

FOREST FIRE TRENDS: NORTHERN FOREST TRENDS

**A LONG HISTORY OF BIG FIRES, BUT THE
THREAT HAS LARGELY ABATED**

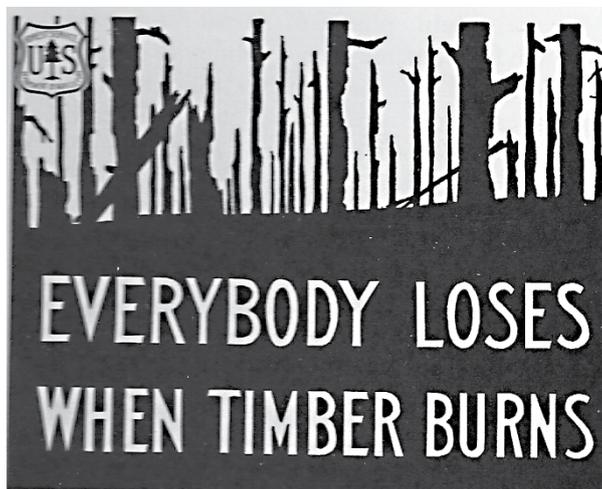
BY LLOYD C. IRLAND

The states of New York, Vermont, New Hampshire, and Maine have been known as the “Northern Forest” states because of conservation interest in protecting the remote forests of this region. This region saw some of the classic fires in the history of the Northeast, such as those in New York and Maine in 1903, and the Bar Harbor Fire of 1947. The states were among the earliest to establish forest fire detection and control systems, to protect the important resource base the forest supplied for the lumber and paper industries. In most of these states, in fact, private landowners took the lead and contributed funds to build fire towers. Maine and New York both claim credit for having erected the very first fire tower in the nation.

In a recently-completed project for the Northeastern Forest Fire Protection Compact, data were assembled on fire occurrence in order to evaluate trends in fire occurrence and risk.

In New York, extreme fire outbreaks of 1903 (464,000 acres) and 1908 (368,000 acres), primarily in the Adirondacks, made the

front page of the *New York Times*. In New Hampshire’s White Mountains, wildfires burning in logging slash produced smoke enough to be noticed in Portland, Maine, 75 miles downwind. Those fires were small compared to the record fires occurring in northern Maine and the Adirondacks during the same period. The official data depict a strong decline in area burned since the early 20th century. In Maine, the largest fires since 1967 occurred before 1978; and there has been no fire larger than 1,000 acres since 1984. Except in Maine, however, the number fires in the region has not been declining in recent decades.



Civilian Conservation Corps fire poster from the 1930s.

The northern hardwoods type is generally viewed as virtually fireproof. It comprises 56 percent of New York’s forest, 52 percent of New Hampshire’s, and 41 percent of the forested area in Maine. Vermont has the highest percentage, at 71 percent, and also, probably not coincidentally, the lowest incidence of fire.

Measures of extreme behavior in annual forest fire area burned.

	20 year average 1,000 A.	20 Year Return Period 1,000 A.	Ratio of Peak to mean	Percent of area burned in top 5 yr
Maine	1.3	8.0	11.0	34
New Hampshire	0.2	1.7	23.7	34
Vermont	0.3	1.0	4.8	22
New York	2.1	14.0	3.8	33

In the 20 years prior to 2010, total area burned in these states averaged only 4,000 acres. Yet the averages conceal considerable variability. The



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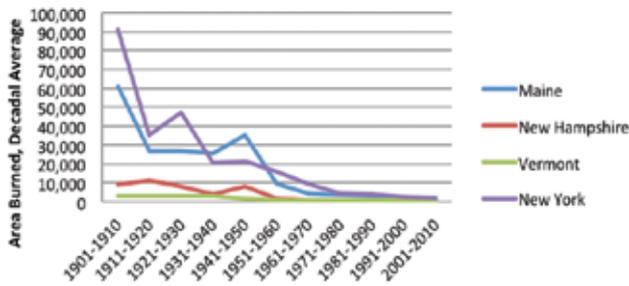
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Northern Forest States, Area Burned, Decadal Averages



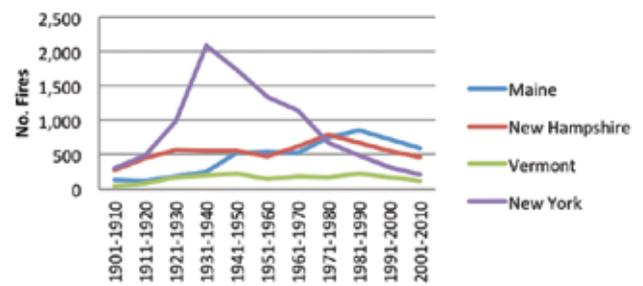
peak years for area burned were far above the averages (see table). The peak level of area burned that can be expected on average, every 20 years, is also a multiple of the 20-year averages. But the public expects the system to handle the peaks, not just the averages. Witness the finger-pointing and recriminations after Hurricane Irene and Superstorm Sandy over who was unprepared for those events.

