

# THE 2002 HOUSE RIVER FIRE

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The House River Fire raged out of control for almost a month, from May 17 to June 7, 2002, consuming about 613,000 acres (248,000 ha). As the second largest wildfire to hit Alberta, Canada, since 1961, the House River Fire influenced how large fires would subsequently be managed in the Province.

## The Weather

For almost a year before the fire, Cold Lake, Alberta, suffered from drought. The area received only 56 percent of the 30-year average pre-

Driven by strong southeast winds and low relative humidity, the House River Fire was a classic spring boreal fire.

cipitation. The forecasted Drought Codes\* (300 to 424) for April 1 suggested that Alberta was in for a bad fire season.

Spring wind-driven fires in the boreal forest pose unique challenges for fire managers. Little or no nighttime recovery usually results

Due to the early spring fire hazard, Alberta's Department of Sustainable Resource Development, for the third consecutive year, declared an official start for the fire season 1 month early, on March 1.

## Fire Behavior

When the House River Fire was reported at 3:50 p.m. on May 18, 2002, the Department of Sustainable Resource Development immediately dispatched air tankers. By 4:15 p.m., the fire's intensity had exceeded the capability of the initial-attack resources.

The House River Fire was a classic boreal fire driven by spring winds. When the gusty southeast winds arrived at noon on May 18, the fire blew up. The winds fanned the blaze through the night and into the third day. By then, the House River Fire had traveled 43 miles (70 km) and burned about 148,000 acres (60,000 ha).

The enormity of the fire and its long, narrow shape (fig. 1) challenged efforts to construct control lines along the perimeter, and to communicate effectively. An area command structure was therefore established using four incident command teams aligned geographically. Incident command teams were located on the north and south perimeters and east of the fire, and the hamlet of Conklin hosted a community protection team.

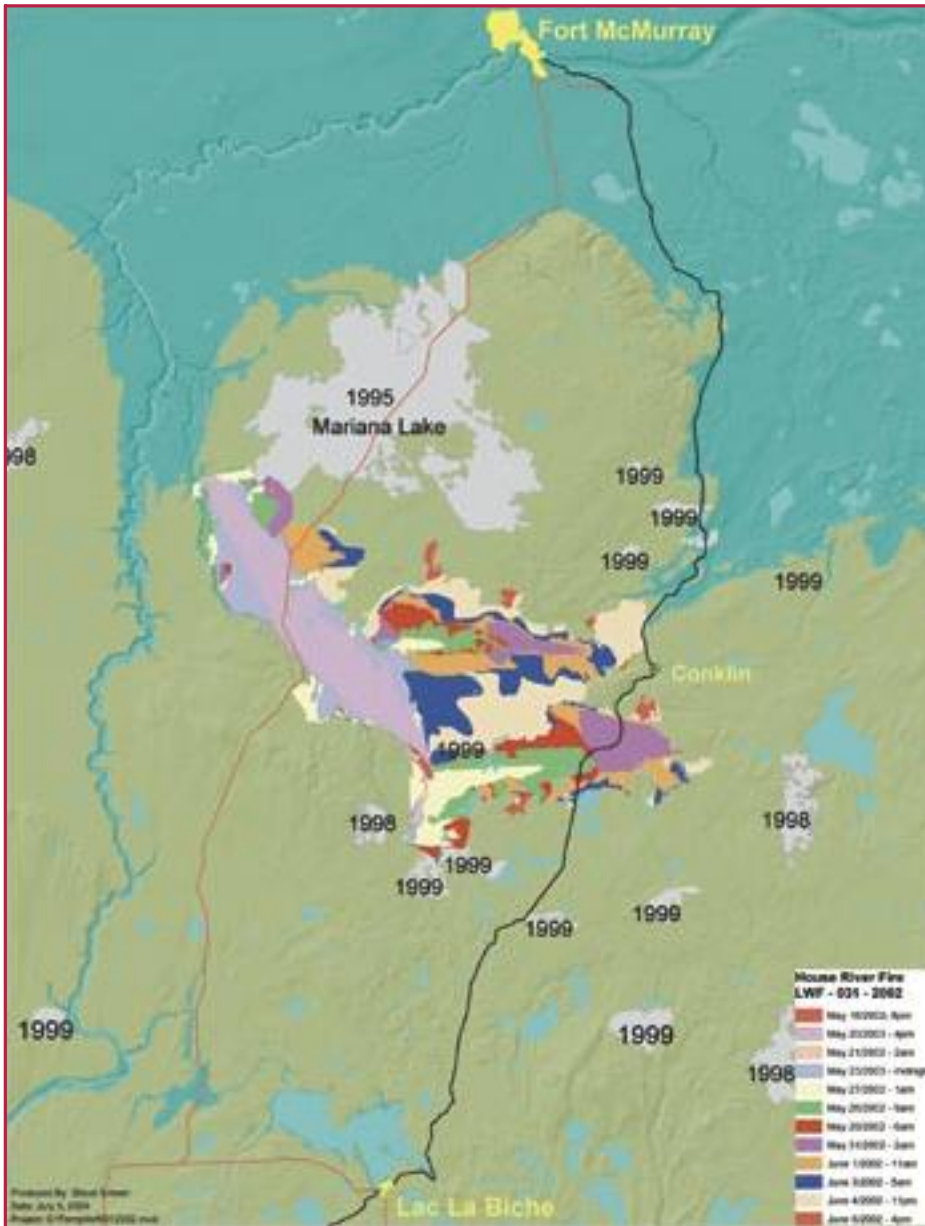


The House River Fire racing up a hill near Base Lake, Alberta. Photo: Shawn Mihne, Department of Sustainable Resource Development, Fox Creek, Alberta, Canada, 2002.

