
# FIRESTARTERS

## ALTHOUGH NOW AN INTEGRAL PART OF WILDLAND FIRE FIGHTING, THE SUCCESS OF THE HELICOPTER IN BATTLING WILDFIRES WASN'T ALWAYS SO OBVIOUS.

by Bob Petite

Whenever a forest fire breaks out today, one of the first means of initial attack is rotary-wing aircraft. The helicopter has proven to be a valuable tool in forest fire control, transporting firefighters, moving cargo and equipment, dropping water and retardant, flying reconnaissance and observation missions, performing helitorch aerial ignition work, long lining, and simply providing up-to-date fire line information to the incident commander/fire boss.

**TOP** The Bell Model 47B was the world's first production, commercial helicopter and was used in fire fighting

**OPPOSITE** Forest protection supervisor Jack Dillon experiments with a water nozzle in a Bell 47D-1 owned by the Ontario Department of Lands and Forests around the early 1950s. The pilot is Shorty Ferguson. **Ontario Ministry of Natural Resources Photo**

### THE BEGINNINGS

The curious and historically inclined among us are likely asking the question: When were helicopters first used in forest fire protection?

To answer that, one has to travel back to just before the end of the Second World War. At the time, Sikorsky had produced military helicopters for the United States Army Air Forces, the U.S. Coast Guard, the U.S. Navy, and the British Royal Navy. In total, prior to V-J (Victory over Japan) Day on Sept. 2, 1945, Sikorsky had delivered 131 R-4s, 65 R-5s, and 219 R-6s.

While military forces were discovering the value of helicopters, many forestry organizations were following the development of rotary-wing ships.

On June 15, 1943, Frank MacDougall, deputy minister of the province of Ontario's Department of Lands and Forests (DLF), asked George Ponsford, chief of the Provincial Air Service, to commence negotiations with the federal Department of Transport. MacDougall wanted to find out if the Ontario government could purchase a helicopter for experimental purposes in wildfire operations to work out practical problems for post-war forestry work. On July 1, 1943, the federal Department of Munitions and Supply told

Ponsford, "There was no possibility whatever of your being able to procure a Sikorsky helicopter at an early date. All production on that ship is booked for military needs for a long time ahead."

Meanwhile, two months later, during September 1943, the British Columbia Forest Service looked at the practicality of using helicopters for moving firefighters into lightning fires in the mountains.

By summer 1945, the DLF was still interested in obtaining helicopters for testing in fire fighting operations. And though Ponsford's opinion was that the helicopter was still a long way from perfection; when developed into a safe, reliable and useful aircraft, it would have wide application.

Ponsford went ahead and contacted the United Aircraft Corporation, Sikorsky Aircraft Division, in East Hartford, Conn., on Aug. 24, 1945, as to whether helicopters would be suitable for the Provincial Air Service's operations. Sikorsky replied on Oct. 2, 1945: "With the war's conclusion, we are preparing to market at an early date a modified version of the military R-5, which will be suitable for many commercial applications. The helicopter undoubtedly will be used for the specific operations you mention. Preliminary specifications and performance data should be released in the near future."

## CHANCE OCCURRENCE

A few months later, in April 1946, The U.S. Forest Service and other forestry agencies in California had the opportunity to view a U.S. Army Air Forces' Sikorsky R-5 in fire fighting operations. Two foresters from the B.C. Forest Service also attended the demonstration. The general opinion, unfortunately, was that the R-5 was not developed enough for general fire fighting use, having limited capacity and range, and very high costs at the time.

The focus then shifted to the Bell Aircraft Corporation in Niagara Falls, N.Y. Bell, which, even before it certified the world's first commercial helicopter model, the Bell 47, on May 8, 1946, had been looking at using helicopters in forest fire control.

Hans Lundberg, a geophysicist with the Lundberg-Ryan Air Exploration Company in Toronto, Ont., had leased a Bell 47 pre-production prototype direct from Bell Aircraft in June 1946 to test out an experimental magnetometer on mineral surveys. The magnetic survey took place in northern Ontario near Sudbury, at the Frood Mine owned by the International Nickel Company (a.k.a. INCO).

By chance, Jack Dillon, forest protection supervisor for the Sudbury district of the DLF was watching overhead as Lundberg's Bell 47 flew near a forest fire on which he was fire boss. The stubborn fire had been causing control problems for Dillon; but, upon seeing Lundberg's ship (flown by Bell experimental test pilot Gerald [Jay] Demming), he instantly recognized this new type of aircraft would be perfect for viewing and observing what the fire was doing and where the problem areas were. In fact, he watched the helicopter as it flew away from the fire and drove over to locate where it had landed to find out if he could obtain its service on the wildfire.

