



Fire: **Ecology, Behavior & Home**





Fire is fire!

. . . Is it bad?

. . . Is it good?

. . . Who's asking?





Fire is good !





Fire is bad !





Fire is not mutually exclusive !

- Rule 1: People will live where people will live.
- Rule 2: Fires will occur when and where they occur.
- Rule 3: Fire doesn't understand the intention of the ignition source.

Is it possible to have fire and people in the same ecosystem?





WILDFIRE

- Create a mental picture
- What does it look like?
- What does it sound like?
- What does it smell like?
- How would you define it?





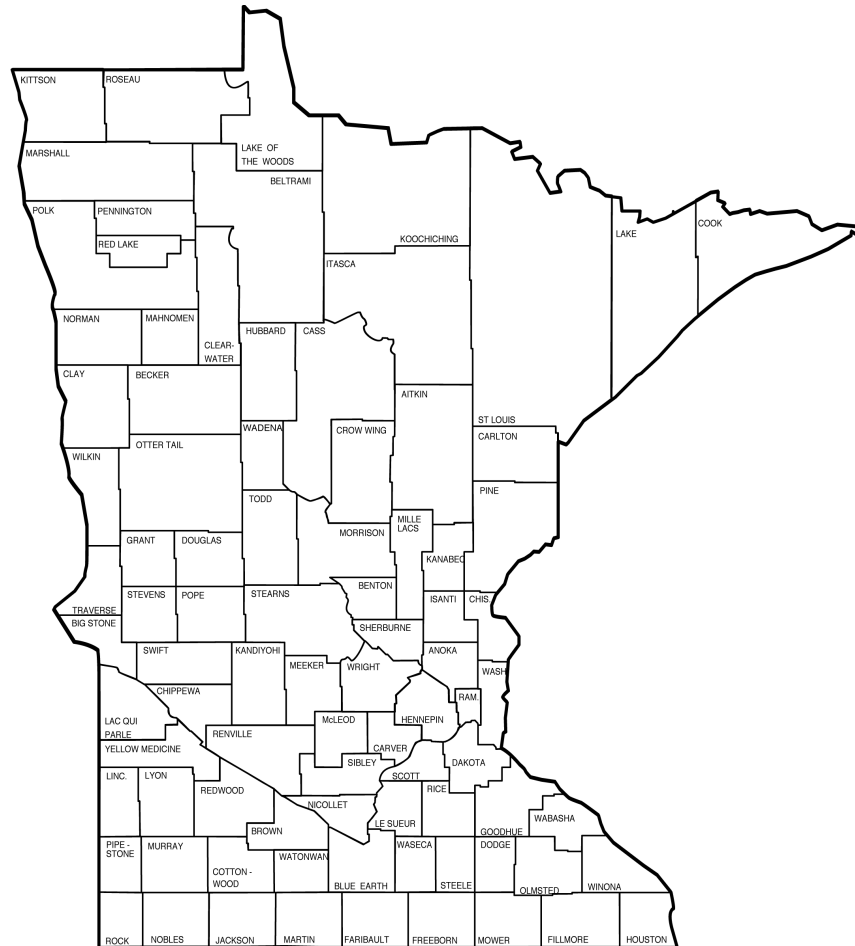
Definition of Wildfire:

- An unplanned and uncontrolled fire spreading through vegetative fuels, at times involving structures.





Where would you predict wildfires to be?



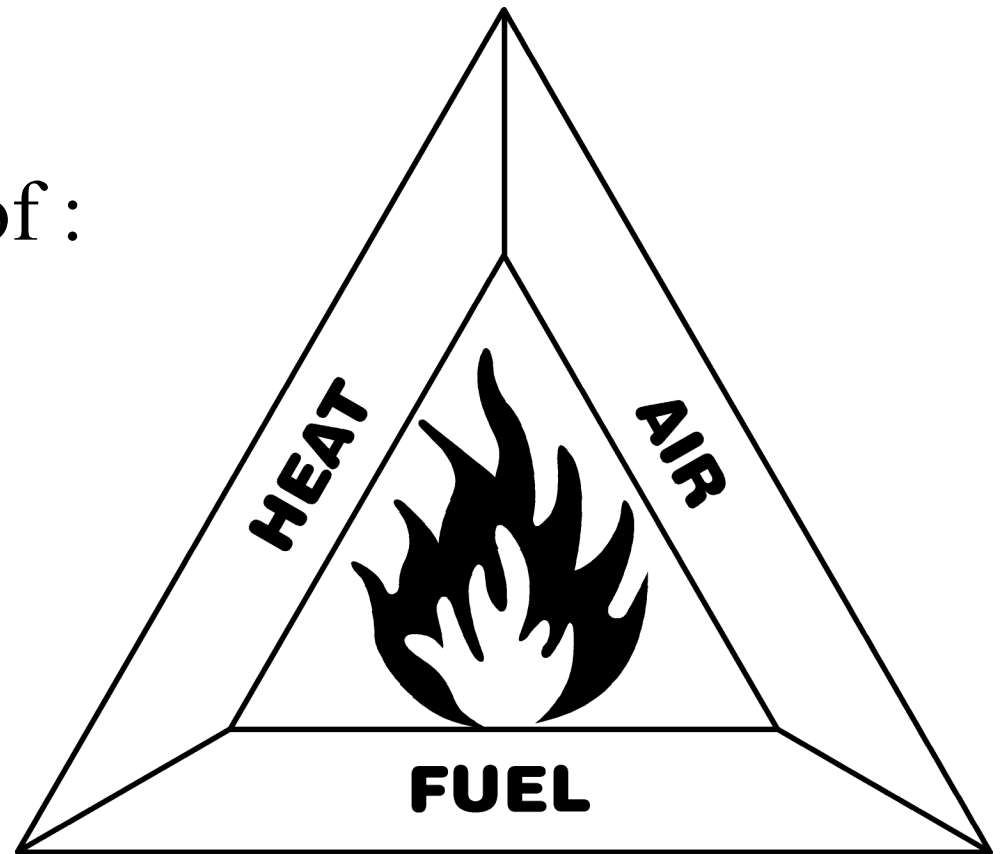


Science of Wildfire

FIRE TRIANGLE

What is the source of :

