

# Fire Towers: Fifty Years of Early Detection and Fire Protection

Fire Towers have always been surrounded with mystique and romance. Nearly a half-century since the last fire tower was staffed on Monongahela National Forest, the vision of the lone sentinel perched high above the forest in a remote tower intently scanning the horizon for smoke still lingers.

For 50 years, from Monongahela National Forest's establishment in 1920 until the 1970s, the Forest relied heavily on a network of forest guards, fire patrolmen and local civilian cooperators (known as fire wardens) to detect, contain and extinguish wildfires. Fire towers, and the forest guards who acted as lookouts, were the first line of defense in an early warning system devised to protect the forest from wildfire.

Monongahela National Forest's first tower, Backbone Tower, was inherited from the State of West Virginia not long after its completion. The tower was constructed in 1922 atop Backbone Mountain between Thomas and Parsons. The all-metal tower and cab sat on top of a large rock that gave a view of the surrounding Cheat River valley and Blackwater Canyon region. The lookout staffing the tower lived in a small cabin at the base of the rock.



Built in 1936, Sharp Knob Tower on the Gauley Ranger District was the epitome of the classic US Forest Service fire tower. Here, the tower is seen on a windy day in 1947. (Photo courtesy National Archives).



Backbone Fire Tower and living quarters cabin, Tucker County, West Virginia, 1935 (USDA Forest Service photo).

The Canaan Mountain Lookout southwest of Davis on Canaan Mountain was the first fire lookout to be built by Monongahela National Forest. Canaan Lookout was not a tower, but instead was a wood framed, live-in cabin with wrap-around porch built on top of a large rock. At the time of its construction in 1924, the mountain where the lookout was built was largely denuded and offered an exceptional view of the surrounding countryside.



Canaan Mountain Lookout, Tucker County, West Virginia, circa 1927 (USDA Forest Service photo).

Between 1928 and 1931, four additional fire towers were constructed to help detect wildfires. Mozark Mountain Fire Tower, on the Cheat Ranger District, and Smoke Camp Fire Tower, on the Greenbrier Ranger District, were both constructed in 1928. Gatewood Fire Tower was constructed not far from Spruce Knob, the highest point in West Virginia, in 1930 at a cost of \$1,495.05 (roughly the equivalent of \$23,157 in 2020). The thirty-foot tall Dolly Sods Tower was completed in 1931, not far from the present day Dolly Sods Picnic Area, for \$2,019.50.

However, the greatest period of fire tower construction on the Monongahela occurred between 1933 and 1945 with the addition of 13 fire towers. Civilian Conservation Corps (CCC) members constructed nine of the 13 towers during the height of the Great Depression's "New Deal" programs started under President Franklin D. Roosevelt. These towers included: Bickle Knob Tower (1933); Red Oak Tower (1934); Paddy Knob Tower (1934); North Mountain Tower (1935); Hopkins Knob Tower (1935); Sharp Knob Tower (1936); Gaudineer Knob Tower (1936); Red Spruce Tower (1940); and Mikes Knob Tower (1941).





Lookout climbing newly completed Bickle Knob Tower in 1933. Bickle Knob Tower was the first fire tower built by the Civilian Conservation Corps on Monongahela National Forest (Photo courtesy National Archives).

To increase wildfire protection in the northern half of the Forest while the U.S. Army trained soldiers in the West Virginia Maneuver Area (WVMA), four additional fire towers were erected on the Cheat and Potomac Ranger Districts in 1943 and 1944. Bearden Knob Tower, on the Cheat Ranger District, was erected in 1943 to replace the obsolete Canaan Mountain Lookout, which was dismantled in 1946. The U.S. Army's 13th Corps paid to have the Dolly Sods tower dismantled and moved several miles north to Bell Knob in 1943. At its new location, Bell Knob Tower aided in the detection of wildfires within the army's live fire range in what is now Dolly Sods Wilderness. Two other fire towers were built in 1943 and 1944 using military funds associated with the WVMA: Niges Cliff Tower and Pigeons Roost Tower. The USDA Forest Service transferred ownership of these two fire towers to the State of West Virginia in 1944 and 1948.

The post-World War II period saw a dramatic decline in the number of new fire towers constructed on Monongahela National Forest. Due in large part to an adequate number of already existing towers and

introduction and growing reliance upon aerial reconnaissance for wildfire control in the 1950s, only three towers were added to the Forest between 1948 and 1964. These three towers, Beaver Lick Tower (1948), Olson Tower (1963), and Red Oak Tower (1964) are the last operational fire towers either built by or transferred to Monongahela National Forest.

