

# ENVIRONMENTAL SYNOPSIS

## The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman



The Joint Legislative Air and Water Pollution Control and Conservation Committee's (Committee) Legislative Forestry Task Force is studying the use of prescribed burning as a management tool in Pennsylvania. As a matter of fact, after extensive review and discussion, the task force is preparing legislation that would put into statute provisions governing prescribed burning, a practice common in a number of states, including Pennsylvania, but which has never been governed by law in this state.

What is prescribed burning? At a task force meeting, it was defined by John Miller, chief of Pennsylvania's Division of Forest Fire Protection, as the planned and deliberate application of fire as a management tool for land stewardship.

Unlike wildfires, prescribed burns are contained fires conducted under predetermined environmental conditions by well-trained individuals to achieve specific resource management goals and objectives. Prescribed burning requires knowledge of forest fuels, fire behavior, suppression techniques, local weather conditions and fire effects. Written plans must be developed well in advance of the burn to allow adequate time for local notifications and to secure any permits, if required. Modern fire management is a highly technical and professional undertaking requiring skilled, knowledgeable personnel. Speaking of training, right now there is a national organization, the National Wildfire Coordinating Group, which oversees the parameters for training, preparation and safety for the use of prescribed burning.

There are a number of reasons to conduct prescribed burning. A 2005 survey of federal, state and local land managers conducted by several organizations (National Wild Turkey Federation, Natural Lands Trust, PA Department of Conservation and Natural Resources (DCNR), PA Game Commission (PGC) and The Nature Conservancy) showed that grassland management/restoration was the most frequent use of prescribed burning, with 26 percent of the respondents citing that as its purpose. Close behind was wildlife habitat management/restoration (23 percent), followed by fuel/hazard reduction (16 percent), forest management/restoration (15 percent), ecological research (11 percent) and agricultural production (2 percent). Other uses of prescribed burns are forest disease and pest control and management of invasive species.

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# NOTES FROM THE DIRECTOR



**CRAIG D. BROOKS, EXECUTIVE DIRECTOR**

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Everywhere you look, there's another article about global warming. As a matter of fact, two of this month's Research Briefs describe recent reports that focus on the issue.

Meanwhile, newspapers, magazines and now Congress are stepping up efforts to try and answer the question of whether or not we should be worried about ozone depletion and global warming. Eighty-five percent of Americans say warming is probably happening and 62 percent say it threatens them personally. The National Academy of Science says the rise in the Earth's surface temperature has been about one degree Fahrenheit in the past century.

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**Eighty-five percent of Americans say warming is happening... and 62 percent say it threatens them personally**

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U.S. companies that have agreed to voluntarily report their efforts to reduce greenhouse gas emissions cut their total emissions 6.1 percent in 2005, from the previous year. A total of 221 firms cut their direct emissions by 294 million metric tons of carbon dioxide equivalent in 2005, an improvement over the 277 million metric tons of emissions they reduced in 2004. (A carbon dioxide equivalent measurement takes into account the global warming potential of each of the major greenhouse gas emissions, including carbon dioxide, nitrous oxide, methane, sulfur hexafluoride, perfluorocarbons, and hydrofluorocarbons).

The voluntary emissions reporting, established by Section 1605(b) of the Energy Policy Act of 1992, was developed to encourage efforts to cut greenhouse gas emissions by reporting total emissions to the Energy Information Administration, the statistical arm of the Department of Energy. The number of firms participating in these efforts has more than doubled since 1994. Efforts by such firms to capture and to store carbon dioxide through reforestation and other projects,

known as forest sequestration, resulted in reductions of nearly 8 million metric tons of emissions in 2005, an improvement over 7 million metric tons of emissions captured in 2004.

The voluntary reporting draws strong participation from power companies, which make up nearly one-third of the program, accounting for 97 of the 221 total firms participating. The program also includes participation from the automobile and chemical industries, including General Motors, Ford Motor Co., DaimlerChrysler Corp., Nissan North America Inc., Dow Chemical Co., and Pfizer Pharmaceuticals.

Participating firms in the voluntary effort had either launched or were continuing to operate 2,379 projects to sequester or reduce greenhouse gas emissions in 2005.

