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## Wildlife Waste Is Major Water Polluter, Studies Say

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Does a bear leave its waste in the woods?

Of course. So do geese, deer, muskrats, raccoons and other wild animals. And now, such states as Virginia and Maryland have determined that this plays a significant role in water pollution.

Scientists have run high-tech tests on harmful bacteria in local rivers and streams and found that many of the germs -- and in the Potomac and Anacostia rivers, a majority of them-- come from wildlife dung. The strange proposition that nature is apparently polluting itself has created a serious conundrum for government officials charged with cleaning up the rivers.

Part of the problem lies with the unnaturally high populations of deer, geese and raccoons living in modern suburbs and depositing their waste there. But officials say it would be nearly impossible, and wildly unpopular, to kill or relocate enough animals to make a dent in even that segment of the pollution.

That leaves scientists and environmentalists struggling with a more fundamental question: How clean should we expect nature to be? In certain cases, they say, the water standards themselves might be flawed, if they appear to forbid something as natural as wild animals leaving their dung in the woods.

"You need to go back and say, 'Maybe the standards aren't exactly right' if wildlife are causing the problem," said Thomas Henry, an Environmental Protection Agency official who works on water pollution in the mid-Atlantic.

The story of how wild animals -- which usually are considered the victims in environmental dramas -- came to be cast as villains begins with the EPA's limits on bacteria levels in streams. Bacteria such as *E. coli* and other fecal coliform, which are found in both human and animal waste, can cause sickness on their own, and they can serve as a warning that other, even nastier pathogens might also be present.

In the Washington area, violations of the bacteria standards have put more than two dozen streams, including the Potomac and Anacostia rivers, on the federal "impaired waters" list. That means they do not meet the ideal conditions for swimming and need cleaning up.

So who -- or what -- is responsible for the contamination? The answer has become much clearer in the past five or so years, because of high-tech tests sponsored by states that pinpoint from which animal a particular sample of bacteria came.

In this area, some of what these surveys have found is not surprising. One recent study by a Virginia Tech team found that humans are responsible for 24 percent of the bacteria in the Anacostia and 16 percent of the Potomac's, whether the source is a broken septic tank or the District's large sewage overflows during heavy rains. Livestock were also a major problem around the area -- responsible for 10 percent of the Potomac's bacteria, for instance -- because their manure washes out of pastures and the farm fields where it is spread as fertilizer.

Then there are nature's own polluters.

In the Potomac and the Anacostia, for instance, more than half of the bacteria in the streams came from wild creatures. EPA documents show that similar problems were found in Maryland, where wildlife were more of a problem than humans and livestock combined in the Magothy River, and in Northern Virginia tributaries such as Accotink Creek, where geese were responsible for 24 percent of bacteria, as opposed to 20 percent attributable to people.

"Wildlife consistently came up as being . . . a major player," said Peter Gold, an environmental scientist for the EPA.

To some scientists, this makes perfect sense. They point out that a few wild animals have managed to thrive in the environments that humans create: Deer feast on suburban flowers; raccoons raid backyard pet-food bowls. Nonmigratory Canada geese, descended in part from geese brought to this area as live hunting decoys, have fallen so much in love with golf courses and groomed city parks that their East Coast population now stands at 1.1 million.

It could be the ultimate irony of people's impact on nature that the entire system has changed so radically that wild animals now degrade their own environment. More animals means more bacteria-laden waste. Some of that is swept by storm water into rivers and streams.

Some of the waste is deposited directly into the currents.

"They're pooping in the water," said Chuck Frederickson, an environmentalist who is keeper of the James River, gazing at geese slurping algae off river rocks one recent day. He said the goose population is an obstacle to improving the river: "Do we want less bacteria in the water, or do we want geese around?"

But it is one thing to blame wild animals for pollution and another to figure out how to get them to stop.

Scientists have actually run the numbers for many local streams, using mathematical models to estimate how much the bacteria from wildlife dung needs to be reduced to meet the standards.

But these calculations, required by EPA rules, often have an oddball quality: In the Willis River in central Virginia, for instance, scientists created highly specific estimations of the population density for various animal species (.07 raccoons per acre, for example, and 2.751 muskrats), then factored in the number of grams of waste each animal produces a day (450 grams per raccoon, 100 per muskrat).

Eventually, they determined that there needed to be an 83 percent reduction in the amount of waste that wildlife left directly in streams.

But even the scientists who make these determinations say such a large reduction is unlikely. Although Maryland does kill a few hundred geese annually to reduce water pollution, and the U.S. Fish and Wildlife Service last month relaxed its rules to make it easier to kill geese for public-health reasons, no officials in this area have plans to kill or remove wildlife on a scale large enough to make a difference to the waterways.

"When you run the model, that's what you come up with, but it's unrealistic to expect that anything like that is going to happen," said Charles Hagedorn, a professor at Virginia Tech who has worked on pollution surveys for the state over the past 15 years. "That's the conundrum: What do you do?"

Some environmentalists have an answer: Just stop worrying about the wildlife.

"If you were here when Captain John Smith rode up the Anacostia River [in 1608], and you tested the water, it would probably have a good bit of coliform in it" because of wildlife, said Robert Boone, president of an environmental group called the Anacostia Watershed Society.

Boone said he has heard officials from sewage-treatment authorities bring up the fact that wildlife, more than the human waste they treat, is a major contributor to the bacteria problem.

"That's a total out for not doing anything" to reduce man-made pollution, Boone said. "Just ignore the wildlife and deal with the leaking sewer pipes."

Now, the EPA and state agencies seem to be coming to a similar conclusion. In interviews and in official documents, they say they're considering holding some streams to different standards, expecting that not every stream can be made safe for swimming. In such cases, the states would plan to reduce bacteria from human sources as much as possible and then reassess to see whether some level of bacteria from wildlife is natural.

But, for now, no such reassessments have been made in this area. Maryland officials seem especially unwilling to do so in the near future, fearing how the public would react to such a lowering of the bar.

So, on paper at least, wild animals are still catching blame -- to a reaction of disbelief from some animal advocates.

"Has anybody studied about fish?" quipped David Feld, national program director for a Falls Church-based group called GeesePeace, which seeks nonlethal ways of controlling goose populations. "How much fish contribute?"

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