATIONAL 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

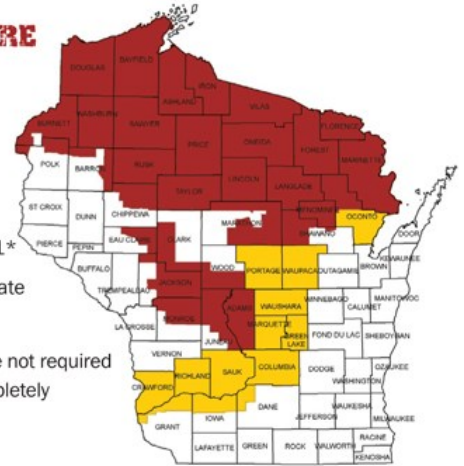
- Fires will start and spread quickly.
- High intensity, potential to become large, erratic.
- Very difficult to control.

GUIDE 2: BURNING SAFETY

- Always contact the DNR at 1-888-WIS-BURN or visit dnr.wi.gov/topic/forestfire/restrictions.html 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.
 - The Wisconsin DNR highly discourages burning in barrels, as it releases gases and particulates that are dangerous to our health.
- Burn piles should be six feet x six feet 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.

DNR FOREST FIRE PROTECTION

- Burning permit required all year*
- Burning permit required January 1 – May 31*
- DNR does not regulate burning permits



*DNR burning permits are not required when the ground is completely snow-covered.

What Can I Burn with My Permit?

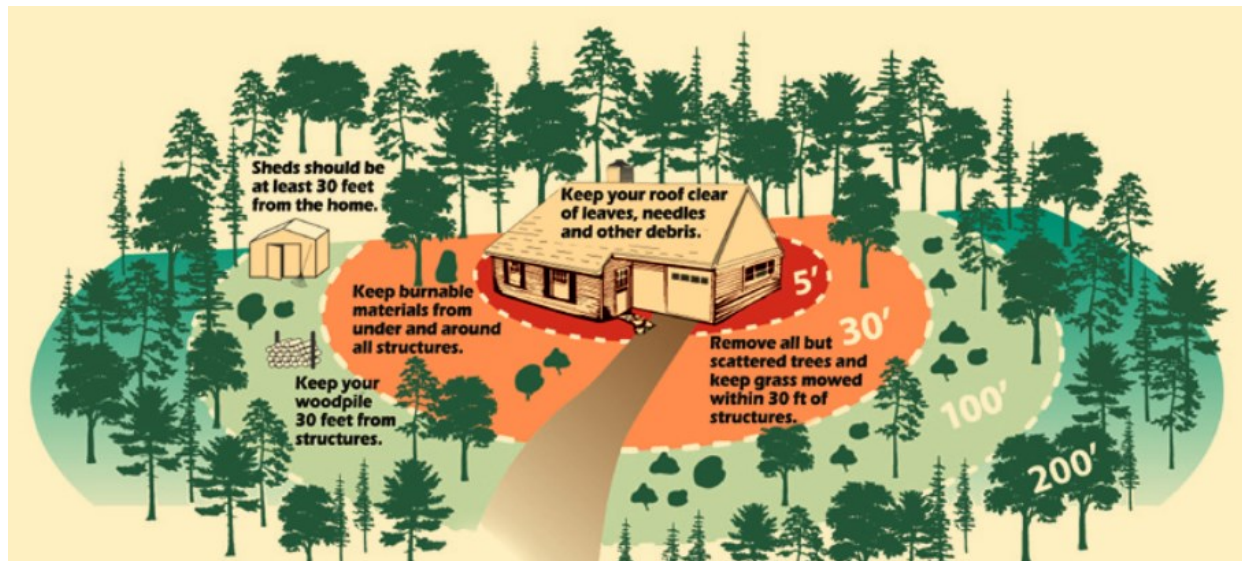
Can Burn

- Brush
- Leaves
- Needles
- Grass
- Clean wood
- Unrecyclable paper*
- Unrecyclable cardboard*

Cannot Burn

- Garbage
- Plastics
- Shingles
- Foam
- Structures
- Furniture
- Wire
- Metal
- Electronics
- Vinyl products
- Rubber products
- Oil-based products
- Painted, stained, or treated wood

GUIDE 3: WILDFIRE PREPARATION



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

- 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.



GUIDE 4

GUIDE 4: PREPARING FOR AN EVACUATION

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
- 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)

- 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.



GUIDE 5

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.⁵



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

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

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

Go to message C.

B2

On [insert date], a [gender] [“___ years old” or “between the ages of ___ and ___”] died during the storm.

Go to message C.

C

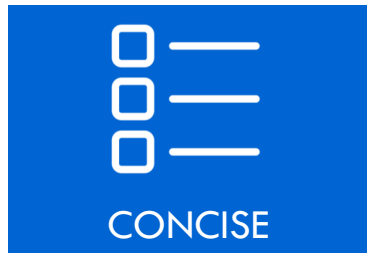
Burns can be rapid and fatal. People should remain safe by:

- a. Listening to local authorities and evacuating when ordered.
- b. Burning debris safely outside by limiting your burn pile to a six foot by six foot 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 for Completing a Message Map

- 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 6th to 8th 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 use of “absolute” words such as no, not, never, nothing, and none.⁵

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 | Supporting Information |
|--|--|
| <i>Three key messages</i> | <i>Three pieces of supporting information for each key message</i> |
| <p>Message 1</p> <p>Prepare your home and landscaping with fire prevention in mind.</p> | <p>Supporting Info 1</p> <p>Fuel breaks between landscaping and home can prevent the spread of wildfires.</p> <p>Supporting Info 2</p> <p>Using fire-resistant materials may help your home survive a wildfire.</p> <p>Supporting Info 3</p> <p>Weekend activities, like pruning trees and mowing the lawn, can aid in wildfire prevention.</p> |
| <p>Message 2</p> <p>Be careful while burning debris and follow the directions of the Wisconsin Department of Natural Resources.</p> | <p>Supporting Info 1</p> <p>Call 1-888-WIS-Burn to check on daily burning restrictions.</p> <p>Supporting Info 2</p> <p>Never burn on a windy day, as embers and sparks may ignite surrounding vegetation and start a wildfire.</p> <p>Supporting Info 3</p> <p>Ninety percent of wildfires are caused by human activity.⁷</p> |
| <p>Message 3</p> <p>Prepare for evacuation and leave when local authorities advise.</p> | <p>Supporting Info 1</p> <p>Burns from wildfires can be life threatening.</p> <p>Supporting Info 2</p> <p>Preparedness efforts, including an emergency plan and kit, will save you time during an emergency.</p> <p>Supporting Info 3</p> <p>Wildfire conditions can change rapidly. Leaving early can save lives.</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. Available at: http://www.wicci.wisc.edu/report/2011_WICCI-Report.pdf
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. Available at: <http://www.nps.gov/fire/wildland-fire/learning-center/fire-in-depth/understanding-fire-danger.cfm>
5. Ready: Wildfires. Available at: <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.
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

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

www.readywisconsin.wi.gov/Informed/wildfire_during.asp

Wisconsin Department of Natural Resources

1-888-WIS-BURN

Burning Permits

www.dnr.wi.gov/burnpermits/

Wildfire: The Next Storm

www.dnr.wi.gov/topic/forestmanagement/documents/pub/FR-492a.pdf

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.rdcross.org/2cFHQyO

Wildfire Safety Checklist

www.rdcross.org/2cr04YH

Refugee Health Information Network

www.healthreach.nlm.nih.gov/azindex

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