Fire, Fire, Burning Bright...

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Most of us have fond memories of sitting around a campfire with family and friends, roasting marshmallows, or maybe just staring into the mesmerizing flames...a far cry from the scenes of the catastrophic western fires flashing across our TV screens this past summer and fall.

Fire is one of nature's primary agents of change. It can be both destructive and renewing. Fire is a natural phenomenon that occurs whenever a combustible fuel comes into contact with oxygen at an extremely high temperature. There are three elements necessary for fire to occur: fuel, heat, and oxygen. These three elements make up the "fire triangle." Remove any one of the three and a fire will die or be "suppressed."

No two wildfires ever burn exactly the same because the factors that influence fire are never exactly the same. The factors influencing forest fires include the type, amount, and moisture content of the fuel, the precipitation, relative humidity, temperature, and wind conditions at the time of the fire, and the topography over which the fire burns. In Wisconsin, the number one cause of wildfire is debris burning (such as garbage or yard waste), and nine out of ten wildfires in the U.S. are caused by people.

There are many different types of forest fires that can occur in Wisconsin, ranging from underground "peat" fires to fast moving surface fires (such as grass-fires), and the potentially dangerous and devastating crown fires. Each type of fire has its own characteristics and often a forest fire will be a combination of the different types of fires.

Wisconsin generally has two separate fire seasons during the year: spring and fall. The spring fire season tends to be worse. Day length is increasing, temperatures are warming, relative humidity is low and winds can be strong and unpredictable. The spring fire season lasts from the time the snow disappears to the time vegetation "greens up." The fall fire season is usually shorter. Day length is getting shorter and temperatures are cooling, leaving less time for fuel to dry out. The fall fire season ends once snow covers the ground.

In the spring of 2003, conditions were ripe for a long spring fire season with a high risk of forest fire. The winter was very cold with very little snow. The lack of snow cover led to the frost-line extending down 4.5 to five feet, leading to a later than normal green-up in spring, very dry soil, and dry fuel on the ground. Due to these extreme conditions, there were more than twice the number of fires in Wisconsin in 2003 than in 2002. In 2003, there were 2130 fires which burned over 5000 acres.

Could "western style" wildfires occur in Wisconsin?

Wisconsin has had its share of dangerous and deadly forest fires, most stemming from the early logging practices of the late 1800s and early 1900s. Massive quantities of logging slash were left to pile up over a very short period of time.

Natural decomposition could not keep up with the rapid accumulation of drying slash across the landscape. Conditions were ripe for wildfire and Wisconsin did indeed burn. Between 1870-1930, an estimated 2500 fires occurred annually, burning an average of 500,000 acres a year.

Included in this time period is Wisconsin's deadliest fire, the Peshtigo Fire of 1871, in which over 1200 people died and over one million acres burned. In 1887 the town of Marshfield burned to the ground. Fire burned through Phillips in 1894, burning 100,000 acres and killing 13 people.

Since that time, our knowledge of fire and fire suppression has improved greatly as have our suppression methods and equipment. Our timber management practices have also changed dramatically. The conditions that led to great fires in the late 1800s and early 1900s no longer exist in Wisconsin.

While we still do see wildfires in Wisconsin every year, the acreage burned and loss of life and property have been much reduced. Yet, as we watched the images of the western fires on TV this summer and fall, many people wondered if something like that could happen here.

Many western states have been dealing with drought conditions over the past few years. Some states, such as California, have also had severe infestations of bark beetles. The stress from drought and beetles has killed many acres of trees, leaving stands of dry, dead, and dying trees primed for deadly fire. Past fire suppression policies, including one of "total suppression," has allowed for the accumulation of fuel for fires. The severe topography of mountains, valleys, and ravines out West can create situations where winds can whip up much faster and sustain at much higher speeds than are generally seen here in the relatively flat topography of Wisconsin.

Many western ecosystems, because of the nature of their plant communities, tend to be more flammable and prone to burn every few years as compared to our northern forests. In Wisconsin, our forests of pine and hardwoods are much less flammable and would naturally burn in cycles of hundreds of years.

Wisconsin is blessed with a great abundance of natural sources of fresh water. Natural waterways can serve as a hindrance to fire progress and of course can be used as a source of water to help suppress a fire. In Wisconsin, the places most at risk for fires are those places with well-drained sandy soil and conifer forests such as the Black River Falls and Wisconsin Rapids areas in central Wisconsin, the northwest part of Wisconsin from Grantsburg to Bayfield, and the Marinette area in northeastern Wisconsin.

Impact of fire on our natural resources

While wildfire can be devastating in terms of loss of life and property, fire isn't always a "bad thing" in the natural world. One of fire's main functions in the forest is to rapidly recycle nutrients. Periodic fire can reduce fuel build-up and create a patchwork of burned and unburned habitats.

Many plant and animal species are adapted to surviving and living with fire. Jack pine, a common Northwoods tree, is well adapted to fire. Jack pine cones require intense heat to open and release their seeds. To germinate, jack pine seeds need contact with mineral soil. Therefore, fire favors jack pine by preparing a seedbed, reducing competition from other plants, and aiding in the release of jack pine seed.

The Kirtland's warbler is another species that benefits from fire. Prime habitat for the Kirtland's warbler includes young stands of jack pine (6–23 years). "Prescribed fire is often used to create or regenerate Kirtland's warbler habitat where this species is found.

Prescribed fire is the controlled application of fire to wildland ecosystems. It has become an important tool for both wildlife managers and foresters to enhance and manipulate a variety of habitats. It can be used to prepare sites for reforestation and reduce fuel loads in standing forests to reduce the risk of catastrophic wildfire.

Prescribed fire is used to improve, create, and restore wildlife habitat especially in prairie/grassland areas, open marsh/peatlands, savannahs (such as oak savannahs), and barrens (such as pine barrens) areas. Fire, though sometimes dangerous, can also be a very beneficial part of our natural world.