- Air
- Heat
- Fuel

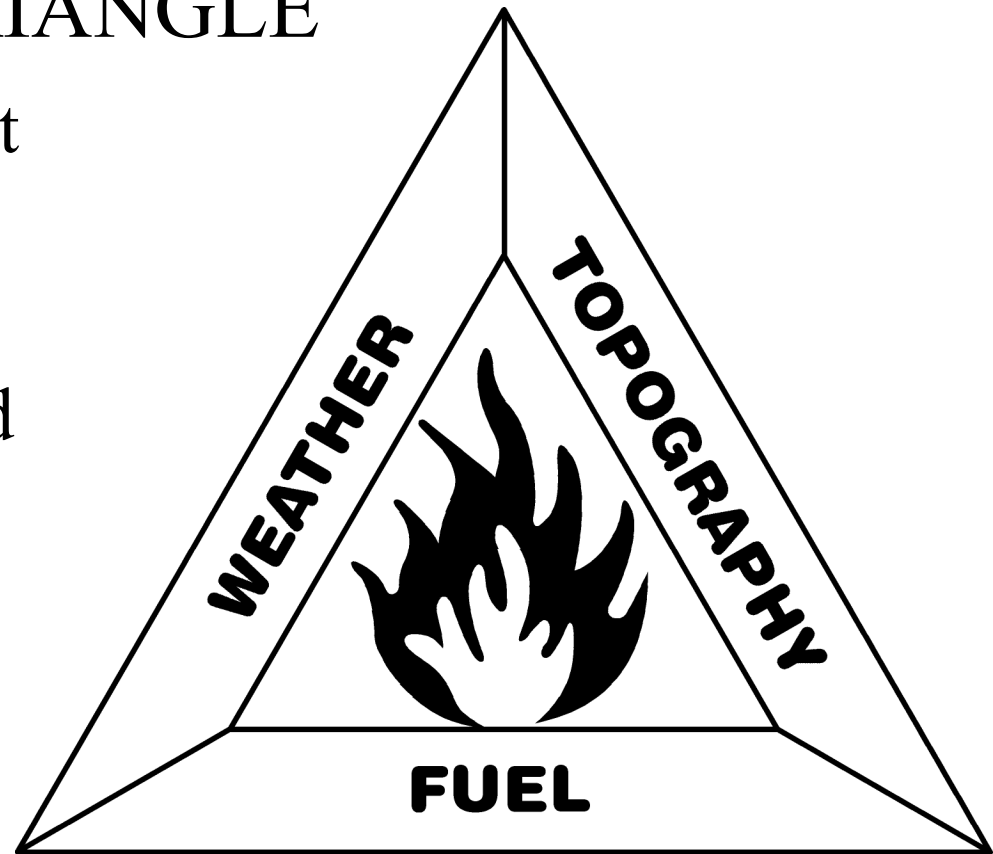




Science of Wildfire

FIRE BEHAVIOR TRIANGLE

- How does weather affect occurrence and spread of wildfire
- Which types of fuel feed a wildfire?
- How can topography affect the occurrence and spread of wildfire?

