

Forest Fires in Tennessee

Historic Fire Occurrence

Fire has been a part of the landscape in Tennessee throughout history. Fires in the southeast during pre-historic times often began from lightning and most experts think they were usually associated with thunderstorms and quickly rained out, as they are today. However, when rain did not put them out, they spread for days, weeks or even months until natural barriers, such as rivers, rocky terrain, or precipitation stopped them. These early fires burned with enough frequency to develop and sustain vast grasslands and open woodlands, with large, widely spaced trees, across Tennessee; remnants of these grasslands still remain.

Later when the land became inhabited, the occupants, first the native Americans, then the European settlers, used fire as a tool. Fire was used by native Americans to maintain grass habitats for wildlife to make hunting easier, to keep woodlands open for easier travel, and to remove unwanted vegetation near villages for easier farming and better visibility.

Between 1400 AD and 1700 AD a significant decline occurred in the native American population, perhaps due to disease, and the frequency and scope of landscape scale burning was reduced drastically. By the time European settlers came on the scene, the enormous grasslands were being overtaken by trees.

The European settlers found fire to be useful for clearing "new ground" for cultivation. As time passed there became too many settlers to allow fires to burn uninterrupted. By the late 1800's "free ranging" cattle and hogs had somewhat replaced wild animals foraging in the grasslands and woodlands. Fire was still being used to promote grasses in wooded areas for livestock, but the quality and quantity was poor as the forest had become burned and overgrazed. These practices took its toll on the land.



Into the 1900's the forests were being heavily harvested to support a burgeoning nation and were mismanaged by poor practices. Fires were less frequent than centuries before, but when fires started they burned with great ferocity. Slash from timber cutting left jackpots of fuels which dried and burned with high intensity.

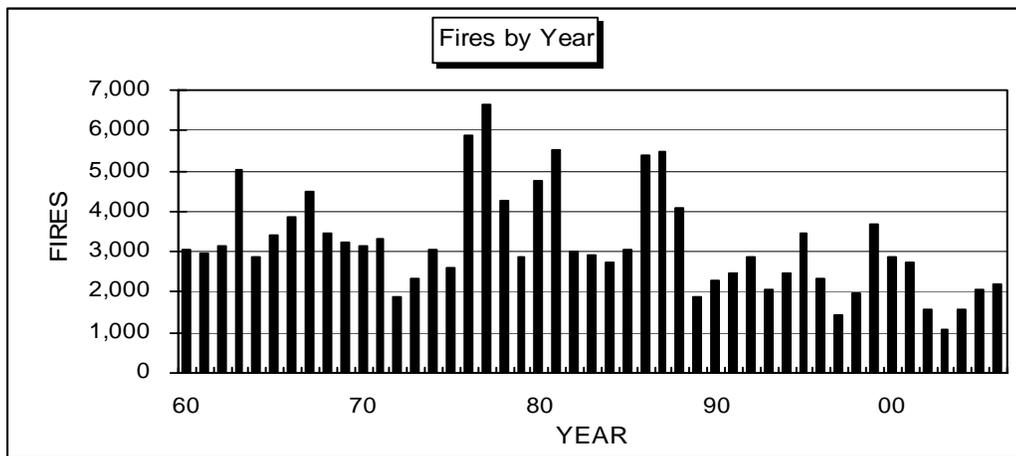
Fire control methods were a poor match to these devastating fires, which burned forests and farms virtually unimpeded. Losses to these fires as well as devastating soil erosion across the state caused an awakening in the conservation community. Over the next several decades actions were taken to protect the state's natural resources.

Following are some of the high points in the history of fire control:

