



# The Environmental Synopsis

A Monthly Update from the Joint Legislative Air and Water Pollution Control and Conservation Committee

APRIL 2017



## The Chairman's Corner Senator Scott E. Hutchinson

April marks the birthday of one of our state's most prominent conservationists, the "Father of Pennsylvania Forestry," Dr. Joseph Rothrock.

Soldier, pioneer, scientist and physician, Rothrock's legacy can be found in the abundant forestlands that blanket Pennsylvania's landscape, including a popular state forest named in his honor. Many of Rothrock's ideas and findings shaped today's forestry industry and its commitment to sustainable forest management.

Joseph Trimble Rothrock was born on April 9, 1839, in McVeystown, Mifflin County, to a German immigrant family. Frequently ill as a child, he spent much of his youth roaming the woods near his home. The experience greatly shaped his love of the outdoors, a love that was further cultivated by his mother, who taught him about native plants and trees. By his late adolescence, Rothrock decided to dedicate his life to studying the natural world.

After attending the Tuscarora Academy in Juniata County, Rothrock enrolled at Harvard, earning a bachelor of science degree in botany in 1862. He studied extensively under Asa Gray, considered the most important botanist of the 19th century, who had a profound influence on Rothrock. The country, however, was in the midst of the Civil War, and the grow-

ing conflict would postpone Rothrock's post-graduation plans.

After receiving his degree, Rothrock enlisted in the Union Army and eventually commissioned as an officer with the 20th Pennsylvania Calvary. After being seriously wounded at the Battle of Fredericksburg, he enrolled at the University of Pennsylvania, where graduated with an M.D. in 1867.

During medical school, he participated as a botanist in the Collins Overland Telegraph Expedition, which attempted to lay an electric telegraph line from California to Russia. The Smithsonian Institute published his field notes, "Flora of Alaska," which were some of the first botanical observations made in the Alaskan frontier.

Rothrock's first job after graduation was as a professor of botany, human anatomy, and physiology at the Agricultural

College of Pennsylvania, now Penn State, where he met his wife, Martha. He soon returned to medicine, however, moving to Wilkes-Barre, Luzerne County, where he helped establish a general hospital and a school for boys on nearby Ganoga Lake.

From 1873-1875, Rothrock once again found himself on the American frontier, this time as the surgeon and botanist for the Wheeler Expedition, which explored territory in the American West. He received international acclaim for his plant collections and new species identification, which again were published by the Smithsonian. The success of his fieldwork shifted his interest away from medicine and toward botany and forest conservation, this time for good.

Rothrock returned home after the expedition and was appointed as professor of botany at the University of Pennsylvania in 1877. Around this time, Pennsylvania's

*Continued on page 8*

## IN THIS ISSUE

April 2017  
Volume 18, Number 4

The Chairman's Corner.....	1
Notes from the Director .....	2
Research Briefs.....	3
• Biking Benefits Studied in Minnesota	
• Antibiotics Hurting Honeybee Population	
• Humans, Lighting Top Fire Starters	
• New Fuel Mix Reducing Aircraft Emissions	
On the Horizon.....	7
Committee Chronicles.....	7

# Notes from the Director

Tony M. Guerrieri, Executive Director

What will you do this month that might endure for more than 100 years? How about 200 years? Friday, April 28, is National Arbor Day. Arbor Day is a holiday in which individuals and groups are encouraged to plant, nurture and celebrate trees.

The first Arbor Day was celebrated in the state of Nebraska. In early 1872, Nebraskan newspaper publisher J. Sterling Morton proposed a tree planting holiday to be called Arbor Day. Not because there were so many trees on the Nebraska Plains, but rather because there were so few.

At his request, the Nebraska State Board of Agriculture set April 10 as the first official Arbor Day in America. Prizes were offered to counties and individuals for planting the largest number of trees on that day. According to one estimate, more than one million trees were planted in Nebraska on April 10, 1872. In 1885, the state Legislature made Arbor Day a legal holiday, changing its observance to April 22, Morton's birthday.