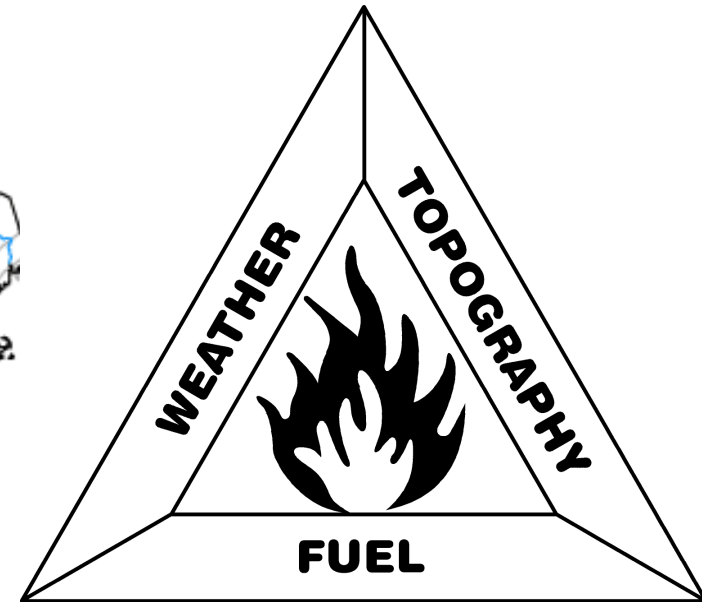
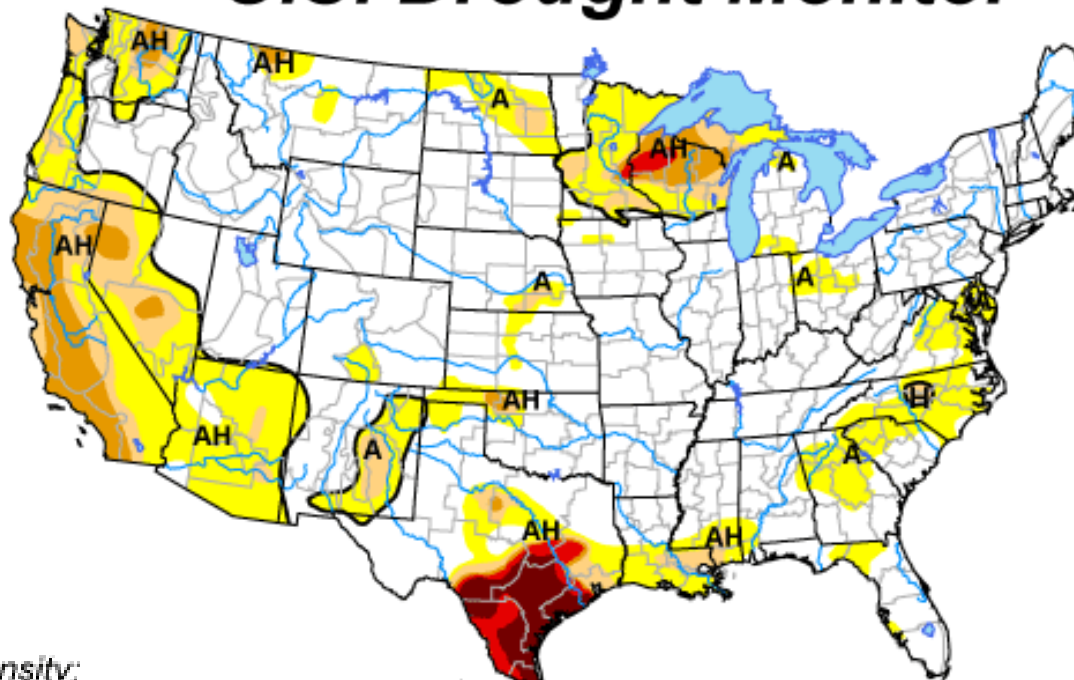




