

Scientists find chemicals in wild bird eggs

By [Kevin Miller](#)

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Wild bird eggs taken from throughout Maine tested positive for a broad range of industrial toxins, according to a new study that underscores the pervasiveness and longevity of chemicals in the environment.

"If you look for it, you will find it," said Wing Goodale, lead author of the report being released today.

Goodale and his colleagues at the BioDiversity Research Institute in Gorham tested eggs from 23 bird species for the presence of 192 synthetic compounds, including mercury, pesticides banned decades ago, and flame retardants common in today's home electronics.

The researchers found all of the major compounds — some at levels considered potentially harmful to wildlife — in all of the species tested.

Goodale is expected to present his findings today to a legislative committee that is considering bills to beef up state laws on toxins in consumer products. Supporters of such measures already are citing the small study as further proof of the need for more-stringent regulation of common industrial chemicals.

"It's time to take action to prevent these hazardous chemicals from contaminating our wildlife, our homes and our bodies," Matt Prindiville, toxics policy advocate for the Natural Resources Council of Maine, said in a statement.

With the exception of one group of repellents, all of the compounds in the study already have been documented in Maine birds to various extents. Goodale's study is unique because it examined so many chemicals in so many different types of birds.

The BioDiversity Research Institute is the same organization that operates the popular eagle cam that streams live video over the Internet of a bald eagle nest in Hancock County.

In the study, 60 eggs were collected from seabirds, swallows, ducks, birds of prey and other species chosen to represent all of the major habitat types in the state. In most cases, the eggs were taken after they failed to hatch.

The eggs were tested for contaminants in five basic groups: mercury; polychlorinated biphenyls, used decades ago often as transformer coolants; flame retardants in the polybrominated diphenyl ether family; industrial repellents; and organochloride pesticides such as DDT.

Not surprisingly, eggs from four bald eagles and a peregrine falcon had the highest average contamination levels. That is because toxins accumulate at higher concentrations as you move up the food chain.

Goodale called one eagle egg the "hot egg" because it contained so many PCBs and other contaminants.

Eggs from common loons, American kestrels and great black-backed gulls also had higher concentration levels. One surprise on the more-affected list was the piping plover, a tiny threatened species that dines on invertebrates in mud flats.

Eggs with the lowest concentrations from the suite of toxins included the Virginia rail, the willet and the red-winged blackbird.

The researchers did not test eggs from domesticated birds such as chickens.

Goodale acknowledged that the toxins at the detected levels are not causing birds to drop out of the sky dead. However, many of these chemicals can affect birds' reproductive systems, physical abilities or even their ability to care for young. Some have been shown to hurt the survivability of eggs.

Goodale gave the example of a peregrine falcon, which requires great precision to catch prey while flying at up to 60 mph. Having these compounds built up in their bodies could mean falcons may require additional attempts to catch prey, which uses more energy and can affect rearing of young.

Eggs taken from southern coastal regions tended to have higher total concentration levels, a fact that suggests local development is one pollution source, according to Goodale. But the presence of higher concentrations in an egg of a Leach's storm-petrel, which feeds 60 to 120 miles offshore, illustrates the global nature of pollution.

One area of good news is that levels of PCBs and pesticides such as DDT, while still present, continue to decline.

Less is known about the harmful effects of flame retardants such as deca — the subject of legislative action last year — and industrial repellents. Goodale's study was the first in Maine to look for perfluorinated chemicals used in stain repellents, cleaning agents and other consumer products.

"One thing that is very clear is that toxic pollutants are persistent in our environment," Goodale said. "I guarantee if we were to go out 30 years from today ... we would continue to find all of these compounds."

Steve Mierzykowski, a wildlife biologist with the U.S. Fish and Wildlife Service who studies contaminant levels, said many of Goodale's results were consistent with federal surveys on chemicals such as PCBs and pesticides.

Mierzykowski, who helped the BioDiversity Research Institute acquire failed eagle eggs, said he was interested in the perfluorinated chemicals findings. The challenge with any study such as this is to receive funding to do enough egg testing to compile statistical data.

Each egg cost \$1,000 to test.