Three individuals from Pennsylvania's past have specific ties to the Arbor Day observance. They are: Major Israel (M.I.) McCreight, Gifford Pinchot and Charles Babcock. In 1906, conservationist M.I. McCreight of Dubois, Pennsylvania, argued that President Theodore Roosevelt's conservation speeches were limited to businessmen in the lumber industry and recommended a campaign of youth education and a national policy on conservation education.

McCreight urged President Roosevelt to make a public statement to school children about trees and the destruction of American forests. Gifford Pinchot, chief of the United States Forest Service (and future governor of Pennsylvania), embraced McCreight's recommendation and asked the president to speak to the

public school children of the United States about conservation.

On April 15, 1907, President Roosevelt issued an "Arbor Day Proclamation to the School Children of the United States" about the importance of trees. The president said, "We of an older generation can get along with what we have, though with growing hardship; but in your full manhood and womanhood you will want what nature so once so bountifully supplied and man so thoughtlessly destroyed; and because of that want, you will reproach us, not for what we have used, but for what we have wasted."

The full text of President Roosevelt's "Letter to Students" from 1907 is available at: <http://www.theodorerooseveltcenter.org/Research/Digital-Library/Record/?libID=o187708>. Afterwards, Pinchot wrote McCreight, "We shall all be indebted to you for having made the suggestion."

Eight years later, Pennsylvania Governor Martin Brumbaugh issued a proclamation declaring October 22, 1915, as the state's Arbor Day. In his proclamation he also highlighted an Arbor Day companion holiday known as Bird Day. Years earlier, in 1894, Charles Babcock, superintendent of schools in Oil City, Pennsylvania, loved birds so much so that he suggested a holiday to celebrate, encourage conservation training and awareness of all birds. Soon, Bird Day was widely celebrated in a number of other states, often in conjunction with Arbor Day.



Observances of the two holidays promoted conservation and nature awareness in school children. When recognizing Arbor Day in 1915, Governor Brumbaugh stated, it shall be the duty of every teacher in the public schools of this Commonwealth under penalty of dismissal, to devote, together with their pupils, at least two hours of such school days to the study of wild birds.

By the 1920s, each state had passed public laws that stipulated a certain day to be Arbor Day. Now, Arbor Day is observed in all 50 states, the District of Columbia, and at least 40 other countries around the world.

National Arbor Day is celebrated every year on the last Friday in April; it is a civic holiday in Nebraska. Other states have selected the time of year in which to celebrate their own Arbor Day, to coincide with the best spring "tree-planting" weather.

That means January or February in the far South and April or May in the far north. For example, it's the first Friday in November in Texas, the third Friday in January in Louisiana and the second Wednesday in April in Washington. While Bird Day may be a distant memory for many – today's Arbor Day activities are often blended into Earth Day celebrations.

## Research Briefs

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the committee's mission. Very often these briefs include references to reports and further research on the topics so that readers may pursue issues on their own. Please note that the information and opinions expressed in the Research Brief articles do not necessarily represent the opinions or positions of the Joint Legislative Air and Water Pollution Control and Conservation Committee, nor those of the Pennsylvania General Assembly.

### Economic, Health Benefits of Biking in Minnesota

Tony M. Guerrieri  
Executive Director

Despite its cold winters, Minnesota – and the Twin Cities (Minneapolis-Saint Paul) in particular – has long been recognized as one of the most "bike-friendly" states in the country, and they now have the numbers to back it up. A recent University of Minnesota study shows the economic significance of the bicycling industry and events in Minnesota, bicycling infrastructure use across the state, and the health care savings associated with bicycle commuting.

The bicycling industry is a significant part of the Minnesota's economy and multi-modal transportation system. A summary of the economic impact of biking industry shows that bicycling supported an estimated \$780 million in annual economic activity. That total includes \$219 million in wages, salaries and benefits, along with 5,519 bicycle related jobs. Nearly 80 percent of that economic activity (roughly \$600 million) came from manufacturing



and wholesale business, including Quality Bicycle Products and Park Toole – both global bicycle equipment manufacturers and exporters.