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**Voluntary reporting continues to grow and the Department of Energy issued revised guidelines in 2006 to motivate more firms to reduce greenhouse gas emissions**

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The Department of Energy issued revised guidelines for the Voluntary Reporting of Greenhouse Gases Program on April 17, 2006. The revised guidelines became effective on June 1, 2006 with the primary goal of further reducing the growth of greenhouse gas emissions while sustaining economic growth.

The objective of improving the program is to help motivate firms to take cost effective, voluntary actions to reduce greenhouse gas emissions. The revised guidelines include new guidance and tools for estimating emissions associated with agriculture, forestry and other industries, and for calculating reductions from sequestration, energy efficiency and other efforts.

More information may be obtained from the Energy Information Office at [www.eia.doe.gov/oiaf/1605/vrrpt/summary/index.html](http://www.eia.doe.gov/oiaf/1605/vrrpt/summary/index.html).

# RESEARCH BRIEFS

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the Joint Conservation 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.

## Livestock and Global Warming: a Critical Link

– Tony M. Guerrieri, Research Analyst

When it comes to global warming, there are bigger culprits than the car: cows, pigs, sheep and poultry. That is the conclusion of a report by the United Nations Food and Agriculture Organization (FAO). The report, *"Livestock's Long Shadow"*, warns of the environmental consequences of the world's growing meat and dairy production.

The FAO report suggests that livestock production contributes to the world's most pressing environmental problems, including global warming, land degradation, air and water pollution, and loss of biodiversity.

With increased prosperity, people are consuming more meat and dairy products every year. Global production of meat is expected to more than double by 2050, and milk output will likely increase by 80 percent.

The report notes the importance of the livestock sector to global populations. It provides livelihoods to about 1.3 billion people and contributes about 40 percent to global agricultural output. At present, there are about 1.5 billion cattle and domestic buffalo and about 1.7 billion sheep and goats. With pigs and poultry, they constitute an enormous biological footprint.

The report estimates that livestock production worldwide is responsible for 18 percent of greenhouse gas emissions – an even larger contribution than the transportation sector worldwide. When emissions from land use and land use change (especially deforestation) are included, the livestock sector accounts for nine percent of carbon dioxide (CO<sub>2</sub>) deriving from human-related activities, but produces a much larger share of even more harmful greenhouse gases. It generates 65 percent of human related emissions of nitrous oxide, which has 296 times the global warming potential of CO<sub>2</sub>. Most of this comes from manure.

The livestock sector accounts for 37 percent of all human-induced methane (23 times more potent as a heat-trapping gas than CO<sub>2</sub>), which is largely produced

by the digestive system of ruminants, and 64 percent of ammonia, which contributes significantly to acid rain.

As demand for meat grows, the report explains, so does the need for pasture and cropland, making deforestation an additional concern. Livestock now use 30 percent of the planet's entire land surface, mostly permanent pasture, but also including 33 percent of the global arable land, used to produce feed for livestock. As forests are cleared to create new pastures, it is a major driver of deforestation, especially in Latin America where, for example, some 70 percent of former forests in the Amazon have been turned over to grazing.

At the same time, herds cause wide-scale land degradation, with about 20 percent of pastures considered as degraded through overgrazing, compaction and erosion. According to the report, this figure is even higher in the dry areas where inappropriate policies and inadequate livestock management contribute to advancing desertification.

### Managing meat, milk and manure, environmentally speaking

Livestock production also impacts heavily on the world's water supply, accounting for more than eight percent of global human water use, mainly for irrigation of feed crops. Evidence suggests it is the largest source of water pollutants, principally animal wastes, antibiotics and hormones, chemicals from tanneries, fertilizers and the pesticides used to spray crops.

Meat and dairy animals now account for about 20 percent of all terrestrial animal biomass. Livestock's presence in vast tracts of land and its demand for feed crops also contribute to biodiversity loss; 15 out of 24 important ecosystem services are assessed as in decline, with livestock identified as a culprit.

The report suggests a number of ways of remedying the situation including:

➤ **Atmosphere and climate** – Increasing the efficiency of livestock production and feed crop agriculture. Improving animals' diets to reduce enteric fermentation and consequent methane emissions, and

setting up biogas plant initiatives to recycle manure.