Look at the factors

- Weather

U.S. Drought Monitor

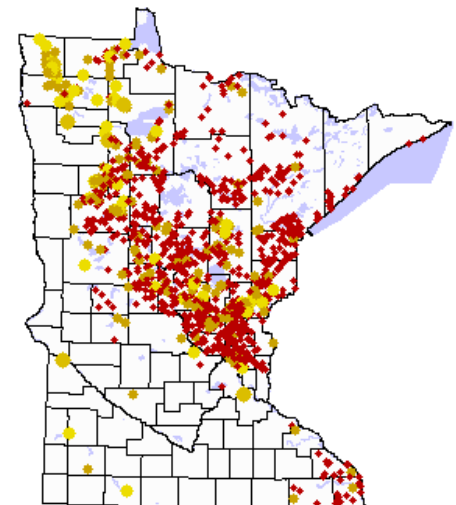


Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://drought.unl.edu/dm>



Released Thursday, August 20, 2009

Author: Laura Edwards, Western Regional Climate Center

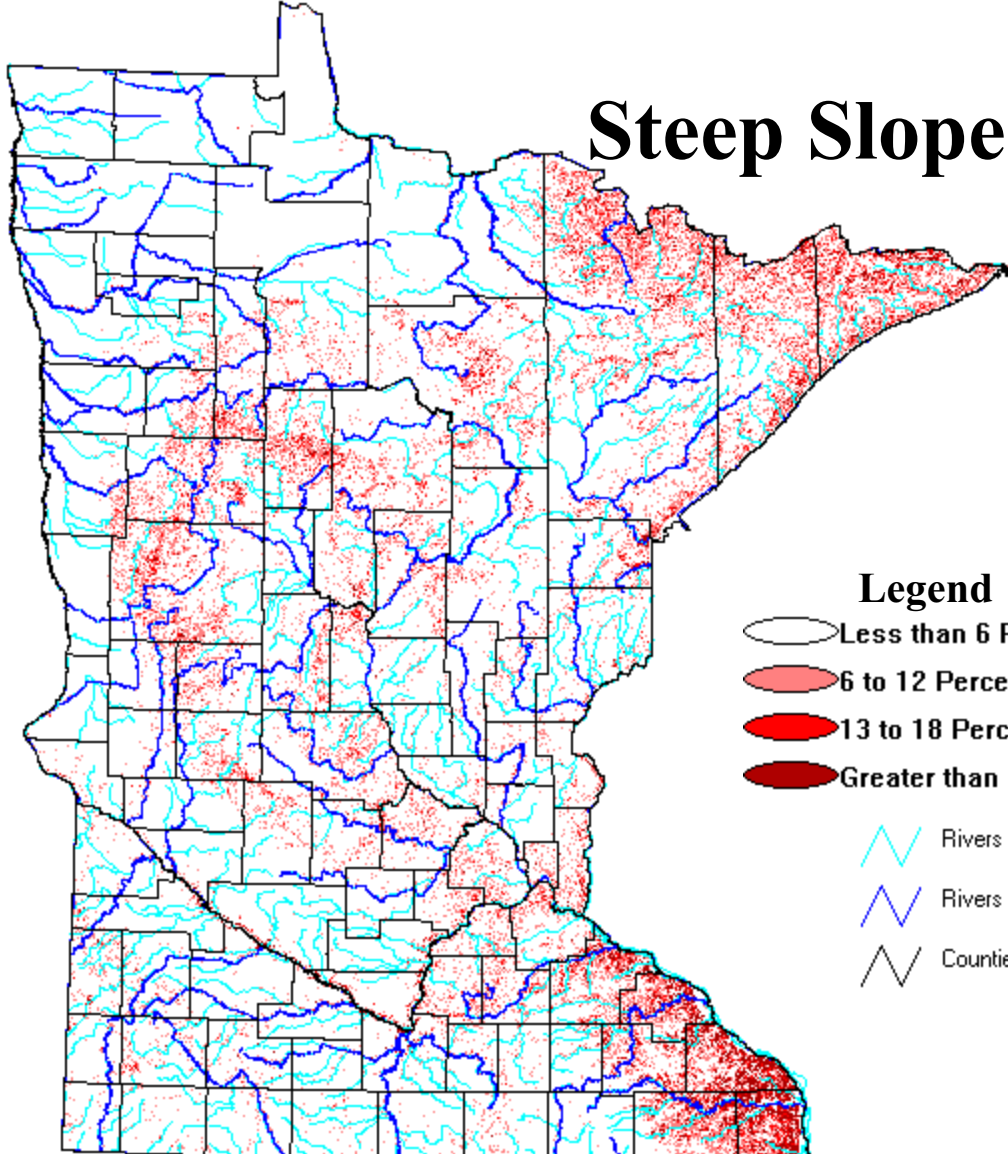




Look at the factors

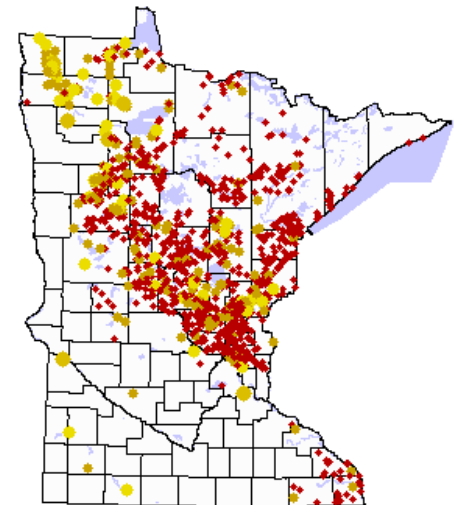
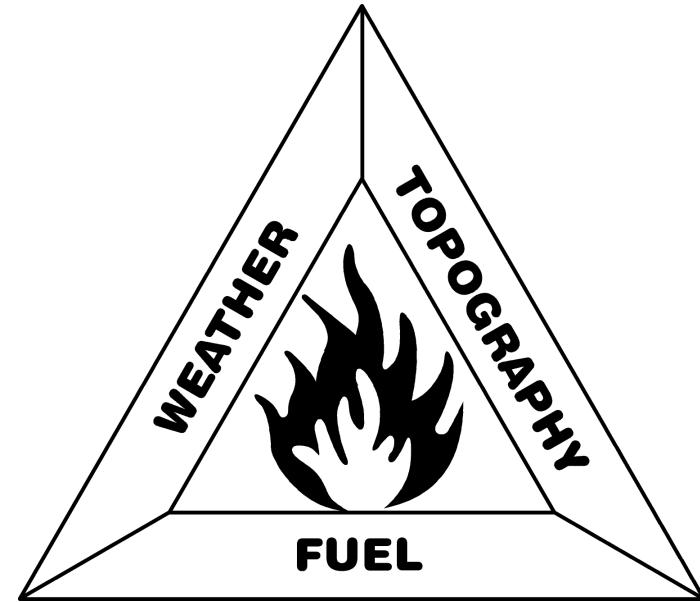
Topography Slope

Steep Slopes



Legend

- Less than 6 Percent
- 6 to 12 Percent
- 13 to 18 Percent
- Greater than 18 Percent
- ~ Rivers 100k
- ~ Rivers
- ~ Counties