Beaver Lick Tower was built by the State of West Virginia on a narrow rocky outcrop on Beaver Lick Mountain east of Watoga State Park in Pocahontas County. This tower was transferred to the Monongahela November 15, 1948. Beaver Lick's all metal cab sat atop a short metal tower, approximately 25 feet tall, making it one of the shortest fire towers on the Forest.

Two of the tallest towers built on the Monongahela, Red Oak and Olson towers, replaced two previous towers whose viewsheds had become obstructed by growth of the surrounding forest. At over 100 feet, Olson Tower is the tallest federal fire tower still standing in West Virginia. It was built on Backbone Mountain in Tucker County, not far from the national forest's first fire tower, Backbone Tower.

At 80 feet tall, Red Oak Tower is the second tallest on the national forest and the youngest fire tower still standing on the national forest. Red Oak Tower was erected in 1964, replacing an earlier 1930s, CCC-built, wooden cab fire tower of the same name. The modern Red Oak tower is based on a regional architectural design style (CL-100 series) more common to California and Arizona. The tower features an all metal tower and 14 x 14-foot live-in metal cab with wrap around catwalk—the most spacious on the Monongahela.

Two types of towers were constructed on Monongahela National Forest. A small, usually 7x7 feet metal cab atop a metal supporting structure with living accommodations on the ground in the form of a nearby cabin or a larger wooden or metal cab structure, usually 12x12 or 14x14 feet, atop a supporting structure that served as both observatory area and living quarters. The all-metal tower and cab designs were assembled from kits, most commonly manufactured by either Aermotor Company or International Derrick Company, and shipped to the site for assembly. While the majority of towers on the Forest were constructed of metal towers with wooden cabs, a few, like Bearden Knob, Niges Cliff, Pigeons Roost towers, were constructed entirely of wood timbers. Lookouts stationed in these wooden towers often recalled the unnerving swaying movement of the towers during high wind events.



Photographed following its construction in the fall of 1964, the new 80-foot, all-metal, Red Oak Tower (left) dwarfed the adjacent 1930s, CCC-built, Red Oak Tower (right) (USDA Forest Service photo).



Most Monongahela National Forest towers were named for the high point or mountain on which they were built. Two towers were dedicated to Monongahela National Forest employees. On July 5, 1937, a fire tower and high point on Cheat Mountain near the Randolph and Pocahontas county line were dedicated in honor of forest ranger Don Gaudineer. Gaudineer and his three daughters died tragically in an early morning house fire April 28, 1936, in Parsons, West Virginia. The CCC-built tower was dedicated by the late ranger's widow, Mary, and a throng of Monongahela staff in tribute to the fallen ranger.

Olson Tower was named in honor of Ernst B. "Pete" Olson, a popular long time employee of the Monongahela National Forest who served as the fire control assistant for the Cheat Ranger District. Olson died November 12, 1961 from injuries sustained in a car accident that occurred near the district office in Parsons. The 100-foot fire tower, overlooking Blackwater Canyon and the Cheat River valley, was formally dedicated at a ceremony held at the tower site September 29, 1963.



Olson Tower photographed July 1963, shortly before its dedication. Olson Fire Tower cab sits on a 100-foot tower, making it the tallest fire tower on Monongahela National Forest; tied with West Virginia Division of Forestry's Point Mountain Fire Tower in Webster County.

Every fire tower was fitted with a large alidade to accurately pinpoint wildfires by azimuth and distance readings. The Osborn Fire Finder was the most common alidade used. In an Osborn, a topographic map of the area was oriented and centered on a horizontal table that had a circular rim marked in degrees, like a compass. Two sighting apertures were mounted above the map on opposite sides of the rim. When sighting a “smoke” lookouts moved the rear sight until s/he could peek through it and see the wildfire in the cross hairs of the opposite sight. Then the lookout noted the degrees on the graduated ring beneath the sight and communicated with other nearby towers to triangulate the location of the wildfire.



Interior of Mikes Knob Tower showing lookout Charles Dobson using his Osborne Fire Finder to spot a smoke in April 1946 (USDA Forest Service photo).

Fire tower lookouts communicated with district offices over miles of telephone lines, many built by the CCCs in the 1930s. Forest Service telephone lines were among the first to be built in remote rural areas, creating a critical network of lines linking towers, district ranger stations and fire warden homes. In 1941, the Forest maintained over 728 miles of Government-owned telephone lines. In the 1940s and 1950s, the use of portable short-wave radio sets reduced reliance on telephone lines and vastly improved

communication between towers and responding wildfire crews. Radios also allowed towers to communicate with aerial spotter aircraft and tankers as they became more widely used to detect and fight wildfires in the late 1950s and 1960s. By 1970, the Monongahela had transferred ownership of all but six miles of its lines to local telephone companies.

