



TIME WARP 1934

Introduction

As you have learned in the “Where There’s Smoke, There’s Fire” Introduction section, wildland fire is an important research topic. Forest Service scientists have long been interested in wildland fire. In the early 1900s, Forest Service scientists were focused on studying ways to stop wildland fire (figure 19).



Figure 19. Putting out a wildland fires sometimes involves using airplanes to drop chemicals on wildland fires. The chemicals help stop the fire and help the forest re-grow. Forest Service scientists encouraged stopping all wildland fires in the early 1900s. At the time, they believed it was important to protect the forest and the forest resources from all wildland fires.

Photo by Stacey Skrivanek, USDI National Park Service.

The Forest Service used fire lookouts to help identify possible wildland fires. Fire guards worked in the fire lookouts (figures 20 and 21). The job of a fire guard was to record weather measurements, watch for signs of wildland fires, and report possible wildland fires.

Figure 20. Fire lookouts were often located at the top of mountains. The views from the top of a mountain enabled fire guards to see more of the forest. Fire lookouts also provided fire guards protection from bad weather and sometimes provided a place to live.

USDA Forest Service photo.





Figure 21. Fire guards used wind vanes, haze meters, rain gauges, and hazard indicator sticks as tools to measure the danger of wildland fire. Wind vanes measure wind speed and direction. Haze meters measure the distance at which smoke from a wildland fire can be seen from a location. Rain gauges measure the amount of rainfall in a location. Fire hazard indicator sticks help measure the dryness of different types of wood.

Illustration by Stephanie Pfeiffer.

In 1934, scientists Richard McArdle and Donald Matthews wanted to know more about fire lookouts and fire guards. They asked: How many wildland fires do fire guards discover? How far away are the wildland fires discovered by fire guards? How large are the wildland fires when fire guards make a discovery?

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Reflect and Connect

What are the similarities and differences between the job of a fire guard and the “Where There’s Smoke, There’s Fire” scientists?



Methods

The scientists used data from the States of Washington and Oregon. Data to answer the first question were from 8 years, 1923–1930. To answer the second and third questions, the scientists analyzed data from a 5-year period from 1928–1932. The scientists used mathematical calculations to help draw conclusions from the data.



Findings

The scientists' data analysis showed that 47 percent of wildland fires were discovered by fire guards over the 8-year period of 1923–1930 in Oregon and Washington. Fire guards discovered 62 percent of fires started by lightning, but only discovered 28 percent of human-caused fires (figure 22).

Results also showed that fire guards could discover wildland fires within 15 to 20 miles of their location. These results, however, were dependent on local weather conditions. Local weather conditions could limit the ability of fire guards to discover a fire at that distance. Additionally, the scientists found that 71 percent of fires were only 0.25 acres in size when discovered by fire guards.

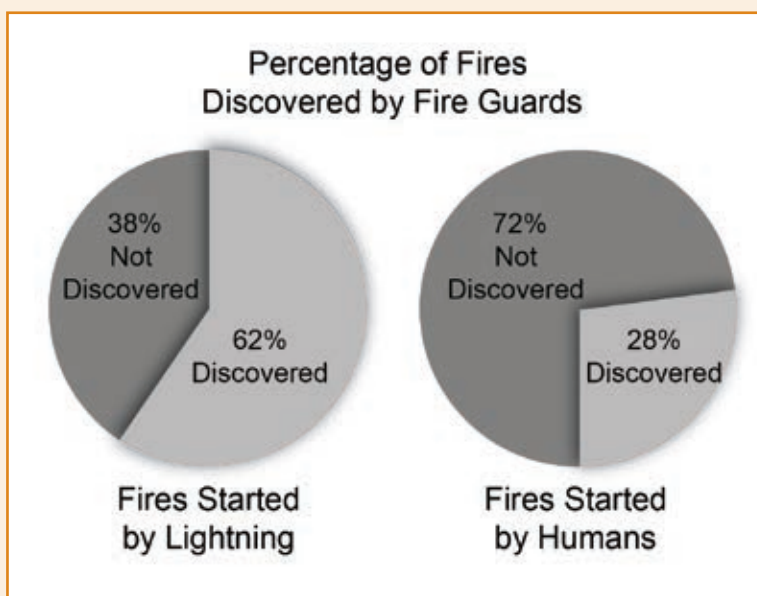


Figure 22. These data show that Oregon and Washington fire guards spotted more wildland fires started by lightning than those started by humans. Why do you think wildland fires started by lightning were discovered more often by fire guards?

Illustration by Stephanie Pfeiffer.



Discussion

The Time Warp scientists determined that fire guards could consistently discover fires within 8 miles of their location. Local weather conditions, such as clouds or rain, could limit fire guards' ability to spot fires beyond 8 miles. Based on these results, the scientists concluded that fire guards and fire lookouts played an important role in National Forests.

What Has Happened Since This Research Was Done?

Today in the United States, fire guards and fire lookouts are not as frequently used as they once were used (figure 23). New technologies enable scientists and land managers to be alerted to wildland fires earlier and without the help of fire guards. Many scientists monitor and predict wildland fire with computer technology, similar to what scientists did in "Where There's Smoke, There's Fire."

Scientists today understand more about the role of wildland fire in the ecosystem. In the early 1900s, scientists believed wildland fire suppression was the best option for forests. However, recent research shows that wildland fire is a natural, and important, part of many ecosystems. Some plant and animal species rely on wildland fire to create the habitat they need to survive.



Figure 23. Some fire lookouts are still used each year to observe wildland fires. However, many people hike and bike to, camp at, or go sightseeing at old fire lookouts in Oregon and Washington.

USDA Forest Service photo.

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Reflect and Connect



Over time, some wildland fire research has changed from being completed by humans to being completed with computer technology. These changes can be seen in the wildland fire research covered in this monograph. What are the pros and cons of relying on computer technology for wildland fire research?

Adapted from McArdle, R.E.; Matthews, D.N. 1934. Forest Research Notes. Fire Research Issue: 15. http://www.fs.fed.us/pnw/pubs/journals/pnw_os_m-015.pdf. [7 October 2016].