0 80 160 240 mi

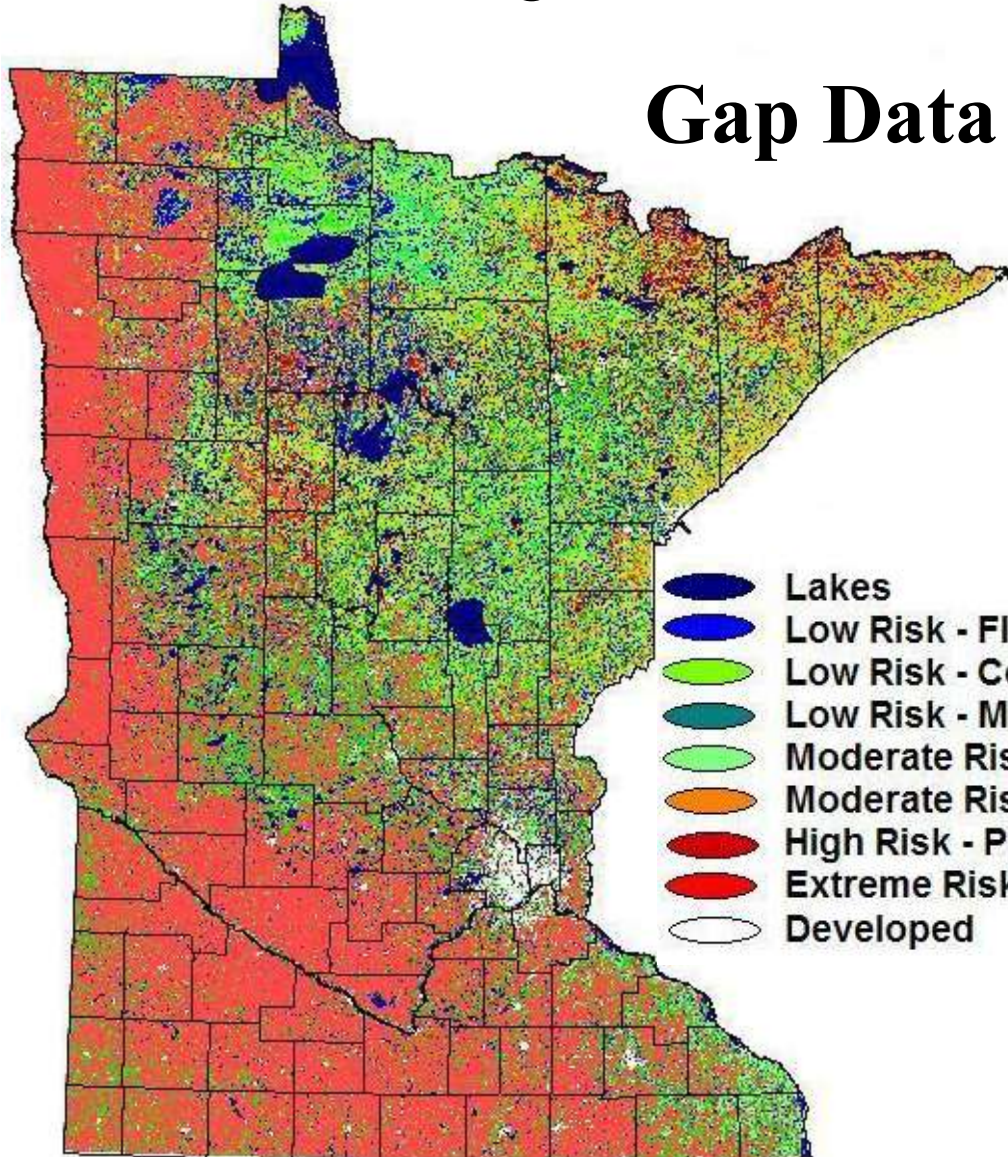




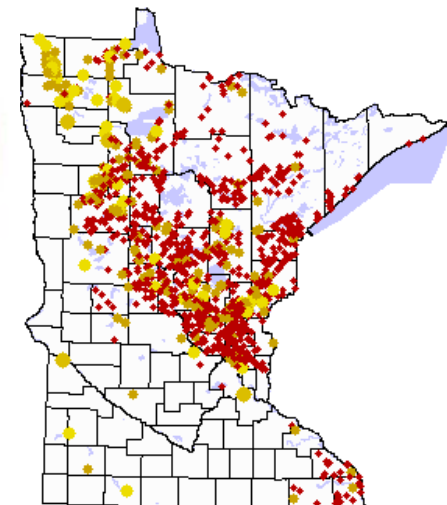
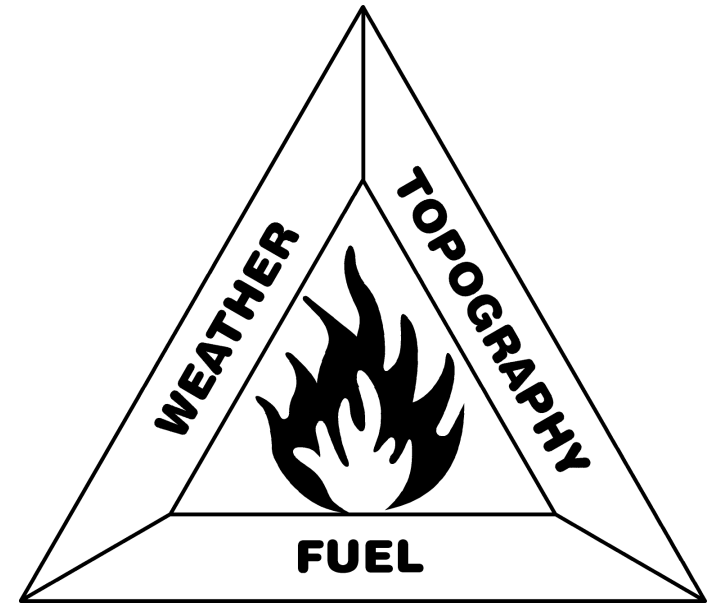
Look at the factors

- Fuel - Vegetation

Gap Data



- Lakes
- Low Risk - Floodplain Forest
- Low Risk - Conifer Bog
- Low Risk - Maple/Basswood Forest
- Moderate Risk - Oak Savana Forest
- Moderate Risk - Spruce-Fur Forest
- High Risk - Prairie
- Extreme Risk - Pine Forest
- Developed





Science of Wildfire

- Fire Spread = heat transference
 - Conduction
 - Convection
 - Radiation
- Ember displacement





Fire Spread

- Surface fires by radiation
- Crown fires by convection
- Ember movement is the “wild card”
 - Ember potential (brands)
 - Heat output (loft)
 - Wind field (transport)
 - Receiving fuel bed (house?)





We have liftoff and ignition!





