

## Environment

# Banks of Boalsburg's Tannery Run get face lift

by Leslie Rosenbaum

Clad in matching green T-shirts and wielding shovels, a group of student volunteers helped make a stream in Boalsburg a little cleaner by building a riparian buffer on May 3.

ClearWater Conservancy and Omega Bank teamed up to build a riparian buffer zone next to Tannery Run, a small Spring Creek tributary in Boalsburg. The students, who study horticulture and landscaping at the Central Pennsylvania Institute of Science and Technology, volunteered an afternoon of their time to help with the project.

"Omega Bank is giving up part of their lawn to establish this buffer," said Louise Comas, restoration ecologist for ClearWater Conservancy. "This will improve the water quality and habitat along the stream."

A riparian buffer zone is an area of land

next to a stream that is planted with woody vegetation and produces roots very quickly. This makes the water running into the stream cleaner, which is important since Spring Creek feeds ground water, Comas said. A riparian buffer zone also benefits birds and provides a cover for the stream, maintaining a good water temperature for fish.

Tannery Run is so close to asphalt that when it rains, the water runs off the road, over the grass and into the stream, Comas said. With the riparian buffer zone, the water will run off the road and get absorbed by the deep, coarse roots of the trees and shrubs planted.

As the plants get taller, they provide woody debris and leaves, which support the insects living in or near the stream and also act as a natural bank stabilizer.

The vegetation the students planted was a combination of small trees and large shrubs

that will take about two years to establish, but will start helping the stream almost immediately, Comas said. Among the species planted were silky osier, shrubby dogwood, nannyberry and arrowwood.

The CPI students planted 45 containers and about 40 live stakes of dogwood. According to Comas, dogwood roots quickly, is native to the area and will grow a couple of feet per year.

The project was funded by a Growing Greener grant from the Pennsylvania Department of Environmental Protection.

"Spring and fall planting times are best," Comas said, adding that ClearWater just completed a large planting in Bellefonte at the Joseph A. Masullo Memorial Park, previously known as Reynolds Avenue Park, for Arbor Day.

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Leslie Rosenbaum

Allen Wilkins plants a tree along Tannery Run in Boalsburg as part of an effort by ClearWater Conservancy, Omega Bank and students from the Central Pennsylvania Institute of Science and Technology to improve the water quality of the stream by building a riparian buffer zone on the adjacent land owned by Omega.

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## Global climate change to take human, economic toll on Pa.

by Nicole Gallo

Glaciers are melting, plants and animals are being displaced and the number of severe storms and droughts is on the rise. A recent U.N. report predicts that global warming will cause dramatic climate changes throughout the world, but what does this mean for Pennsylvanians?

The Ecological Society of America and the Union of Concerned Scientists estimate that average summer temperatures in Pennsylvania could increase between 7 and 9 degrees Fahrenheit by the year 2100.

"I'm not necessarily speaking for the Ecological Society of America when I say this, but I truly believe that global warming is a major ecological threat," said Clifford Duke, an ESA scientist.

The Environmental Protection Agency predicted that by 2050, the rise in temperature would increase heat-related deaths by 90 percent, from about 130 deaths per summer to more than 240.

But it's not just your health that could be affected. Hunting season—a tradition in central Pennsylvania—could also be affected, according to a Pennsylvania Wildlife

Federation press release.

As wildlife disappear, hunting will decrease, which will cause money brought in by tourism to decrease as well, according to PWF.

In 2001, more than 4.5 million people spent nearly \$3 billion on hunting, fishing and wildlife viewing in Pennsylvania, providing the state with more than 56,000 jobs.

Many conservatives have tried to debunk global warming, and acceptance in the scientific community has been far from unanimous. However, many local scientists say that even the most ardent anti-global warming advocates acknowledge some sort of impact from climate change.

"There are theories out there that go against statistics about global warming, but the fact of the matter is that the economy is going to change due to higher prices, and it will affect Pennsylvania in the long run," said Leo Sammis, a specialist at Sammis Greenhouse in Centre Hall.

In a 2004 study, Penn State researcher James Shortle concluded that global warm-

see Climate, pg. 14

# Pennsylvanians losing harmonious neighbors

by Alice Fuller

## BIRD Watch

How I wish I could begin this column about the wood thrush the way I did 11 years ago. Even back then, sadly, the lovely woodland bird was already declining in numbers, and the trend has continued over the past decade. This is how my account of the wood thrush began back then:

“At dawn and dusk the flute-like notes come from behind the wall of green that borders our backyard. After reading of the problems that so many of our woodland bird species must contend with these days, I am grateful that a wood thrush—probably a pair—still inhabit the woods back of our home. Of woods-loving thrush species, the wood thrush is the one most likely to take up residence near human habitation.”

