

# What ever happened to West Nile?

November 2 2015

---



A New York State pathologist examines a dead crow the year West Nile first hit the East Coast.

Many people remember the arrival of West Nile in North America in 1999, if only because the initial outbreak killed not just wild crows but also exotic birds in the Bronx Zoo.

In the following years, a trail of dead crows marked the spread of the [virus](#) from the East through the Midwest on to the West Coast. It took only four years for the introduced virus to span the continent.

But what happened to [bird populations](#) in the wake of the virus's advance? Were some [species](#) decimated and others left untouched? After the initial die-off were the remaining [birds](#) immune, or mown down by successive waves of the disease? Nobody really knew.

Now, a study published in the Nov. 2 issue of *Proceedings of the National Academy of Sciences* provides some answers. The study, a collaboration among scientists at Colorado State University, the University of California at Los Angeles, Washington University in St. Louis and the Institute for Bird Populations (IBP), is the first to fully document the demographic impacts of West Nile virus on North American bird populations.

The scientists analyzed 16 years of mark-recapture data collected at more than 500 bird-banding stations operated using the Monitoring Avian Productivity and Survival protocol developed by IBP, a California-based nonprofit that studies declines in bird populations.



Red-eyed vireo (*Vireo olivaceus*) was one of the species hit hard by West Nile

that managed to recover. Credit: Randy Korotev

They discovered large-scale declines in roughly half of the species they studied, a much higher fraction than spot checks like the Christmas bird count had found.

"Clearly we didn't see the whole picture," said Joseph A. LaManna, PhD, Tyson postdoctoral researcher in the Department of Biology in Arts & Sciences at Washington University. "It wasn't just the jays that were dying; half the species we studied had significant die-offs."

The data also revealed, however, that some species fared much better than others. Roughly half of the afflicted species managed to rebound within a year or two. Ironically, the resilient ones include the crows and other corvids who were so strongly associated with the disease on its arrival.

But a second group of birds, including Swainson's thrush, the purple finch and tufted titmouse were not so lucky. Knocked down by the arrival of West Nile virus, they have not rebounded and seem to have suffered long-term population declines.

"Many more species of birds than we thought are susceptible to this virus," said T. Luke George, PhD, an ecologist at Colorado State University. "And we also found long-term effects on population growth rates. Prior to this study, we generally thought the West Nile virus had a very short-term effect on bird survival."



Swainson's thrush (*Catharus ustulatus*) was one of the species the scientists studied that has yet to recover from West Nile. Credit: Randy Korotev

The scientists aren't sure why some species fare better than others. Was a common evolutionary history predictive? Or similar habitats or diets?

"That's really the question our study opens," said Ryan J. Harrigan, a biologist at the University of California, Los Angeles. "In the end, we're not completely sure why some species recovered from this disease and some did not. That would be the next step forward, addressing that question."

"The deeper story is that without long-term monitoring and detailed data, we miss patterns like these," LaManna said. "Deaths in one area can be easily masked by immigration from other areas, and we wouldn't really notice unless we happened to be looking at the right type of data."

"This year was another big West Nile year," LaManna said. "Most

people don't even know that."

**More information:** Persistent impacts of West Nile virus on North American bird populations, *PNAS*,  
[www.pnas.org/cgi/doi/10.1073/pnas.1507747112](http://www.pnas.org/cgi/doi/10.1073/pnas.1507747112)

Provided by Washington University in St. Louis

Citation: What ever happened to West Nile? (2015, November 2) retrieved 26 April 2024 from  
<https://phys.org/news/2015-11-west-nile.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.