Wildfire causes

Cause	Fires/Acres	MN 2000	MN 2000, Percent of Total	U.S. 2000	U.S. 2000, Percent of Total
<i>Natural</i>					
Lightning	Fires	9	.46	18,417	14.9
	Acres	12.02	.02	4,826,643	57.3
<i>Human</i>					
Campfire	Fires	60	3.1	3,412	2.8
	Acres	193.22	.36	174,986	2.1
Smoking	Fires	72	3.7	3,892	3.2
	Acres	584.61	1.1	100,395	1.1
Debris	Fires	687	35.4	NA	NA
	Acres	17,023.79	32.3	NA	NA
Arson/ Incendiary	Fires	638	32.8	26,990	21.9
	Acres	29,315.64	55.7	1,103,948	13.1
Equipment	Fires	236	12.1	10,713	8.7
	Acres	1423.54	2.7	44,046	.52
Railroads	Fires	74	3.8	2,812	2.3
	Acres	338.89	.64	141,768	1.6
Children/Juveniles	Fires	NA	NA	3,927	3.2
	Acres	NA	NA	28,940	.34
Miscellaneous	Fires	167	8.5	52,664	42.9
	Acres	3727.46	7.0	1,605,131	19.0
TOTAL	Fires	1943		122,827	
	Acres	52,619.17		8,422,237	

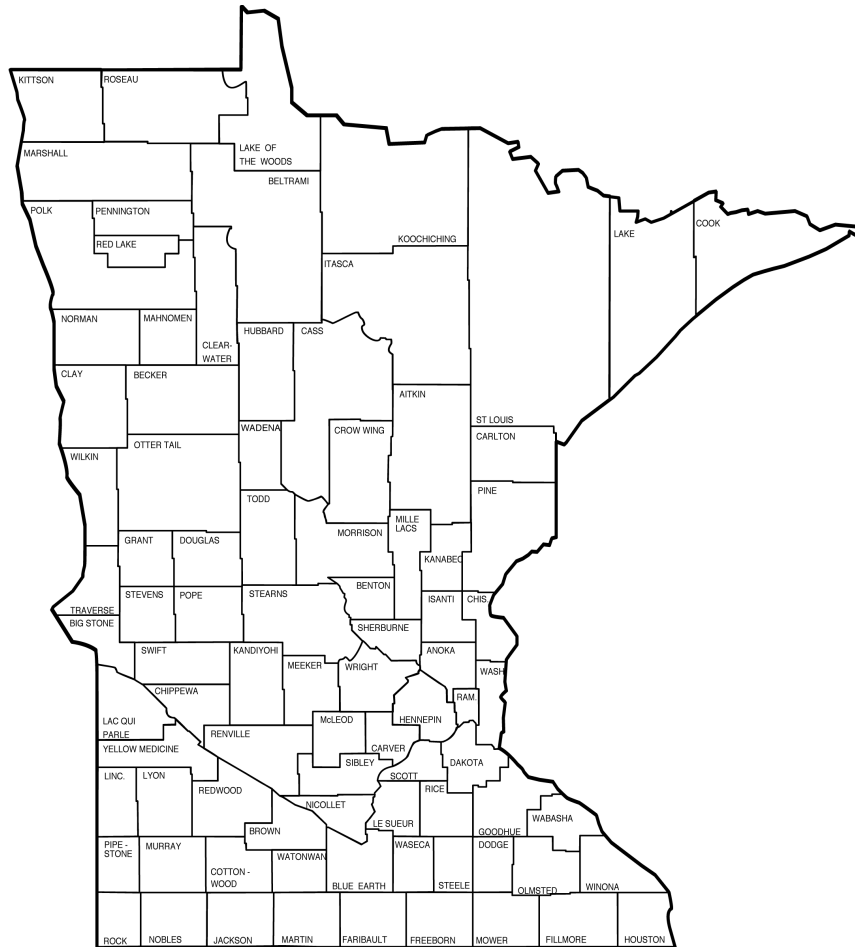
- What is the leading cause of wildfire in the US?
- ...in Minnesota?
- Why is there a difference?

- What is the leading cause of acre loss in the US?
- ...in Minnesota?
- Why is there a difference?





Where did you predict wildfires to be?





Where wildfires have occurred this year

Wildfire Information - Division of Forestry: Minnesota DNR - Mozilla Firefox


File Edit View History Bookmarks Yahoo! Tools Help

http://www.dnr.state.mn.us/forestry/fire/index.html

Home > Forestry >

Wildfire information and prevention

- Fire is a natural part of our environment. Yet, with more people living near wildlands, there is a greater chance of loss of life, property and damage to natural resources.
- The Division of Forestry provides wildfire protection on nearly 17 million acres of Minnesota's forest land, **manages the use of prescribed fire**, and **actively prevents wildfires** and **wildfire-related damage to property**.
- Volunteer firefighters train ahead of the start of wildfire season. [Video](#) from channel 4 special report.
- **Remember only you can prevent wildfires.**



[Wildfire news release](#) | [Statewide fire danger](#) | [Current fire restrictions](#) | [Grants](#)

Current wildfire information

- [Statewide fire danger](#)
- [Current fire restrictions](#)
- [Statewide status report](#)
- [DNR forestry area status reports](#)
- [Fire location map](#)

Fire management


- [Wildfire information center](#)
- [DNR fire behavior forecast](#) [PDF](#)
- [Fire danger indexes](#)
- [Prescribed burn policy](#)
- [Firefighter positions](#)

Burning permits & information

- [Burning permits information](#)
- [Apply for burning permit online](#)

Education & assistance

- [Wildland fire training](#)
- [Firewise](#)
- [Wildfire prevention](#)
- [Rural fire department](#)
- [Fire tower information](#)