In that column I included a statement by a Penn State professor who explained why we rarely or never see or hear this bird in our neighborhood:

“Researchers at the Pennsylvania State University, led by ecologist Margaret Brittingham, found that the wood thrush has trouble reproducing in fragmented forest. As development breaks up large tracts, predators such as snakes, blue jays and chipmunks have easy access to nests.... ‘Large blocks of undivided forests hold the key for the future of eastern populations of song birds,’ says Brittingham.”

Other problems abound. Many songbirds like the wood thrush are parasitized by cowbirds, which also take advantage of the opening of woodlands. Another serious problem wood thrushes, and other birds that live close to houses, face is domestic cats, which are major predators of songbirds. What a big boon it would be to nesting birds if owners would keep their cats inside or watch them carefully from mid-May to mid-July.

Birds are most vulnerable in June, when many young tumble out of their nests to the ground. For a brief period, until they acquire flying skills, baby birds are easy prey for cats and other predators.

While some bird families, such as the warblers, enjoy a profusion of species, the thrushes number scarcely more than half a dozen. Perhaps this is why the robust, con-

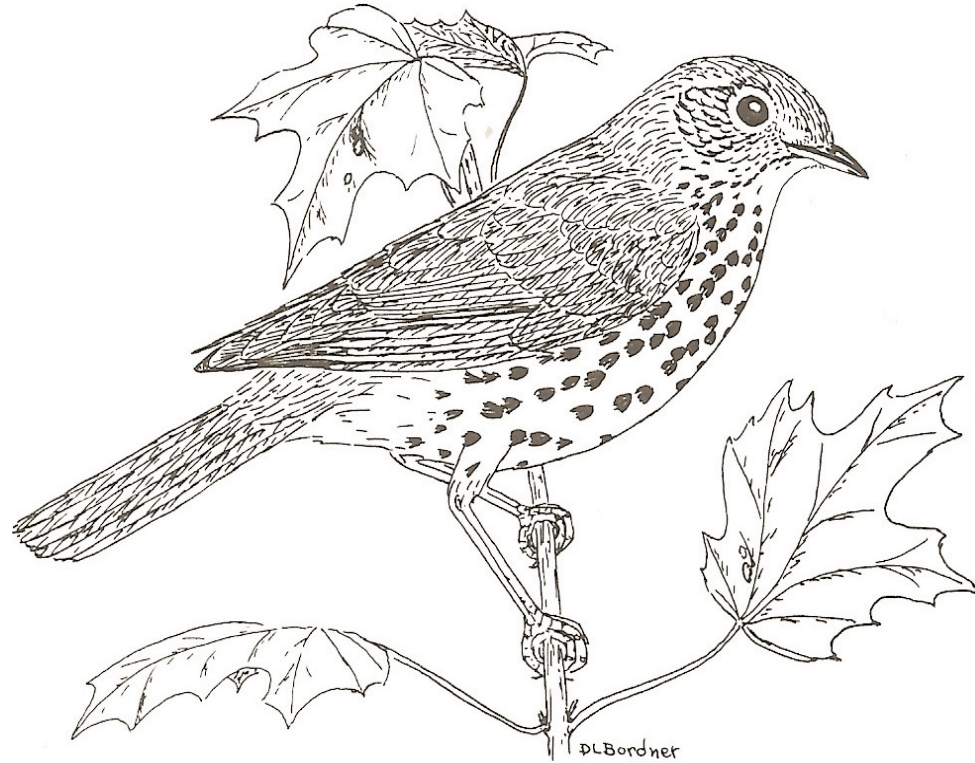
fidant robin occurs in great numbers and seems to turn up in almost every nook and cranny across the land. It provides the quantity for its tribe while the eastern, western and mountain bluebird species supply the color. However, the four resident species of woodland thrushes, with their brownish plumage and spotted breasts, might seem destined for oblivion from the human viewpoint, were it not for the wonderful music they bestow on the world.

Of our four resident species of woods-loving thrushes, the wood thrush is the easiest to recognize. Its head (the sexes look alike) is a bright rufous color, and the throat, breast and sides are covered with large dark spots. These spots and the bold ring around the eye can be observed in Dorothy Bordner’s drawing. The hermit thrush sports a reddish tail and some spots on the breast. A warm tawny color from head to tail and very light streaks on the throat distinguish it from the veery. A common spring and fall migrant, the grayish-olive Swainson’s thrush has only a few nesting records in the state. The similar looking gray-cheeked thrush only migrates through our woodlands en route to breeding grounds in forests of the far North.