To estimate the use of bicycling infrastructure, researchers looked at the use of trails and other facilities to quantify demand for bicycling in the state. They found that with more trails and opportunities to ride, research shows as many as 96 million bicycle trips are made in Minnesota annually for commuting, recreation and other purposes. In terms of miles traveled, Minnesotans biked a total of 139 million miles across the state.

The Twin Cities accounted for approximately 71 percent of the total number of trips and miles traveled in the state. Twenty-six percent of bicyclists in Greater Minnesota ride at least once a week.

Minnesota communities host more than 100 bicycle events annually and bring an estimated 50,212 visitors to the state, including 19,000 who traveled to the event but did not participate. Bicycling events, including races, non-race rides, fundraising events, mountain bicycling events, high school races, and bicycle tours generated an estimated \$14.3 million of economic activity, which included \$4.6 million in wages and 150 jobs, according to the report.

It should be noted that many would claim the biggest benefits of biking are the health benefits associated with biking. The cardiovascular benefits of biking are well documented. This commuter and leisure activity represents between 12 and 61 prevented deaths per year, saving between \$100 million and \$500 million in health care spending. Studies

have shown that cycling reduces cholesterol levels in the blood, along with a 28 percent lower risk of high blood pressure, according to the report. Also, cycling reduces the risk of obesity by 31 percent, which makes cyclists less susceptible to diseases such as diabetes.

*According to a new report, bicycling in Minnesota will lead to economic growth. Current cycling events generate over \$14 million.*

The findings conclude that all types of events in the study mainly attract white, non-Hispanic participants. A survey of bikers in Minnesota show that at least 87 percent of cyclists for each event type were white. There were some differences in participants' age, education and income levels. In terms of gender, there were more male than female participants across all types of events.

The report concludes that the information provided will assist Minnesota Department of Transportation staff, officials of transportation economic development, tourism, health and local economic development groups in at least two ways: determining the appropriate level of future investment related to bicycling in Minnesota and informing policy and program decisions and strategies on bicycling.

The Assessing the Economic Impact and Health Effects of Bicycling in Minnesota report was funded by the Minnesota De-

partment of Transportation with research conducted by the University of Minnesota's Tourism Center, School of Public Health, Minnesota Extension Service and the Humphrey School of Public Affairs.

The study can be found at [www.mndot.gov/bike/research/economic-health-impact.html](http://www.mndot.gov/bike/research/economic-health-impact.html).

## Antibiotics Increase Honeybee Susceptibility to Fatal Illness

Coleen P. Engvall  
Research Analyst

The international scientific community has been working tirelessly to determine the cause of the decline in bee populations. These pollinators are invaluable in the wild as well as on agricultural operations, which rely on their services for reliable crop yields. Honeybees in particular have been estimated to be worth over ten billion dollars to the country's economy. Some people make their living by transporting honeybees to farms to pollinate apples, celery, almonds and other crops.

Unfortunately, both wild populations and captive bees have seen a startling decrease over the last several years. After the winter season, bee keepers have found that their hives have either been

severely weakened or totally wiped out. Mysteriously, the bodies of the dead bees are not present, which is one reason why the primary cause of these die-offs is still unclear. Several different factors have been blamed for this phenomenon termed, "colony collapse disorder" or CCD. Diseases, parasites, insecticides, poor nutrition and stress have all been scrutinized as possible causes.

In March, two researchers from the University of Texas at Austin investigated another potential stressor: antibiotics. Their article is entitled Antibiotic Exposure Perturbs the Gut Microbiota and Elevates Mortality in Honeybees. As the title suggests, the honeybees in their experiment did not fare well after treatment. However, it is not uncommon for beekeepers in the U.S. to prescribe antibiotics to the colonies in their care. Hives can be treated several times a year to prevent foulbrood, a deadly bacteria that attacks bee larvae.