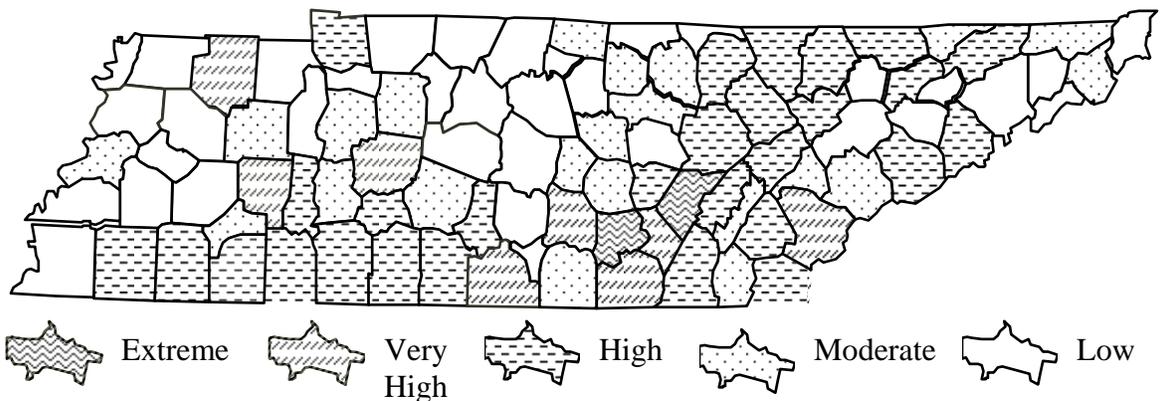
- 1907 General Forestry Law passed
- 1914 1st State Forester (R.S. Maddox) appointed within State Geological Survey
- 1921 Bureau of Forestry created with state forester as head
- 1922 Weeks Law initiated protection of forestlands from wildfire
- 1927 Division of Forestry protected about 5 million acres with part time wardens
- 1930 2nd State Forester (J.O. Hazard)
- 1943 1st county to cooperate with state government in protection agreement
- 1945 1st full time fire fighters (Wayne Co.)
- 1951 3rd State Forester (Carl Peterson)
- 1952 1st dozer-plow units (4); wildfires burned a record 1,058,717 acres during drought

Present fire occurrence

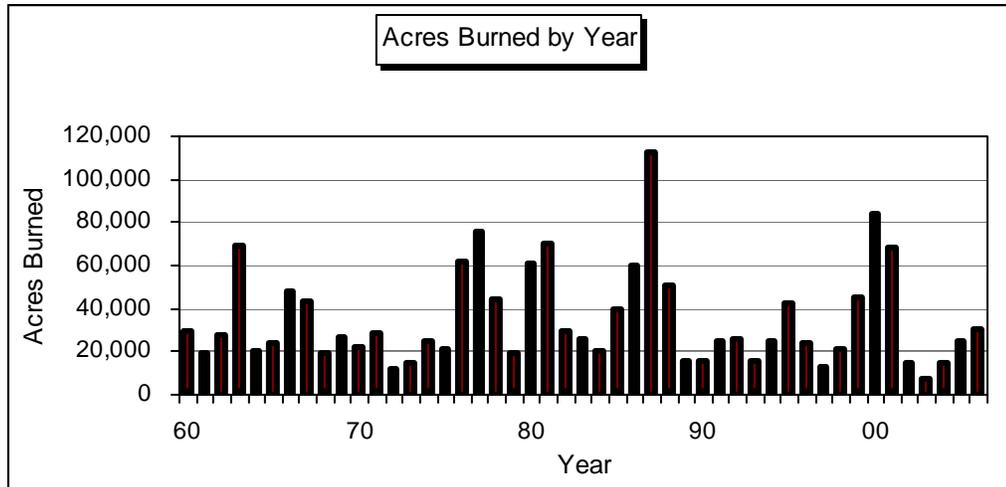
Numbers of wildfires have been trending downward since the late 1970's. Droughts are still an important factor affecting wildfire occurrence. Dry years are evident in the cycles that seem to occur near the end of almost every decade.



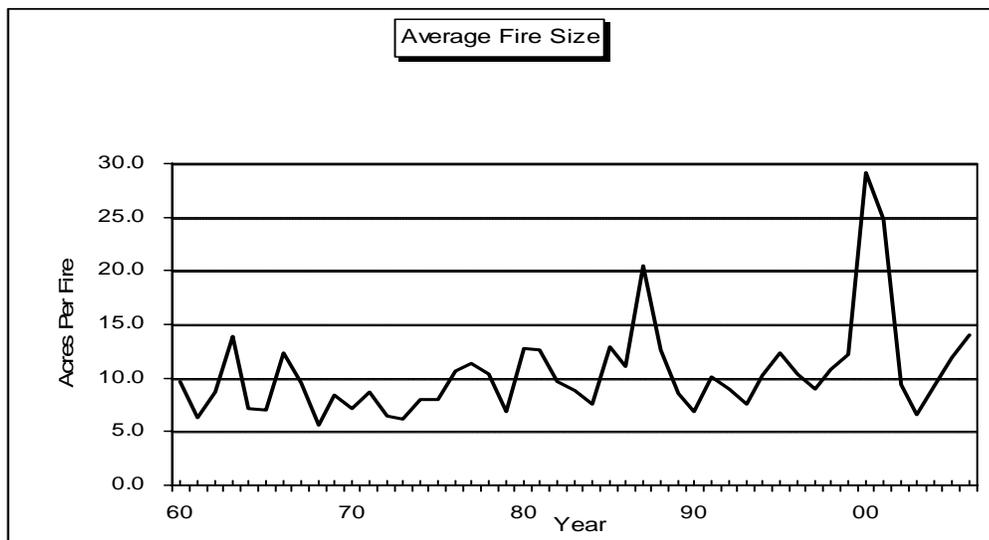
Fires do not occur evenly across the state. There are some counties that have more wildfires than others. The counties with higher numbers of wildfires tend to be more forested, rural, and hilly or mountainous. Those counties with low fire occurrence tend to be moderately to heavily populated and developed.