➤ **Land degradation** – Controlling access and removing obstacles to mobility on common pastures. Use of soil conservation methods together with controlled livestock exclusion from sensitive areas. Payment schemes for environmental services in livestock-based land use to help reduce and reverse land degradation.

➤ **Water** – Improving the efficiency of irrigation systems. Introducing full cost pricing for water together with taxes to discourage large-scale livestock concentration close to cities.

The 400-page United Nations Food and Agriculture Organization report, “*Livestock’s Long Shadow*”, is available at [http://www.virtualcentre.org/en/library/key\\_pub/longshad/A0701E00.pdf](http://www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.pdf).

## Former Mill Sites Provide Redevelopment Opportunities

– Craig D. Brooks, Executive Director

The challenges and opportunities for redevelopment at former mill sites is the focus of a new Environmental Protection Agency (EPA) report that says EPA’s brownfields grant program has contributed to the revitalization of approximately 355 mill sites throughout the country.

Former mill sites, many of which date back to the 1700’s and 1800’s, are abandoned. The report, “*Revitalizing America’s Mills: A Report on Brownfields Mill Projects*”, suggests that their proximity to waterfronts, public lands and urban and rural areas makes these properties attractive for redevelopment, recreation and tourism. Or, many times such sites are designated as historic properties which change blighted areas into community assets. However, redevelopment challenges still remain.

### Abandoned mills present challenges – but unique possibilities as well

According to the report, abandoned mill sites include those that produced textiles, pulp, paper and paperboard, manufactured and traditional wood products for construction, and iron and steel for construction. With the decline in their industries in the latter part of the 20th century, they left a legacy of abandoned and sometimes contaminated former mill sites.

However, the unique architecture and historical value of many textile mills creates the potential for conversion to commercial and residential use, thereby becoming a

community asset. Since many communities were developed solely on the mill economy, revitalizing these communities may rely strongly on restoring the mill property. According to the report, redevelopment advantages include the following:

➤ **Architecture and history** – Textile mills often include appealing features such as open floor plans, high ceilings and working infrastructure which make these properties highly marketable for assisted living and residential redevelopment.

➤ **Location** – Because many textile mills were once water powered, they are often located near waterways and attract recreational and commercial redevelopment.

➤ **Economic and social impact** – The cleanup and redevelopment of mill property can and does have a positive economic and social impact on a community.

➤ **Growth** – Redevelopment of mill properties can provide opportunities for expanding urban areas and central business districts.

Like other brownfields sites, steel mill cleanup and redevelopment can be challenging due to real or perceived contamination, liability and regulatory issues, permitting processes and limitations on financing. However, they also offer unique opportunities for redevelopment.

Many include the following benefits:

➤ **Central location** – Because many towns and cities were built around steel mills with old mills still located in the heart of their communities, they provide opportunities for downtown revitalization efforts.

➤ **Transportation access** – Steel mills often had established highway, railway or river barge access which can support new industrial development.

➤ **Easily parceled land** – Parceling large tracts of land and buildings can lead to multiple uses, attracting many single business opportunities.

➤ **Greenspace and recreation** – Waterway locations and rail transportation lend themselves to greenway planning and recreational opportunities such as rails-to-trails.

The more than 350 mill projects that have received assistance from EPA’s brownfields program are only a handful of the sites being returned back to productive use.

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According to the report, overcoming the challenges of possible contamination, property ownership, bankruptcy courts and liability can be difficult to solve and negotiate but these former mills can provide significant opportunities for redevelopment and revitalization.

The report is available at: [http://www.epa.gov/brownfields/policy/Mill\\_Report\\_110306.pdf](http://www.epa.gov/brownfields/policy/Mill_Report_110306.pdf).

## Global Warming Big Issue in New York

– Tony M. Guerrieri, Research Analyst

A report by the Albany-based Environmental Advocates of New York projects the impact of climate change on New York state, including the effects of global warming on the state's public health (ozone-induced respiratory problems), infrastructure and coastal property (rising sea levels and devastating storms), agriculture (climate-dependent crops), wildlife (habitat destruction) and water supply.

The report, *"Forecast for New York: Projected Global Warming Impacts & Next Steps"*, outlines a number of potential problems that could result from global warming. It also suggests a number of policy recommendations to curb emissions of carbon dioxide, the main gas associated with human-caused global warming.