*Honeybees treated with antibiotics lost diversity of beneficial gut microbes, leading to a 50 percent mortality rate, according to the University of Texas at Austin.*

The researchers gathered healthy, adult worker bees, which are the primary casualties of CCD, and administered the antibiotic tetracycline, which is commonly used on bees and livestock. They were given the treatment for five days before observation in either a hive or in a laboratory setting. At first, the impacts were unclear. Like in humans, antibiotics severely impact the functioning of the microbial communities found in honeybee digestive systems.

The beneficial bacteria and other microbes are destroyed by antibiotics alongside the intended targets. While antibiotics can stop life-threatening infections and diseases

to save lives, the microbial communities are also vital to human, insect and animal welfare. These communities aid in digestion, immune response, development and many other functions.

Once the gut microbes had been impacted, the bees were easily infected by opportunistic diseases. Up to 30 percent of the honeybees treated with the tetracycline died within a week of treatment. After ten days, half of the treated bees were dead. Despite the dire results, the researchers acknowledge the importance of antibiotics, in both people and in beehives. However, they recommend being more selective with treatment frequency and amount.

The researchers note that the microbial community in the honeybee digestive system is particularly susceptible to disruption and further complication. This is because honeybees have a relatively uniform bacteria population which is received from social interaction. This means that a bee's recovery time after antibiotic treatment is long and difficult, if it happens at all. Additionally, antibiotic resistant pathogens have emerged in response to overuse. These have several ramifications for future treatment of bees and humans alike.

Antibiotic treatment of honeybees is not the sole contributor to their population decline. However, the researchers note that even the surviving bees have weakened response to illness and other stressors due to the impacted microbial community in their gut. With this in mind, the parasites, diseases and other possible culprits of colony collapse disorder could be made more deadly when dealing with already-weakened bees. The researchers also emphasize the value of their research in understanding the human response to antibiotics. One of the pathogens that affected bees in greater numbers after treatment was *serratia*, which can also target humans.

While the mortality rate from colony collapse disorder has lessened in recent



years, the vast implications of honeybee and pollinator extinction continue to warrant research and understanding.

The full article is available at: <http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2001861>.

## Wildfire Ignition Trends: Humans Versus Lightning

Tony M. Guerrieri  
Executive Director

A wildfire on the border of Monroe and Pike counties in Pennsylvania burned over 8,700 acres of woodlands in 2016. More than 100 state Bureau of Forestry personnel rotated in and out of fire scenes, assisted by federal, state and local emergency personnel. Fighting the so-called “16-Mile Fire” cost \$2 million to tamp down. Officials suspected the fire was intentionally started.

*The National Academy of Sciences analyzed the causes behind today’s wildfires, which cost over \$2 billion per year to fight.*

Wildfires have always been an integral and natural part of the wildland ecosystem. However, in recent years the United States has experienced wildfires that are getting bigger, more frequent and occurring during a larger portion of the calendar year. What has changed? A study published in the online edition of Proceedings of the National Academy of Sciences examines a key question: What is the extent of human-caused ignitions and how they interact with climate change conditions?

Although climate change plays a role, according to the study, basically it boils down to two sources – human-caused ignitions and lightning strikes. Researchers at the University of Colorado and University of Massachusetts evaluated 1.5

million records of wildfires that required firefighting between 1992 and 2012. They then examined geographic and seasonal extents of human-sparked wildfires relative to lightning-ignited wildfires. The annual cost of fighting wildfires in the U.S. has exceeded \$2 billion in recent years. According to the study, people are to blame for sparking the vast majority of wildfires. These wildfires are causing longer fire seasons and increasing the amount of damage.

Researchers say people are responsible for expanding what they call the “fire niche,” which analyzes ignition sources, fuel mass and dryness to measure fire potential. People have triggered 84 percent (1,272,000) of all wildfires, they include leaving open campfires or charcoal barbecues unattended, burning debris, negligently discarding cigarettes, and setting fires intentionally.