In his book *Return to Wild America*, Scott Weidensaul gives a graphic description of the plight of the wood thrush:

“With nowhere else to go, songbirds such as wood thrushes congregate in the fragments, drawn like moths to a flame toward habitat that is often neither safe enough from predators nor productive enough in terms of insect food to support a growing nest of chicks. Such islands of forest thus become black holes for the species, reproductive sinks dragging the population down.”

When I accompany my daughter on Pennsylvania Breeding Bird Atlas surveys, we may hear in some woodlands the dulcet “ee-o-lay” notes of the wood thrush. The contributor who wrote the life history account of the wood thrush in the A.C. Bent



series provided this glowing description of the wood thrush’s melody:

“The nature lover who has missed hearing the musical bell-like notes of the wood thrush, in the quiet woods of early morning or in the twilight, has missed a rare treat. The woods seem to have been transformed into a cathedral where peace and serenity abide. One’s spirit seems truly to have been lifted by this experience.”

In the Pennsylvania Breeding Bird Atlas made in the mid-1980s, the distribution

map showed wood thrushes breeding all over the state. When the current Atlas is completed, I doubt we will see a similar picture.

Perhaps the results of the current survey will draw attention to—and increase concern for—our fractured woodlands and government agencies will change their management policies. If so, perhaps some time in the years ahead, wood thrushes will once more be our delightful next-door neighbors.

### from *Climate*, pg. 13

ing will not have as much of a negative effect on Pennsylvania compared to other states.

“Climate change is likely to benefit our state’s agriculture,” said Shortle. “Higher levels of carbon dioxide in the atmosphere should stimulate photosynthesis and raise crop yields, while crops may also benefit from additional spring and summer rainfall and warmer temperatures.”

But the Penn State study also predicted potential consequences for the state’s agricultural economy because of global warming.

“If Pennsylvania’s growing conditions improve while those in other regions deteriorate, the state’s production of crops and livestock could bring higher prices,” Shortle said.

In order to cut climate change-causing carbon emissions, Pennsylvania has come up with a number of incentives and grant programs to promote the use of renewable energy sources, such as wind, solar and biomass.

While decreasing fossil fuel consumption may help, many believe that the government’s attempt at promoting ethanol as an alternative fuel source is misguided. A writer for *The Nation* recently called ethanol a “magic cure” that “will make the agribusiness interests richer and insure that the GOP carries the corn-growing states of the Midwest.”

As global warming takes precedence on the international stage, Pennsylvanians are already acknowledging the impact of climate change. It remains to be seen what, if anything, will be done to deal with this change.

### from *Tannery Run*, pg. 13

The project at Tannery Run is also a school experiment for the students, said Jessica Martin, teacher of horticulture,

landscaping and floral design at CPI.

“We are taking cuttings of native plants and rooting them in hydroponics and soils to see which root faster without hormones,” Martin said.

# Compact fluorescent lamps save big bucks

## Part 3: Seeing the bigger picture

by Andy Lau

Two months ago, I showed that compact fluorescent lamps use much less electricity, cost much less and—when considering both lamp and power plant mercury emissions—release less mercury. Last month, we considered the interaction of lighting energy with heating and cooling energy.

Because the electricity used for lighting our homes ultimately turns into heat, saving electricity with CFLs causes our heating systems to use more energy, thereby reducing the net savings. In the summer, using CFLs reduces the energy used by air conditioning, adding to the energy savings.

The net energy cost also depends on the type of heating system you have and on the cost of the energy sources. Considering all of these factors, last month's column showed the net energy cost savings over the life of a CFL lamp ranges from a low of \$12 for baseboard electric or ceiling cable heat to a high of \$31 for an air-source heat pump.

This month, we'll look closer at the impact of using CFLs on emissions. Our focus will be on emissions from producing electricity at power plants and on emissions from gas or oil heating equipment in our