The report draws its findings from multiple sources, including climate projections that show substantial consequences for New York, including changes in average annual temperatures, extreme heat days, sea level rise, loss of snow cover, and increased frequency of drought patterns.

By the end of the century, according to the report, temperatures could rise as high as 10.6 degrees Fahrenheit, on average, in summer, and 9.8 degrees Fahrenheit, on average, in winter. That reflects the high-end of a projected range, assuming that nothing is done to curb emissions. Without significant reductions in climate-altering emissions, the report predicts New York's weather will come to resemble that of the states of Georgia and South Carolina by the end of this century.

Under these climate change scenarios, public health will be jeopardized by an increase in the number of very hot days leading to heat-related illnesses and death. New York City residents could see up to 72 days of 90-degree weather per year by the end of the century. These conditions will also lead to more high ozone days and thus more problems for New Yorkers with respiratory illnesses such as asthma.

Changes in climate will put New York's infrastructure and coastal property at risk because of rising sea levels and bigger, more destructive storm surges. In New York City, scientists predict that flood events now expected once every 100 years could occur once every 40 years by the 2020's, once every 20 years by the 2050's, and once every 5 years by the 2080's, significantly affecting the state's insurance industry.

The report highlights predictions that lower water levels in the Great Lakes caused by climate change will place greater strain on New York's drinking water systems and could result in a corresponding decrease of up to 15 percent of the quantity of hydroelectric power produced in the region.

New York is the eighth-largest source of carbon dioxide emissions in the United States, according to the report. In 2001, New York produced as much global warming pollution as 99 developing countries combined.

According to the report, New York has already adopted, or is in the process of adopting, several measures to cut greenhouse gas emissions. However, to avoid the worst effects of climate change, emissions must be reduced by up to 85 percent.

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**While the report notes that New York has begun to adopt greenhouse gas reduction measures, it also notes that emissions must be reduced by up to 85 percent**

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In the report, Environmental Advocates presents a set of recommendations that would help reduce New York's global warming emissions. The recommendations include establishing more aggressive statewide greenhouse gas emissions limits for all economic sectors, improving the state greenhouse gas emission inventory, establishing a permanent Climate Change Commission responsible for establishing an emissions baseline, and requiring greenhouse gas emissions reporting from all stationary sources.

These recommendations are particularly relevant in light of the anticipated release of the state's rule for implementation of the Regional Greenhouse Gas Initiative in New York, a seven-state plan to cut carbon dioxide emissions from electric power generators in the Northeast.

The complete 28-page report, *"Forecast for New York: Projected Global Warming Impacts & Next Steps"*, is available at: <http://www.eany.org/reports/GW/ForecastForNewYork.pdf>.



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## Reducing Emissions from Non-road Mobile Sources Still a Challenge

– Craig D. Brooks, Executive Director

Although the Environmental Protection Agency (EPA) has made substantial progress in developing regulations to reduce emissions from non-road mobile sources, challenges still remain for aircraft, ships and small gasoline engines. EPA has issued 14 regulations to control emissions from non-road mobile sources that should result in significant reductions in emissions when fully implemented, according to the report *"Progress Report on EPA's Non-road Mobile Source Emissions Reduction Strategies"*.

The report suggests, however, that more reduction efforts are needed and EPA faces challenges that could hinder the progress in reducing pollution due to the roles other federal agencies and international organizations have in regulating emissions.

According to the report, non-road engines produce about 66 percent of the nation's fine particulate matter emitted from all mobile sources. Non-road engines also produce about 36 percent of the nitrogen oxides and 37 percent of the volatile organic compounds in the United States. The two substances, when combined with heat and sunlight, produce ozone.

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### Large ocean going vessels and aircraft present special challenges for EPA rule makers

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The report suggests that EPA faces significant challenges in developing regulations for aircraft and large ocean-going marine vessels because other government agencies and international organizations share authority in regulating them. Most large ocean-going vessels are subject to international rather than U.S. standards. EPA has set engine emission standards for large ocean-going vessels registered in the United States that are equivalent to the standards set by the International Maritime Organization for foreign registered vessels. However, the report says that as new technology becomes available, EPA should work with the international organizations to develop more stringent standards.