Fire detection and control has evolved over the years, relying on new technologies. In the early '50s, Maine operated 77 fire towers and maintained a force of more than 500 fire rangers. The ubiquitous fire towers are now almost gone, many retained only for hikers to view the landscape.

Causes

While the states vary, the pattern of change in fire causes for

Number of fires, Decadal Averages, 1900-2010



Ranger fires in New York gives us our longest dataset. In New York, reported Ranger fires fell by 40 percent from 1975 to 2002-2011, but campfire caused fires did not change. They accounted for 40 percent of the reported fires in the latter decade. Due to improved enforcement on permits, debris burning fell by half. Analyzing fires by cause is hazardous since there is always a significant number whose cause cannot be determined. Arson fires fell in numbers, but remained among the largest fires in terms of size.

In this region, lightning fires are among the smallest contributors to fire numbers, but fire control staff watch lightning strikes closely, often aided by real time satellite imagery.

Sprawl

A review of the forest fire occurrence in New Hampshire showed that in the footprint of the 1947 fires, it was found that 11 towns had fires exceeding 100 acres in 1947. The largest was 7,200 acres in two towns. In the 2010 Census, these towns (not just the fire footprints) had total population of 110,000 people. Is there something about fire-prone areas that attract people? If this study were replicated in the other states, similar results would no doubt be found. Interestingly, the top three counties in terms of area burned from 2001 to 2010 relative to their forest area were the three densely populated southeastern counties.

States are making progress conducting Firewise surveys to identify communities that need help in fuels reduction and advising on fire-safe construction and property maintenance practices, but the job is huge. The very low occurrence of fire in recent decades has engendered complacency.

These charts show the fires reported by the state agencies. Yet the states do not have initial attack responsibility everywhere, and may report only fires in which they are involved. This can lead to misperception as to the frequency of woodland fires. Other sources of fire data are difficult to use, but in New York, a state a significant portion



When you log in northern Maine, you can be very isolated and the downtime can be multiplied by the "isolation" factor. So, why would you need anything other than tough and reliable equipment?

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Time for a new fire truck?

of the state is under local “home rule” for fire control. From 2000-2009, there were 34,000 total fires reported as wildland and outdoor fires by all departments; the “Ranger fires,” handled by the state, accounted for only 2,000 of these. Most of the 34,000 fires were very tiny and not in rural areas. The lesson, though, is that there is more fire out there than we think. Many of these tiny fires could become significant forest fires under severe weather conditions.

The era of massive wildfires in the North Country is over. Even in the regional 1947 fire outbreak, and in the fires of the 1961-65 Great Northeastern Drought, the northerly forests did not burn. But fire is not yet fully stamped out in the areas being affected by suburban and exurban growth. In many small towns (I live in one), fire chiefs are not always in the loop when it comes to making sure new subdivisions are designed for fire safety and for effective fire control. Increasingly, though, communities in high fire risk areas are alert to the issue and are taking action.

Maintaining strong fire services is challenging in these difficult times. A program is essentially an insurance policy against the extreme year or the extreme fire. The worst fire years account for a large share of the total damage. The low level of fire in recent decades has many causes--it would take a very long article to discuss them all--but concerns remain. First, scientists do not know why recent weather patterns have been as they are. There is no reason why we could not experience another Great '60s Drought. Also, fire numbers are not declining. Further, the wholesale departure of paper companies from the region has reduced equipment availability in the woods, and the mechanization of logging means fewer fire-savvy people who can quickly reinforce firefighters. Also, state fire professionals observe that our systems for “mutual aid” have become more creaky and less able to respond to needs. Already, in many places, we are assuming that if we need help, someone else will be there for us. Over much of this region, local volunteer departments are the first responders. In my town of about 1,300 people, the volunteer fire chief says it's harder and harder to recruit and retain volunteers. Is mine the only town where this is so? Ask your own fire chief.

Today, fire towers are valued as observation platforms to view the scenery; fire detection methods have moved on. While the



Thinning project for fuels reduction to restore natural condition and protect adjacent development, TNC Ossipee Barrens property, New Hampshire.

sheer area directly affected by wildfire is low, the need for prevention, preparation and alertness has not changed.

See an excellent article by Kristen Fountain, “On the lookout: history of fire towers in the Northeast. In *Northern Woodlands*, Autumn 2012.

See also the nice brochure at http://www.dec.ny.gov/docs/lands_forests_pdf/catskillsfiretower.pdf

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