

50 years of bird poop links DDT with changing bird menus

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New research findings highlight how deposits of animal droppings are scientifically important for determining the impact of environmental change on threatened species.

Analysis of 50 years' bird droppings inside a large decommissioned chimney on Queen's campus, provided evidence that [DDT](#) and bird diet may have played a role, in a long-term decline for populations of insect-eating [birds](#) in North America. The chimney had been a roosting spot for chimney swifts.

"Certainly there are many other deposits in large chimneys around North America and elsewhere, forming important environmental time capsules," says biology professor and co-author John P. Smol, Canada Research Chair in [Environmental Change](#), and previous winner of the Natural Sciences and Engineering Research Council of Canada (NSERC) Herzberg Gold Medal as Canada's top scientist. "It may be a stinky job, but someone has to do it!"

Researchers at Queen's University Paleoecological [Environmental Assessment](#) and Research Lab (PEARL) developed a protocol for sampling the accumulation of droppings. They created a profile of the chimney swift guano deposit, then recruited experts to analyze different parts of the profile.

DDT use peaked at the same time there was a dramatic reduction in the abundance of beetles – insects especially susceptible to DDT – in the

diet of swifts, according to analysis of the pile of droppings. This illustrates an impact of DDT that adds to its already infamous role in the thinning of eggshells.

These findings were published in the international journal *Proceedings of the Royal Society B*.

Provided by Queen's University

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