National forest lookouts often coordinated wildfire detection efforts with fire towers maintained and operated by the State of West Virginia. Once smoke was spotted, federal and state lookouts teamed together to triangulate the location of the wildfire. In 1952, Monongahela National Forest had 17 towers in service across Forest. State towers included Michael Mountain, Hinkle, Brushy Mountain, Rich Mountain, Bald Knob, Point Mountain, Thorny Mountain, Cottle Knob, High Top, Barton Knob and Manning towers. Barton Knob Tower, located within Monongahela National Forest on Cheat Mountain, was built in the mid-1920s and maintained throughout its life as a state-owned tower. After it was decommissioned and abandoned by the state, Barton Knob Tower came into federal ownership. Today, the old tower stands as a reminder of the early 7x7-foot all-metal cab and tower designs.

By all accounts, working in a fire tower was a lonely job whose calm could be punctuated by moments of intense excitement. Although in some Forests women worked as fire tower lookouts, Monongahela National Forest's lookouts were all men. They worked seven days a week, from 9 a.m. to 9 p.m. during the spring and fall wildfire seasons, or longer during high wildfire danger periods. If there was an active wildfire, the tower would be staffed until the wildfire was suppressed.

In the early days, food was cooked over wood stoves and kerosene lanterns provided light. A handful of towers and cabins were later equipped with electricity. Lookouts were required to provide their own food. Water for cooking and cleaning often came from nearby springs.

Strong thunderstorms, with gale force winds and lightning, made for some scary moments for many lookouts stationed in fire towers. During electrical storms, lookouts were instructed to stand on wooden stools with glass insulators screwed onto the legs for protection, close all windows and doors, stay away from the telephone and metal objects, and throw the tower's disconnect-grounding switch. In early June 1937, Bickle Knob Lookout, Bob King, spent an uneasy night perched on his stool as lightning struck the tower and knob around him, frying the tower's telephone line. On April 19, 1963, William McCloud, Red Spruce Tower Lookout, endured three hours of severe winds and relentless lightning as an electrical storm battered his home in the sky, noting in his tower log at 8:30 p.m.: "Severe winds—worst I've seen since I've been up here...." 12 Midnight: "Still lightning. No letup in wind."

After early adoption of aerial reconnaissance flights to spot wildfires in the 1960s and early 1970s, Monongahela National Forest began to phase out staffing fire towers. The Forest contracted local pilots and planes, equipped them with air-to-ground radios and sent Forest Service spotters along when conducting wildfire patrol flights. During wildfire season, the pilots and spotters flew daily predesignated routes across the forest reporting wildfire locations to ground wildfire crews. The use of airplanes



improved efficiency and response time in fighting wildfire on the national forest, eventually leading to the phase out of staffing towers by the end of the 1970s. Some, like Bickle Knob Tower, had their cabs removed and were repurposed as public observation platforms. Others were sold, dismantled and reassembled at other locations, like Mike’s Knob Tower that is now located in the town of Richwood. Most, however, were simply razed, leaving only their concrete piers and steps as the evidence of their existence. Of the roughly 22 federal fire towers that protected Monongahela National Forest only two, Red Oak and Olson towers, remain intact at their original locations.

[Learn more about the preservation on Red Oak Fire Tower.](#)

[Learn more about Olson Fire Tower.](#) While the cabin is closed due to its condition, the tower’s height and history remain a worth attraction.

[Return to top](#)

Recreation.gov	askUSDA	Report Fraud on USDA Contracts
Accessibility Statement	WhiteHouse.gov	Policies and Links
Visit OIG	Privacy Policy	eGov
Our Performance	Plain Writing	Non-Discrimination Statement
Anti-Harassment Policy	No FEAR Act Data	Open Government
Careers	FOIA	Information Quality
USA.gov		

---

## Monongahela National Forest Offices

---

### Headquarters

200 Sycamore Street  
Elkins, WV 26241  
(304) 636-1800

### Cheat-Potomac District

Parsons: (304) 478-3251

Petersburg: (304) 257-4488

### **Gauley District**

Richwood: (304) 846-2695

### **Greenbrier District**

Bartow: (304) 456-3335

### **Marlinton-White Sulphur District**

Marlinton: (304) 799-4334

White Sulphur Springs: (304) 536-2144

### **Stay connected!**



Contact Us



**Forest Service**  
U.S. Department of Agriculture