The long service life of aircraft engines, sometimes as long as 30 years, makes reduction of aircraft emissions particularly challenging. According to the report,

EPA and the Federal Aviation Administration (FAA) have joint authority for regulating aircraft emissions but have very different objectives. FAA focuses on aircraft safety and its emissions agenda is more in line with that of the airline industry than with EPA's.

Small gasoline engines such as lawn and garden equipment are the largest contributors of non-road gasoline nitrogen oxides, at 44 percent. They are also the second largest contributor of particulate matter, at 31 percent, among non-road gasoline sources across the United States. In 1997 and 2000, EPA issued Phase I and Phase II Emissions Standards for Engines at or below 19 kilowatts of power to control emissions from small gasoline engines less than 25 horsepower.

The most recent of EPA's 14 regulations for non-road mobile sources include the Non-road Diesel Engines Rule adopted in 2004. The rule regulates diesel engines and diesel fuel as a system which involves a combination of engine modifications, sulfur reduction in diesel fuel and exhaust controls.

The diversity in non-road engines presents several technical challenges to the successful implementation of the non-road diesel rule, the report says. The systems-based approach in the rule requires technology advancements or new applications of technology combined with existing technology to meet emissions standards. In order to do this, EPA will have to address the availability of low sulfur diesel fuel, the diversity of non-road engines and the integration of new technology with devices already used to control emissions.

EPA also hopes to propose a rule in 2007 to address emissions from locomotives and marine diesel engines.

A copy of the report is available at <http://www.epa.gov/oig/reports/2006/20060927-2006-P-00039.pdf>

### News to Use in the Environmental Synopsis... share it with a friend

The *Environmental Synopsis* is issued monthly.

The newsletter examines timely issues concerning environmental protection and natural resources.

If someone you know would like to receive a copy of the *Synopsis* each month, please contact the Committee office at 717-787-7570.



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# ON THE HORIZON . . .

A LOOK AT UPCOMING EVENTS

✓ **Monday, March 12, 12 noon, Room 205, Matthew J. Ryan Building** – Environmental Issues Forum. Terry Miller, Director of the University of Pittsburgh Institute of Politics, and D. Tyler “Ty” Gourley, Project Manager for the Regional Water Management Task Force, will be the guest presenters.

They will discuss the work of the Regional Water Management Task Force, an 11-county effort to improve regional cooperation in addressing SW PA’s water and sewer challenges. The initiative, a model for other PA counties, is led by an independent task force that has high-level representation from all 11 counties, is endorsed by the Southwestern PA Commission and is chaired by Carnegie Mellon University President Jared Cohon.

✓ **Monday, April 16, 12 noon, Room 205, Matthew J. Ryan Building** – Environmental Issues Forum. Keep Pennsylvania Beautiful’s (KPB) Executive Director Julia Marano will make an Earth Day presentation on KPB’s efforts to prevent and clean up litter, stop illegal dumping and improve PA’s roadside aesthetics.

**Environmental Issues Forums are open to the public.  
Please call the committee office at (717) 787-7570 if you would like to attend.**

# COMMITTEE CHRONICLES . . .

REVIEW OF SOME MEMORABLE  
COMMITTEE EVENTS

The Committee’s Executive Director Craig Brooks recently visited two locations to see examples of rubber recycling in operation in Pennsylvania.

*The first stop was Edge Rubber in Chambersburg. Pictured at right is (l. to r.) Jamie Walls, Edge Rubber’s Safety and ISO Coordinator, Edge Rubber’s General Manager Sam Kauffman and the Joint State Government Commission’s Ted Herman, who was with Craig on the tour.*

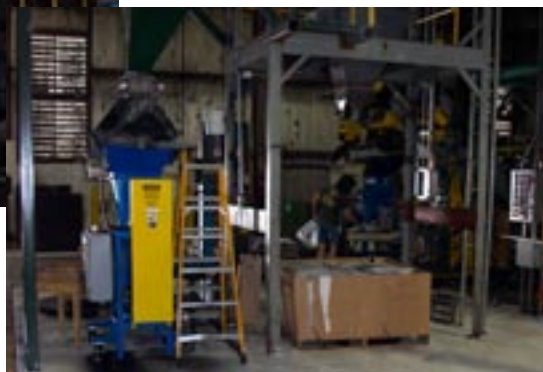
*Edge Rubber is the longest running and most successful facility producing fine and ultra-fine rubber powders in the United States, and its*