The primary natural cause of wildfires is lightning strikes: they are responsible for about 16 percent of the wildfires (245,000). The only place in the country where lightning is the main cause of wildfires, the researchers found, is the mountainous parts of the West, where few people live. Lightning-caused fires are much larger on average; they are responsible for more than half (56 percent) of total acres burned between 1992 and 2012. Human-started blazes were responsible for 44 percent of the total acreage burned over the same 20 year period.

During that time, human-caused blazes have more than tripled the length of the wildfire season to 154 days from 46 days. Most lightning fires occur in the summer months, marking a brief fire season for wildfires. But people sparked an average of 40,000 fires during the spring, fall



and winter each year, extending the fire season far beyond its natural scope. And the potential threat was expected to get worse. The wildland-urban interface – the percentage of homes and people living in and on the edge of the wildlands – is a major challenge for forest managers and those tasked with fighting wildfires. The interface is predicted to double from 9 to 18 percent by 2030.

Human-started wildfires disproportionately occurred where fuel moisture was higher than lightning-started fires, thereby helping expand the geographic and seasonal niche of wildfire. Human-started wildfires were dominant in the vast majority of the United States, whereas lightning-started fires were dominant primarily in sparsely populated areas of the mountainous western United States.

According to the study, one day in the 21-year period studied had the most number of human-started fires: nearly 8,000. That was July 4, the country’s Independence Day holiday, typically celebrated with fireworks. Fireworks are banned in many places because of their explosive nature and high potential to start a fire. If fireworks are not ignited safely, they can end up as fires elsewhere.

Ignitions caused by people are a substantial driver of overall fire risk to ecosystems and economies. The study concludes that actions to raise awareness and increase management in regions prone to human-started wildfires would reduce fire risk and associated hazards.

For the study, researchers did not include prescribed burns or agricultural fires. The study, *Human-Started Wildfires Expand the Fire Niche Across the United States*, is available online at: <http://www.pnas.org/content/early/2017/02/21/1617394114.full.pdf>.

## Jet-Biofuel Mix Results in Cleaner Air Travel

Coleen P. Engvall  
Research Analyst

Air travel is the fastest way to transport people throughout the world. It's safer than driving, too. This massive industry, however, has some environmental consequences. The amount of fuel required to ferry hundreds of thousands of people across countries and oceans produces a lot of pollution. The majority of this is carbon dioxide, and the aviation industry is responsible for 800 million metric tons of carbon dioxide, totaling 5 percent of global emissions.

Airplanes also release water vapor, carbon monoxide, sulfur compounds, hydrocarbons and other trace materials. The Federal Aviation Administration predicts levels of these pollutants may increase in the future. Not because airplanes are getting dirtier, but because demand and popularity of air travel is increasing. More



planes are in the air and more people are able to afford flights.

One interesting aspect of aircraft emissions are condensation trails, or contrails. Not to be confused with the conspiracy theory of "chemtrails," contrails are clouds of water vapor and other trace pollutants left in the wake of airplanes. Perhaps one reason for the unfounded fear surrounding this phenomenon is the tendency for these straight white lines to transform into cirrus clouds. This happens due to the high altitude and subsequent low temperatures where contrails are formed. The water vapor and soot released by the aircraft acts as a catalyst for clouds to form. These clouds can have negative effects on the atmosphere by trapping as much as 10 degrees Celsius of heat below them.

The National Aeronautics and Space Administration's Langley Research Center conducted studies on how to mitigate the impacts of contrails while simultaneously reducing the harmful pollutants released by burning jet fuel. The results of their study were published in the *Nature* journal, entitled *Biofuel Blending Reduces Particle Emissions from Aircraft Engines at Cruise Conditions*.

