

The Canaries Had Their Coal Mines

By ANTHONY DePALMA

Published: August 8, 2005

HUNTER MOUNTAIN WILD FOREST, N.Y., Aug. 3 - So far this summer, Wing Goodale and his boss, David C. Evers, have used decoys and recorded bird calls to lure about 150 thrushes, warblers and other wild songbirds into nets here and in several others parts of New York City's Catskill Mountain Watershed to determine what is happening to the drinking water.



Tony Cenicola/The New York Times

A blood sample taken from a wood thrush in the Catskills could help researchers determine if mercury levels are increasing in areas around water resevoirs in upstate New York because of air pollution coming from coal-burning power plants in the Midwest.



Tony Cenicola/The New York Times

David C. Evers, of the BioDiversity Research Institute, holds a trapped bird.



Tony Cenicola/The New York Times

Streams like this one flow into reservoirs. New York is one of a handful of cities that do not filter their water.

From each tiny bird, no bigger than a cellphone, Mr. Goodale, a research biologist, gently takes blood samples with toothpick-size pipettes. Then Mr. Evers, also a biologist, stretches out a bird's wing and counts down to its 11th flight feather, which he deftly plucks and puts into a plastic storage bag for sampling.

Mr. Evers, who is executive director of the BioDiversity Research Institute, a nonprofit research and education group in Gorham, Me., is looking for signs of mercury in the songbirds. He has a pretty good hunch that he will find it, as he has already found mercury in songbirds in the Adirondacks and in New England.

If substantial amounts of mercury show up in the blood and feathers he has collected, it could spell trouble for the watershed and, potentially, for the nine million people who rely on the New York drinking water that comes from here because it would mean that the toxin is present in ways that were previously unknown.

"It's far more extensive than was ever put forth to the public," Mr. Evers said.

Mercury contamination has long been present in lakes, rivers and the city's reservoirs.

Mercury, a liquid metal, does not get into water because of broken thermometers, as some believe. Rather, mercury occurs naturally in the earth, including in coal. It is released into the air by coal-burning power plants and other sources.

Emissions from power plants in the Midwest drift toward New York. The real problem comes when the airborne mercury comes into contact with water and is

transformed into its toxic form, methylmercury. Although the water in New York City's Catskill reservoirs is considered safe to drink, state health officials have posted advisories warning that pregnant women and children ought to limit their consumption of bass, trout and other fish caught in the reservoirs because the fish have absorbed some of the toxic material.

Until recently, the mercury problem was thought to be limited to water. The discovery of mercury in songbirds that never go into the water may represent a serious new threat.

Mr. Evers was invited to the watershed by the New York chapter of the Nature Conservancy, a national environmental group that has helped protect open spaces throughout the state.

In recent years, New York City has spent about \$175 million to buy about 60,000 acres of Catskill woodlands to protect the reservoirs. But what good is buying forest land, asked Alan White, director of the conservancy's Catskill Mountain Program, if the health of the forest itself is at risk?

It is still early in the investigation, but Mr. Evers, who spent more than a decade studying the impact of mercury on water birds like loons, believes that the harmful form of mercury gets caught in the fallen leaves and other litter on the forest floor, where it is consumed by sow bugs, centipedes and other small insects.

As those bugs are eaten by larger bugs, the mercury content is passed on. The buildup of mercury continues as those insects are eaten by songbirds.

Mr. Evers and Mr. White say that it makes sense to think of forest songbirds as early warning systems, like the canaries that used to be carried into coal mine shafts. If the canaries died, miners hurried out of the mines because they knew that dangerous methane or carbon monoxide was present.

In the same way, unnatural levels of mercury in songbirds could be interpreted as a sign of pending danger in the forests. In loons and other water birds, excessive levels of mercury cause erratic behavior and lower birthrates.

The scientists in the Catskills are focusing their attention on the wood thrush, a gutsy little frequent flier with a flutelike voice that can combine two notes at once. The wood thrush can migrate as far south as Panama, more than 2,500 miles from the Catskills.

In recent decades, the number of wood thrushes has declined 45 percent, and the reason is unclear. Mr. Evers says biologists initially suspected that destruction of the bird's winter habitat was responsible. But now he thinks elevated levels of mercury could be to blame.

The connection between mercury in the birds and the purity of the city's drinking water is indirect, but real. As Mr. White explained, if the songbird population declines, the natural check on insects will be disturbed.

Without the birds preying on them, caterpillars and other destructive insects can defoliate forests, killing trees that filter runoff that eventually winds up in the reservoirs.

Before dawn, Mr. Evers and Mr. Goodale set up nearly invisible traps, called mist nets, along a trail on the western slope of Hunter Mountain, in between the city's Schoharie and Ashokan Reservoirs.

On the forest floor near the nets they placed plastic decoys and CD players that reproduced the thrush's beautiful ee-oh-lay song.

By 8 a.m. they had trapped about 10 birds, including several wood thrushes. Because the wood thrush is somewhat larger than other forest songbirds, it is believed that it will show a higher level of mercury when the tests are completed in about six weeks.

If these initial studies of songbirds indicate, as expected, that there is a serious problem with mercury, Mr. White said the long-range concern would be that "these forest systems will start to unravel," endangering the water supply.

Mr. White said that there was no immediate health danger, and the New York City Department of Environmental Protection, which runs the city's water system and continuously tests for mercury, has not detected the element in the water.

New York is one of only a handful of cities in the country that do not filter their drinking water. What goes into the upstate reservoirs comes out in New York taps 120 miles later unfiltered, although chlorine and fluoride are added.

Mr. Evers says it is much too early to determine what the impact of mercury on the songbirds might be, or how long before the reservoirs are affected in any way.

But he said that, when it comes to drinking water, it is important to anticipate a potential problem.

"The wood thrush is a good indicator species," Mr. Evers said. "If this small-scale, pilot project shows that there is a danger in these parts, it will be time to go to the policy makers and say this is what we've found, and we should do something about it."