Year-to-Date Fire Locations

<http://www.dnr.state.mn.us/forestry/fire/maps/browse.html>

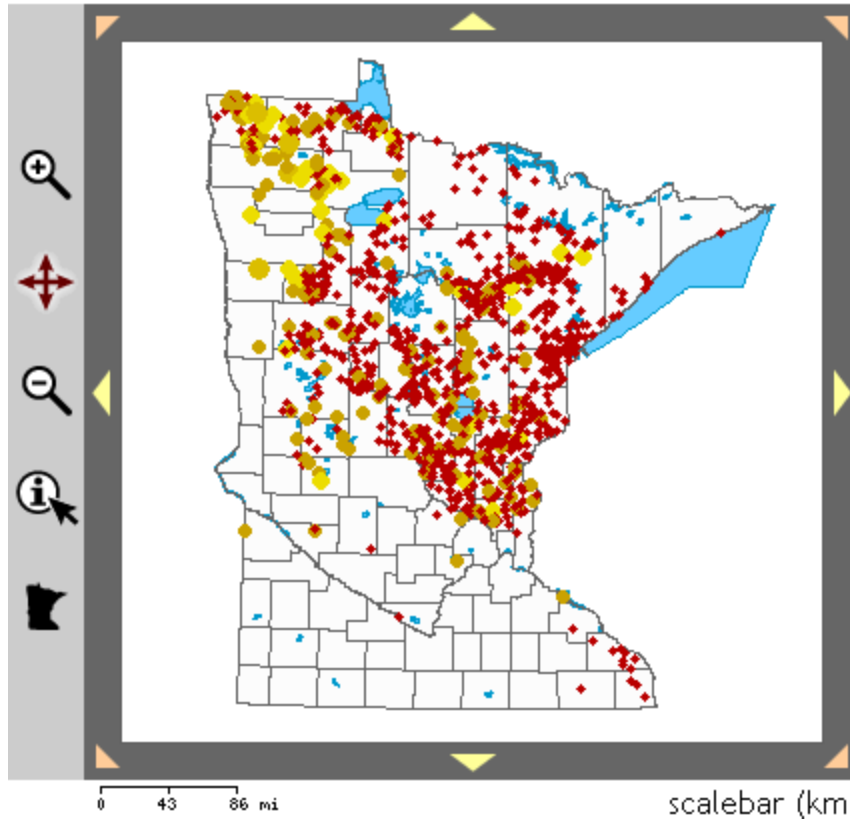
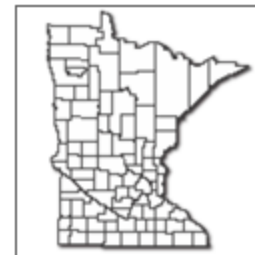
Year-to-Date Fire Locations

7/15/2010
1164 fires
25618 acres burned

- less than 10 acres
- 10 to 100 acres
- 100 to 1000 acres
- 1000+ acres

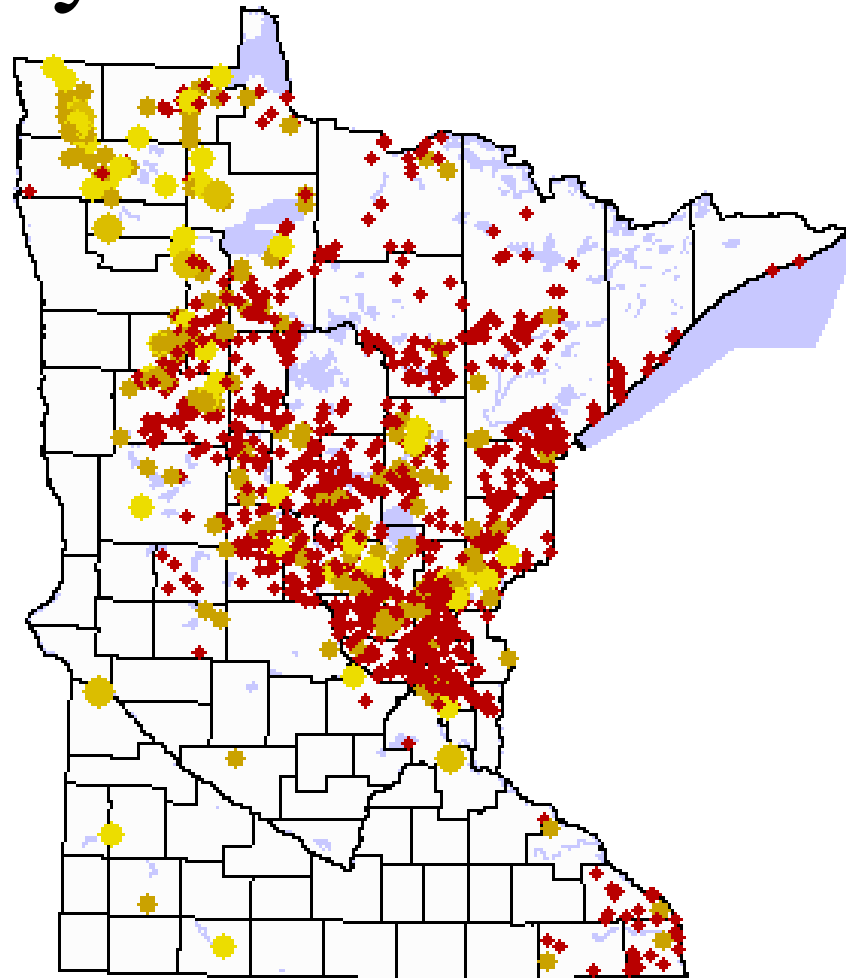
Select Map

- Current
- Year-to-Date





Why were fires here?



0 80 160 240 mi





WHAT IS FIREWISE?

Firewise is a national and Minnesota program whose goals are to reduce (mitigate) the risk of damage caused by wildfire.