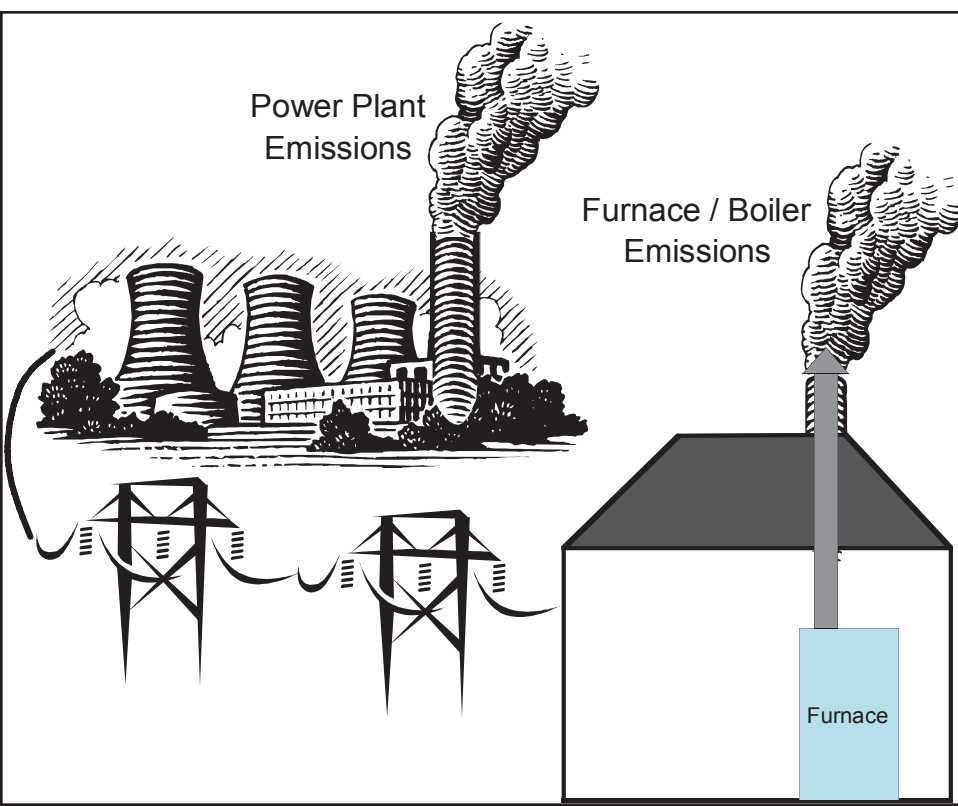


homes.

For power plant emissions, a good source of data is the National Resources Defense Council. Data on gas and oil furnaces is more difficult to find. I used the 1993 Alliance to Save Energy publication "Avoided Air Pollution Through Energy Efficiency." For mercury emissions, I used data from the Environmental Protection Agency's "Compilation of Air Pollutant Emission Factors, Vol. 1," from 1998.

The data reflect that electricity use in our region produces significantly higher emissions mainly because of coal-burning power plants. If you have natural gas or oil heat, using CFLs has an added environmental benefit because you are reducing power plant emissions while only slightly increasing emissions from your cleaner heating system.

Using a 23-watt CFL in place of a 100-watt incandescent lamp reduces pollutant emissions associated with providing electricity for the lamp as well as energy for heating and cooling. As expected, the bene-



### Emissions from common home heating sources

	SO <sub>2</sub> (lb/kwh)	NO <sub>x</sub> (lb/kwh)	CO <sub>2</sub> (lb/kwh)	Hg (mg/kwh)
<b>Allegheny Power</b>	0.0171	0.00353	2.12	0.0246
<b>Natural Gas</b>	0.0000034	0.00024	0.40	0
<b>Heating Oil</b>	0.000737	0.00022	0.59	0.000165003

### Net emissions from power plant and heating systems over life of 23-watt compact fluorescent lamp

	SO <sub>2</sub> (lb)	NO <sub>x</sub> (lb)	CO <sub>2</sub> (lb)	Hg (mg)
<b>Electric Baseboard or Ceiling Cable</b>	-3.25	-0.671	-403	-4.68
<b>Air-source Heat Pump</b>	-8.10	-1.67	-1004	-11.7
<b>Gas Furnace or Baseboard</b>	-11.3	-2.21	-1185	-16.3
<b>Oil Furnace or Baseboard</b>	-10.9	-2.21	-1057	-16.2

fit is greatest for homes heated with natural gas or oil but is still significant for electrically heated homes.

A concern with CFLs is that they contain about 4 milligrams of mercury. While this is an issue, note that mercury emissions for energy production are reduced by between 4.68 milligrams and 16.3 milligrams. A quick search of the Internet showed several CFLs are now on the market with mercury contents less than 2 milligrams. This trend, combined with the recycling of CFLs in the future, should further reduce the environmental impact.

If you've been brave enough to follow this column over the last two issues, then you've probably observed that this process

of life-cycle assessment is challenging. Yet this level of thoughtful analysis is needed so that decisions we make are informed by awareness of the consequences.

When we are considering purchases that use energy, a good way to start is by looking at both the purchase price of the item and the cost of energy used over its lifetime. In the case of CFLs, this would clearly show their economic advantage over incandescent lamps.

For more information, go to the **National Resources Defense Council** Web site at <http://nrdc.org/air/pollution/benchmarking>.