As the title suggests, NASA fitted the test aircraft with a jet fuel/biofuel blend to see the impacts on emissions. The technique that sets this study apart from past experiments is where they took place. Past jet fuel pollution tests happened on the ground, with the engines running while the aircraft was secured.

For the most recent study, the plane's pollutant release was studied at cruising altitude. This allowed the researchers to not only measure specific pollutant levels, but also observe the condensation effect of the particulate matter. The particles being released in modern aircraft serve as nuclei for ice crystals to form, resulting in cirrus cloud cover. While this is a known occurrence, the researchers were unclear on how the increased hydrogen content of the biofuel would impact these for-

mations, along with the other attributes specific to biofuel byproducts.

Research aircraft tailed the modified airplanes at distances as close as 30 meters to ensure that the pollution readings were specific to the engine being studied. The four wing-mounted engines could be fed specific fuel blends from tanks within the aircraft. The study compared emissions between low-sulfur content jet fuel and an equal-parts blend of the same jet fuel and a biofuel. In this case, the biofuel was a camelina-based fuel, though the researchers also note that algae and jatropha-derived fuels showed promise.

*Scientists at NASA flew chaser planes in the wake of aircraft using biofuel-blended jet fuel, and discovered that the levels of pollutants being released was cut in half.*

Overall, the biofuel blend appeared to reduce particulate pollutants by 50 to 70 percent, and is consistently cleaner despite how much thrust the engine is producing. This also equated to a lower incidence of condensation trails forming behind the aircraft. For future studies, the researcher suggested analyzing the various particulate matter's ability to form ice crystals based on the particle size and makeup.

The researchers stated that the aviation industry should use this research as impetus to include more biojet fuels into their standard operations. Currently, due to various safety regulations and the construction of modern engines, it is not yet possible to run airliners solely on biofuels.

To read the full report, go to: <http://www.nature.com/nature/journal/v543/n7645/full/nature21420.html>.

## On the Horizon *A Look at Upcoming Events*

Monday, May 22, 12 p.m.

### *Environmental Issues Forum*

Room 8E-A, Capitol East Wing, Capitol Complex, Harrisburg

The May forum will feature a presentation on Pennsylvania's pollinator population and emerging threats to agriculture and the beekeeping industry. Pollinators play a significant role in the production of fruit and vegetables. For example, 90 percent of our nation's apple crop relies on bee-induced pollination. Over the last decade, however, there has been a drastic decline in the number of Western honey bees, which threatens the future of global agriculture. Presenters will discuss possible causes of the decline, as well as strategies used in other states to sustain the honey bee population.

### • Check Us Out on Social Media •

You can now receive updates on committee events, new research and more by following the Joint Legislative Conservation Committee on social media.

Find us on Facebook at [www.facebook.com/jointconservationcommittee](http://www.facebook.com/jointconservationcommittee), or on Twitter at [www.twitter.com/PA\\_JLCC](http://www.twitter.com/PA_JLCC).

## Committee Chronicles *A Review of Recent Committee Events*

On Monday, March 20, the Committee hosted its first Environmental Issues Forum of the 2017-2018 Legislative Session. Joining the Committee were representatives from the Anthracite Region Independent Power Producer's Association (ARIPPA).

Using innovative technology, coal refuse power plants are able to generate up to 10 percent of the state's total electricity generation from abandoned coal piles, which are a primary source of acid mine drainage. Over 200 million tons of coal refuse has been recycled and over 7,000 acres of abandoned coal lands have been remediated since the 1970s.