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\* Drought Code is one of the fuel moisture code outputs from the Fire Weather Index subsystem of the Canadian Forest Fire Danger Rating System.

in active burning throughout the evening. Frozen lakes limit the use of amphibious air tankers, and the lack of "green-up" increases the potential for extreme fire behavior, particularly in mixed-wood stands. High crowning potential also occurs during spring, when needle moisture content is low.



**Figure 1**—Origin and daily progression of the House River Fire. Wind-driven fire runs, typical of Alberta's springtime boreal fires, account for the long, narrow shapes. Illustration: Department of Sustainable Resource Development, Edmonton, Alberta, Canada, 2004.

Suppression efforts included the aerial ignition of strips along the flank of the fire (fig. 2). Five aerial ignition specialists worked on the fire—a record number. They conducted extensive burnout operations utilizing linear disturbances on the landscape, such as seismic lines.

Despite shifting winds, both direct and indirect fire suppression efforts were succeeding. Then, on May 28, a strong west wind began to blow. The regional municipality

of Wood Buffalo declared a state of emergency and evacuated the community of Conklin.

### Community Protection

Firefighting forces worked hard to protect Conklin. Dozers built control lines west and south of Conklin, applied backfires, and used sprinklers to protect structures. The fire command organization worked in collaboration with the regional municipality of Wood Buffalo to

The House River Fire renewed emphasis on fire prevention, education, and community relations.

manage the efforts of multiple agencies, government departments, and industry partners to meet the fire's threat. Good coordination helped to safely evacuate Conklin residents and protect their property.

Although the Alberta Department of Sustainable Resource Development is responsible for suppressing wild-fires within its forest protection area, the regional municipality of Wood Buffalo is charged with protecting structures in Conklin. Because authorities overlapped, a unified command was established in Conklin; and, for the first time, the incident command team included a wildland/urban interface coordinator.

The House River Fire prompted the first springtime boreal forest closings ever issued in Alberta. Highway closures also occurred. The fire command organization issued permits to employees of forestry, oil, and gas industries traveling within the closed areas. To facilitate communication, an industry liaison was added to the fire command organization. The new position was so effective that incident command teams on Alberta's large fires now routinely have one.

### Lessons Learned

The successful evacuation and protection of the community of Conklin during the House River Fire were largely due to lessons learned after the 2001 Chisholm Fire, which burned about 287,000 acres (116,000 ha) and destroyed 10 homes. An independent review committee

identified the need to improve planning and communications between agencies, strengthen community protection, and enhance strategies to reduce the occurrence and impact of large fires.

With each large fire, the Alberta Department of Sustainable Resource Development has learned that effective communication with clients, partners, stakeholders, and the public is essential. Adjustments and modifications to improve communication and use innovative communication tactics are continuously made. On large complex fires, it is important to delineate responsibilities clearly—all partners need to understand their respective roles and responsibilities.

Another important lesson was the value of establishing a unified command center. The center in Conklin helped coordinate the shared responsibilities for community protection. A unified command allows

urban and rural fire protection resources to work together toward a common goal. Establishing a center for emergency operations is also an important communication link for exchanging information between stakeholders and for identifying any issues requiring immediate resolution.

Incident command teams on the House River Fire utilized a beta version of *Prometheus*, a spatially explicit wildland fire growth simulation model designed to work in Canadian fuel complexes. The “what-if” scenarios produced by *Prometheus* helped firefighters assess the potential threat to structures and other values and provided support for aerial ignition specialists. Based on the House River Fire experience, the model received many enhancements and changes.

### What's Next?

The House River Fire cost approximately \$49.3 million, the

most in Alberta's history. About \$343 million worth of merchantable timber burned.

Because large fires are so costly, fire managers use financial and standard operating procedure audits to control costs and innovative technologies to provide better decision support. Incorporating FireSmart\* practices and principles within communities in cooperation with community stakeholders has also become a strategic priority for Alberta's Department of Sustainable Resource Development.

The Department is striving to find better ways to manage large, complex wildfires effectively and efficiently. The 2002 House River Fire challenged managers and provided an opportunity to implement innovative ways to reduce fire damage. ■

\* FireSmart is the Canadian equivalent of Firewise. For more on FireSmart, see <http://www.partnersinprotection.ab.ca/spot/news.shtml>.



**Figure 2**—A 9-mile (14-km) line on the southeast flank of the House River Fire near Logon River was ignited by aerial ignition specialists. The burnout operation took advantage of an existing linear disturbance from a seismic line created by Alberta's oil and gas industry. Photo: Shawn Milne, forest officer, Department of Sustainable Resource Development, Fox Creek, Alberta, Canada, 2002.