Acres burned by wildfires reflects a similar pattern to the numbers of fires. There has been a gradual decrease in acres burned. Acres burned is a better indicator of dry conditions than number of fires.



Even though the trend of fire numbers and acres burned is downward, the average fire size has been generally increasing. Within the past decade there have been extremes, both high and low, in the average fire size.

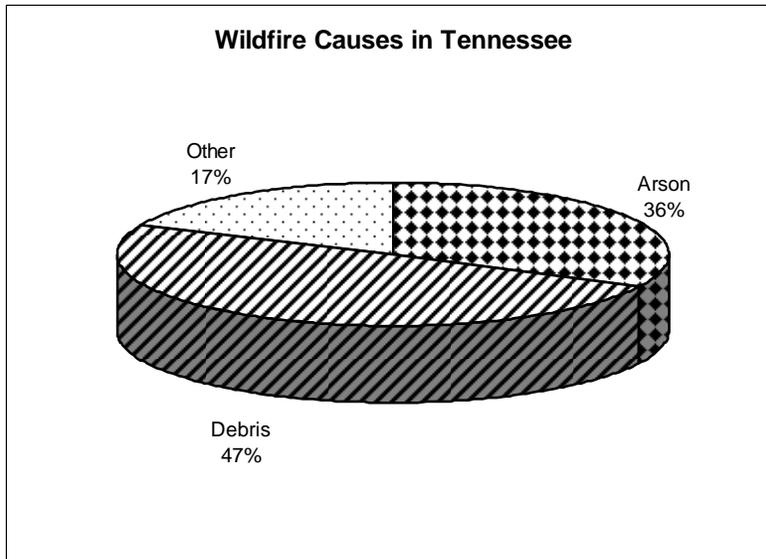


Fire Causes

There are two primary causes of wildfires in Tennessee, debris and arson.

Debris fires are typically a result of a burning field, brush pile, or leaf pile getting out of control. Individuals doing burning may underestimate the wind or dry conditions and in a moment of inattention the fire gets away.

Arson wildfires are caused by individuals who intentionally set fires on land without the owner's permission. These are criminal acts. They are done to cause damage to property, for retribution, to attract game, to destroy evidence of an illegal activity, or to see the excitement that is created when emergency responders arrive at the fire.



There are a number of other causes of wildfires. Among these in a typical year are lightning (<1%), campfires (<1%), railroads (<1%), smoking (2%), children (2%), equipment use (6%), and a mixture of other causes (7%) including power lines, electric fences, and fireworks.

Fire Suppression

It takes a lot of hard work to suppress wildfires in Tennessee. In rough terrain fires are suppressed by crews using hand tools such as fire rakes, leaf blowers, and digging tools. Where possible, wildfires are suppressed by dozers pulling fire plows that cut a shallow ditch around the fire. If a fire is accessible by vehicle, water is sprayed onto the burning edge of the fire from a small brush truck engine.

The Division of Forestry is the primary agency tasked by law to suppress wildfires. A large number of partner agencies also participate in fire management work, among these are local Rural Fire Departments, US Forest Service, National Park Service, emergency management agency, and many other land management agencies.