*Scenes from the Edge Rubber plant in Chambersburg (Photos courtesy of Edge Rubber)*



*trademarked powders have specific uses in automotive, adhesive and specialty chemical businesses around the world. It has a state-of-the art lab and is registered to the ISO 9001:2000 standard. The company is an active member of its community as well.*



*The second stop was at Zartman Farms in Ephrata. There, Craig visited with Tom Zartman and saw how Zartman Farms Cow Comfort Systems, Inc. produced, used and marketed the Ulti-Mat™ All-Rubber Cow Mattress, and other rubber-based flooring products for use with livestock. All are made from recycled Pennsylvania tires.*

The survey showed that prescribed burns have been carried out in 44 counties in Pennsylvania. Seventy-eight percent of those responding who have used prescribed burning would like to expand the amount of acreage used for prescribed burns, with the purpose of forest management/restoration as the number one reason. Fifty-five percent of those who have not used prescribed burning said they would be interested in doing so, with wildlife habitat, grassland and forest management/restoration as the main reasons.

In recent years, Pennsylvania's primary land management organizations, such as DCNR's Bureau of Forestry, PGC, Bureau of State Parks, The Nature Conservancy and the Natural Lands Trust, have ignited and used prescribed fires. The fires have been used to control warm season grasses, to restore and promote growth of Pennsylvania's hardwood forest stands (particularly oak and hickory often crowded out by other plant growth), and to remove invasive species. If such is the case, one may ask what the need is for the legislation being considered.

Part of the answer to that is found in the survey results and has been reconfirmed by discussions at Legislative Forestry Task Force meetings. The survey shows that one of the major deterrents to the use of prescribed burning is the issue of liability. Fifty-seven percent, the largest percentage response, listed liability/legal concerns as the most important issue to be resolved in regard to current and future prescribed fire objectives. Similarly, 23 percent of those who have not used prescribed burning as a tool cited liability/legal issues as the number one reason they have not. Overall, 58 percent, the largest percentage response, ranked liability/legal issues as either the first, second or third reason for not using prescribed burning. Keep in mind that not only do government agencies use prescribed burning, but a number of non-governmental agencies do as well.

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### **What are the reasons for introducing legislation regarding prescribed burning in Pennsylvania?**

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In addition to addressing the liability issue, the proposed legislation seeks to provide a statutory and uniform procedure to use prescribed burning. Improved safety is a goal of the legislation, with the expectation that prescribed fires could be used to more effectively reduce vegetative fuel hazards – the kind of heavy fuel accumulation that allows wildfires to intensify and spread uncontrollably when they do occur. Prescribed fires would also improve accessibility for fire fighters if and when wildfires occur. Proper use of prescribed fires would also make for a more productive and healthy forest.

The proposed legislation would establish standards for the use of prescribed fire. These standards would include (but not be limited to) minimum qualifications and training for persons conducting prescribed burns and general required content for prescribed fire plans (e.g., burn duration, smoke management, fuel and weather prescription, notification of adjacent landowners, safety contingencies, etc.).

Persons planning a prescribed fire would be required to have a Prescribed Burn Plan for each event, to minimize the possibility of fire escaping and minimize danger to public and firefighting personnel from both fire and smoke. Individuals acting under the Prescribed Burn Plan who have met the qualifications would have liability protection.

The Legislative Forestry Task Force will continue its study of the issue and its efforts to fine tune the legislation, with the intent of ultimately having a quality piece of legislation introduced to ensconce prescribed burning as a safe and sound management tool in Pennsylvania.

## **How to Contact The Joint Conservation Committee**

Phone:  
717-787-7570

Fax:  
717-772-3836

Location:  
Rm. 408, Finance Bldg.

Internet Website:  
<http://jcc.legis.state.pa.us>

Mail:  
Joint Conservation Committee  
PA House of Representatives  
House Box 202254  
Harrisburg, PA 17120-2254

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Air and Water  
Pollution Control and  
Conservation  
**C**ommittee