*Mr. George Ellis (pictured top right), executive director of ARIPPA, explained the unique benefits provided by waste coal power plants. Most plants are located in communities struggling with large piles of abandoned waste coal, a byproduct of our state's coal mining legacy. ARIPPA members remediate the piles, improving the quality of the surrounding land and water.*

*Elaborating on George's presentation was Mr. Sean Lane (pictured at bottom left with George and Senator Hutchinson), executive vice president of government affairs for Olympus Power. Olympus Power operates four coal waste power plants in Pennsylvania, including the Scrubgrass facility in Senator Hutchinson's district.*



## Joint Legislative Conservation Committee

### Contact Information

Phone : 717.787.7570

Website : [jcc.legis.state.pa.us](http://jcc.legis.state.pa.us)

Location:  
Room 408  
Finance Building  
Harrisburg, PA 17120

Mailing Address:  
Joint Legislative  
Conservation Committee  
PA House of Representatives  
P.O. Box 202254  
Harrisburg, PA 17120-2254



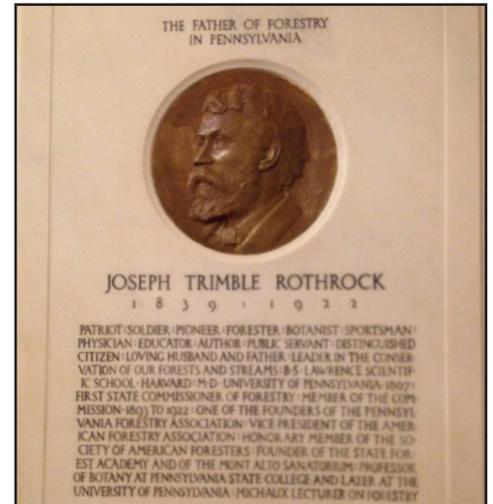
## The Chairman's Corner

*continued from page 1*

forests began to suffer from decades of unsustainable forestry practices. Clear cutting, forest fires and erosion left scars across the forestlands of the state, as lumber production soared. Lamenting the devastation, Rothrock hosted a series of lectures about Pennsylvania's forest crisis, called the "Michaux Lectures." These would lead to the formation of the Pennsylvania Forestry Association and his subsequent election as its first president in 1886.

The formation of PFA marked the beginning of Rothrock's profound influence on Pennsylvania's forests and the industries they support. Commissioned by the state legislature, he visited forestlands in the north and central regions of the state, gathering data and taking photographs for use in a legislative report. Rothrock argued that forestry should be conducted in a sustainable manner, planting new trees to replace those harvested. His logic appealed to conservationists and business owners alike, and his "art of forestry" became a new model for productive forest management in Pennsylvania. The culminating report, issued in 1896, brought about significant change in state forest policy.

Rothrock was appointed as the state's first Commissioner of Forestry in 1895. At this time, Dr. Rothrock calculated there were only 9.1 million forested acres remaining. In the following years, he worked with the legislature to create state forest reservations, which became the state forest system we know today. He also developed a system for the prevention of forest fires, and founded the Mont Alto State Forestry School. Rothrock remained the state's Forestry Commissioner until 1904, overseeing one of the most transformative periods in Pennsylvania's conservation history. He died on June 2, 1922, at his home in West Chester, Chester County.



Nearly a century since his death, Rothrock's name lives on. In 1965, Pennsylvania designated an 80 thousand-acre stretch of forest in Huntingdon, Centre and Mifflin counties as Rothrock State Forest. He is also one of only two Pennsylvanian's honored with a memorial tablet in the State Capitol Building in Harrisburg. On October 29, 1923, more than 200 friends and admirers of the late Dr. Rothrock attended the dedication of the memorial tablet in the south corridor of the Capitol commemorating his service to the state. Governor Pinchot accepted the memorial on the state's behalf.

Today, over 65 percent of Pennsylvania is forested. Fires are controlled, information and expertise is readily available to conservationists and members of industry alike, tree seedlings are available for reforestation projects, and forests are regarded as an integral part of Pennsylvania's identity. Millions of citizens enjoy these valuable natural assets.

We think of Dr. Joseph Rothrock as the "Father of Pennsylvania Forestry," yet Rothrock himself never thought of himself as a forester, just an informed scientist and botanist. As citizens of Pennsylvania, we owe a debt of gratitude to Rothrock, as well as other early conservationists, who had the foresight and dedication to establish a forest legacy for others to follow.