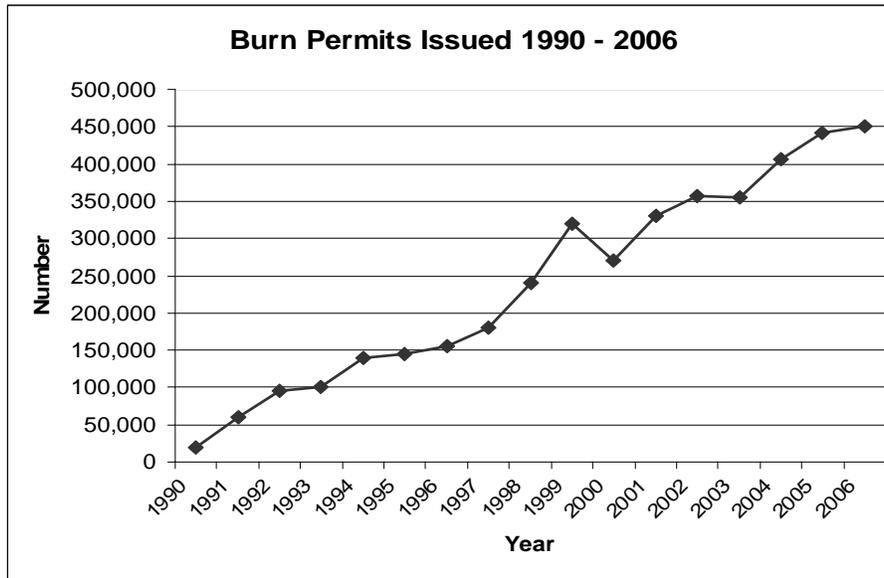
Fortunately fires do not occur at the same rate year-round. In Tennessee there are two "fire seasons". The fire season in the spring is typically from February 15th to May 15th. After vegetation has "greened-up" in the spring there are much fewer fires, until leaf fall in autumn. The fall fire season usually begins October 15th and ends December 15th. While the wintertime daylight hours are short and the weather is cool and wet there is another break in fire activity. However it is important to note that wildfires can occur any time of year in Tennessee when there are a few days of dry weather.

Fire Prevention

Wildfires are very destructive, not only to trees and wildlife, but also to property. Over the past 20 years people have moved in great numbers into areas bordered by open land, creating a situation dubbed the "wildland-urban interface" (WUI). The WUI has become an area where wildfires, people and property come together. At 65% of the wildfires suppressed by the Division of Forestry there are homes and other property being threatened. In a typical year 900 homes will be saved from wildfire, and 1000 buildings are saved. Unfortunately, there are usually 100 buildings lost, 30 houses damaged, and 15 houses destroyed by wildfire.

To address the growing problem of losses to wildfire there is an effort underway by the Division of Forestry and its partners to address the primary causes of wildfires which are debris burning and arson.

In 1990 the Division of Forestry began a Burn Permit program. Those citizens who wish to burn brush piles, leaves or fields from October 15th to May 15th must call their local Forestry office to receive a permit at no cost. Callers are given fire safety tips, and may ask questions about their burn. Since initiating the Burn Permit program the response has been overwhelming. No other program in the history of the Division has caused debris fires to drop more than the permit program. Burning without a permit is a misdemeanor crime.



Although the Division of Forestry hired its first wildfire investigator in 1953, wasn't until 1994 that the Arson Investigation Program was established in earnest. From that time the number of investigators has grown from 6 to 12. These investigators are fully commissioned law enforcement officers trained specifically for wildfire investigations. Their efforts, which include investigating a minimum of 60% of all arson wildfires, typically net 30 or more arrests per year. The law enforcement approach to arson has been a very successful fire prevention weapon. Arson is a felony crime.

Fire Use

Since the modern era of fire prevention and suppression began, there has been a detrimental effect to the forests and grasslands that depend upon fire to remain healthy. Many scientists, foresters and grassland managers have recognized this and have begun taking action to reintroduce fire to the landscape. This process of using a planned, or prescribed, fire is changing the way fire managers view the potential of fire to be used as a tool.

Using fire is a highly specialized skill that requires training and skill development for users to become proficient and safe. Using fire improperly can result in damage to the very resource it was intended to help. An escaped prescribed fire that becomes a destructive wildfire can threaten both lives and property. Fire used recklessly is destructive and illegal.

On the other hand, fire used properly and according to a prescription is safe, cheap, efficient and effective in accomplishing resource management goals. Moreover the rare and endangered plants and animals that depend heavily upon fire must have fire introduced under specific conditions. These plant and animal communities depend upon fire to remove competitive plants and animals. Some plants, such as native warm season grasses, are thought to need fire at regular intervals to create a seedbed so they can become denser. Foraging and grazing wildlife thrive on the vegetation that re-grows following a burn. This vegetation is more lush and richer in protein and minerals.



The challenges to using prescribed fire include air pollution from smoke, local burning restrictions, objections raised by adjacent landowners, obtaining training on how to use fire and liability protection from damages.

Conclusion

Professionals who suppress wildfires and use prescribed fire are constantly learning about how fire affects natural resources and the people who use and enjoy them. In some ways the story of fire is coming full circle since the pre-historic inhabitants used fire. The challenge of reaching the proper balance of using fire as a tool to enhance the environment versus protecting property and natural resources remains to be solved.