Firewise Video

Firewise-Minnesota: Minnesota DNR - Mozilla Firefox



Minnesota

Department of Natural Resources

<http://www.dnr.state.mn.us/firewise/index.html>

[Recreation](#) | [Destinations](#) | [Nature](#) | [Education / safety](#) | [Licenses / p](#)

[Home](#) > [Assistance](#) > [Stewardship in your backyard](#) >

Firewise

- [Main page](#)
- [Community](#)
- [Homeowner](#)
- [Landscaper / Contractor](#)
- [Links](#)
- [Forestry education](#)

Firewise in Minnesota

Firewise addresses the risk of homes in the wildland/urban interface to wildland fire. As more homes are built in the woods and fields of Minnesota, the existing firefighting resources are less able to protect everyone's property while trying to control a wildfire.



Homes close to evergreens and the tall grasses of prairies or marshes are most at risk. Making your home able to survive an approaching wildfire is the goal of the Firewise program.

Minnesota has adopted the national Firewise program. From this page you will find links to some of the national Firewise sites and all of the Minnesota related Firewise sites, plus general wildfire information.

See first hand how the Firewise program saved a home burning the Ham lake fire. Watch the Minnesota bound video.

Media Type	Bandwithh	
	Low	High
WMV	(1.5mb)	(6.7mb)
MP4	(1.0mb)	(6.4mb)



Legend/Key

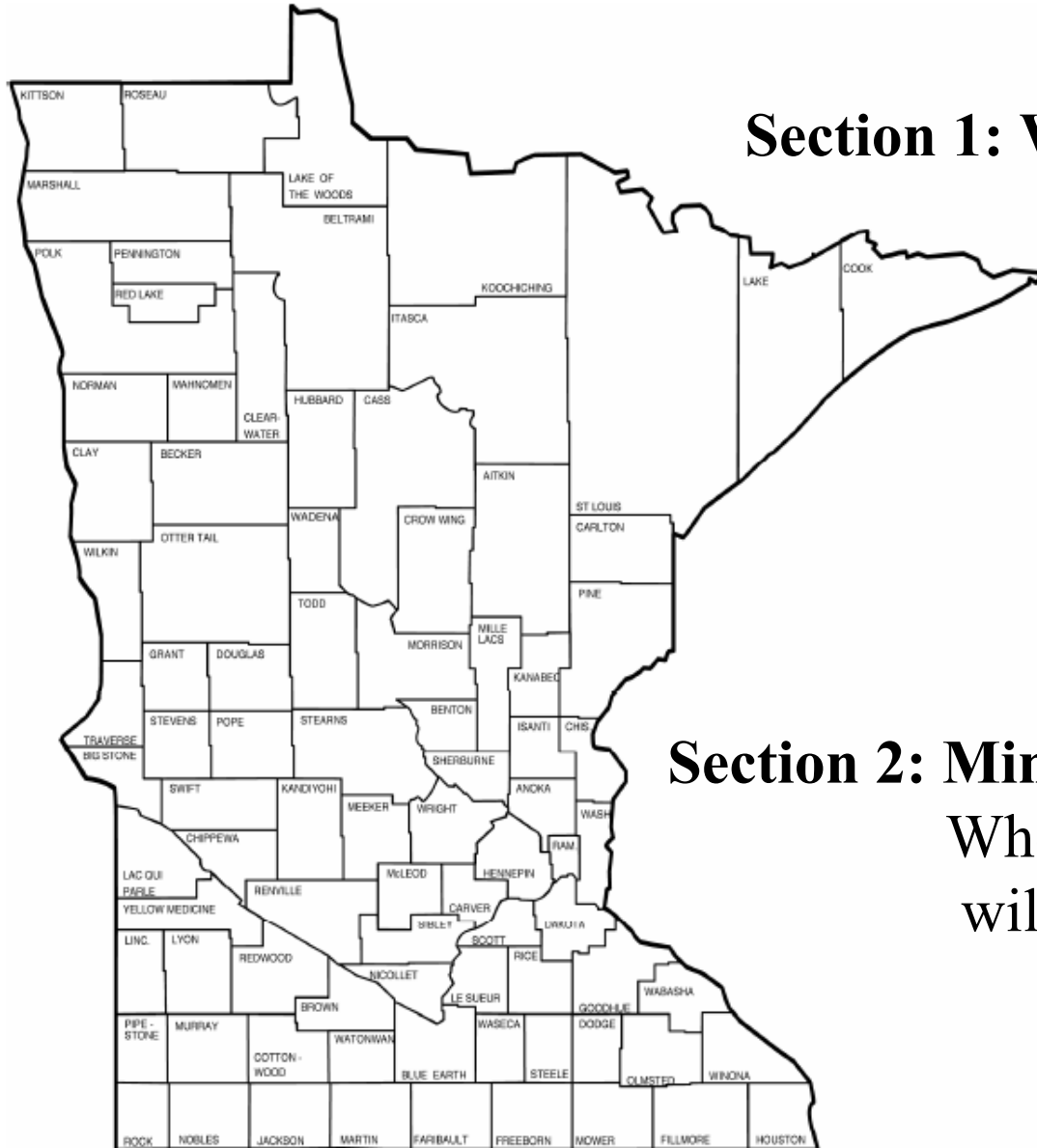
- **High** - WMV files for Windows, playable with the [Windows Media Player](#), for broadband internet connections such as a cable modem or DSL
- **Low** - WMV files for Windows, playable with the [Windows Media Player](#), for lower speed internet connections such as dial-up



Turn to Your Student Guide: Page 36

Section 1: What is Wildfire?

Definition of wildfire



Section 2: Minnesota Wildfire Locations

Where would you predict wildfires to occur?