

1981
Simard

The Mack Lake Fire

24,790' A.

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It was Monday, May 5, 1980. The skies were clear over the Huron National Forest in northeastern Michigan. The plan for the Crane Lake prescribed burning unit called for the establishment of 210 acres of habitat favored by the endangered Kirtland's Warbler. After a final check of weather conditions was made, firing started at 10:25 a.m. There was some "spill-over" as firing progressed, but spot fires had been anticipated and were quickly controlled. Around noon, however, the fire jumped into standing timber and quickly ran east toward Highway 33. When it reached the highway, it torched and then spotted 200 feet across to the east side of the highway. Thus began the Mack Lake fire.

A tractor-plow unit attacked the escaped fire east of the highway within 3 minutes of detection, but to no avail. The fire torched in some reproduction, dropped to the ground briefly in a patch of mature timber, then crowned in a stand of jack pine saplings just 100 feet from the highway. The operators of a 6x6 tanker unit who caught and passed the tractor later reported that, despite progressing at 4 to 6 miles per hour, they never saw the head of the fire.

While working the north flank about one-half mile east of Highway 33, the tractor was caught between a crown fire burning northward across its path and a second eastmoving crown fire that had crossed the plow

line behind the tractor. The operator was trapped and killed in the fire.

At this time, the main fire front was advancing eastward at 2 miles per hour (160 chains per hour). This partially resulted from spotting at least a quarter of a mile ahead of the fire. One hour after the fire had escaped, walls of flame 30 to 50 feet high passed through the town of Mack Lake, 2 miles east of the escape. Like so many other large fires, it destroyed many homes while leaving other neighboring houses unscathed.

Three hours after the fire escaped, it had advanced 6 miles. During the afternoon of May 5th, no amount of line or width of road held or slowed the fire. That afternoon the fire released the energy equivalent of 340,000 barrels of oil, or six times the energy of the Hiroshima atomic bomb.

At 4:30 p.m., a frontal passage brought the usual north wind shift but no rain. By 6 p.m., the fire had advanced an additional 3 miles (about 1 1/4 miles per hour). Because of the wind shift, however, the fire front had expanded from 2 to 6 miles wide and was now advancing southward. At this time, firefighters got their first major break—the fire ran out of jack pine. Although the wind did not diminish during the evening and the nighttime relative humidity did not rise above 55 percent, the forward rate of advance dropped to about 7 feet per minute (5 chains per hour) as the fire

burned through hardwood stands.

By daybreak on May 6th, major control efforts were underway. In contrast to the previous day, firefighters experienced little difficulty containing the blaze. The perimeter did not change appreciably after May 5th.

Environmental Conditions

What were the environmental conditions that led to the Mack Lake fire, which took one human life, destroyed or damaged 41 dwellings (including 39 summer homes) and consumed 20,000 acres of jack pine in less than 6 hours?

Weather.—There was no indication of drought condition at the time of the fire. Total precipitation from January 1979 through April 1980 was near normal. Spring fire danger had been erratic. Except for 2 days of moderate danger, it was either too wet to burn (14 days) or the burning index was high to very high (19 days). Although 0.7 inch of rain fell on April 30th, midafternoon relative humidities on the 3 days before the fire averaged only 23 percent. As a result, fine fuels had dried completely since the rain. Conditions at 2 p.m. on May 5th were: Temperature, 82° F; windspeed, 18 miles per hour (gusting to 25+); and relative humidity, 22 percent.

Fuels.—The fire made its major run in stands of jack pine that had regenerated after a 16,400-acre fire that burned the same area in 1946.