Arrangements were made to use the helicopter for two hours, free of charge through the auspices of Bell Aircraft

**BELOW** The Sikorsky R-5 was developed for the U.S. Army Air Forces as a military observation helicopter. The two-place crew was seated in tandem, with the observer up front ,ahead of the pilot.
**Sikorsky Aircraft Photo**

**BOTTOM** The preproduction Bell 47 NR-2H was leased from Bell Aircraft for a geophysical magnetometer survey in northern Ontario by the Lundberg-Ryan Air Exploration Company in June 1946. This aircraft was used by the Ontario Department of Lands and Forests in the first use of a helicopter in forest fire control.
**Bell Helicopter Photo**

and the International Nickel Company. So, on June 26, 1946, the first-ever flight in all of North America that used a helicopter in forest fire control occurred. Dillon was able to recon the entire fire perimeter with ease and had the helicopter land near a problem area.

## THE MOVE FORWARD

The second use of a helicopter on a forest fire took place on July 12, 1946, in Alaska. The Alaska Fire Service was able to make use of a military Sikorsky R-5A for reconnaissance on a fire. Army pilot Owen Q. Niehaus flew the R-5A on five trips from Ladd Field to the fire area, 35 miles southeast of Fairbanks, where he logged just over four hours flight time.

The U.S. military then assisted on a wildfire in the Angeles National Forest close to Castaic, Calif., between Sept. 9 and 10, 1946. A Sikorsky R-5 from March Field near Riverside was used to scout and map the Red Rock Fire perimeter, with forest engineer George Reynolds aboard. Later, fire equipment was dropped from the helicopter to waiting ground crews.

The first comprehensive use of helicopters on forest fire control also took place in the Angeles National Forest, during the Bryant Fire in the Big Tujunga Canyon in 1947. Forestry officials were still uncertain of the capabilities of the helicopter, due to results of earlier experimental tests, but decided to contract with the Armstrong-Flint Helicopter Company in Los Angeles to supply two production Bell 47Bs for fire fighting duties on Aug. 6, 1947. Armstrong-Flint was one of the first commercial helicopter operators in California, purchasing helicopters from Bell in February 1947. Second World War pilots Knute Flint and Fred Bowen flew the Bell 47Bs.

The Bryant Fire covered 2,200 acres and measured 11 miles around the perimeter. There were over 750 fire personnel to equip, feed and direct.

Meanwhile, priorities needed to be established for flight co-ordination of the helicopters; and mission orders had to be cleared through the chief of staff. Before long, an air operations section was formed.

The first helicopter flights on the Bryant Fire involved scouting and mapping the progress of the fire. Over the next two weeks, though, the more unique abilities of the helicopter were demonstrated, as the two Bell 47Bs flew: hundreds of firefighters and overhead officials; reconnaissance and scouting missions: evacuations of sick and injured firefighters; and loads of equipment into and out of the fire.

In 15 days, the helicopters logged over 92 operational hours, and demonstrated many advantages. Intelligence on the fire's progress was detailed and up to date due to frequent reconnaissance flights. Bulldozer line construction potential was scouted. Transportation of firefighters to the fire line allowed them to be fresh and ready to work as they did not have to walk in. Personnel could be hot-spotted to fire areas needing immediate attention. Tools, equipment and food could be rapidly delivered to the fire line. Key fire-line personnel had the opportunity to familiarize themselves with their assigned areas along the perimeter. And, finally, experienced forestry staff could patrol by helicopter, watching for potential hot spots.

While the U.S. Forest Service's fire research division chief, A.A. Brown, wasn't convinced helicopters were ready to be fire fighting's savior, he could see their incredible future. In Jack C. Kern's *First Extensive Use of the Helicopter in Forest Fire Control*, Brown said: "It is perfectly clear that the helicopter's present development stage does not permit its unrestricted use in fire control work. . . . Even with the promising performance on the Bryant Fire, much research and flying experience must yet be logged before this amazing machine can be adopted as a full-fledged tool in forest fire control. A complete safety program must be established and tested, coupled with the continued pioneering . . . ." But he then added, "The helicopter will revolutionize our whole concept of forest protection and management."

From its humble beginnings in a fledgling industry, helicopters soon found a new market niche in performing jobs on forest fire control that could not be done by other aircraft. Today, one cannot even think of wildfire management without thinking about helicopters.

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