



Watching Out for West Nile Virus

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While crows are especially susceptible to West Nile virus, many other bird species are disease carriers. USGS scientists and state and national health officials are monitoring the spread of the disease. (photo: USGS)

In the fall of 1999, a disease never before seen in the U.S. struck both humans and birds in the New York City area. Known as the West Nile virus, it killed seven people and sickened fifty-nine others before the weather turned cold and the mosquito-born disease was laid to rest. Parts of Nassau and Westchester counties and metropolitan New York City were broadcast sprayed with malathion, Anvil, and pyrethroid pesticides to kill mosquitoes and prevent further transmission of the disease.

Several thousand birds also died. Crows appeared to be more sensitive to the disease than other birds—although this may be attributable to the fact that dead crows are simply easier to spot. A diversity of species, including blue jay, black-crowned night heron, mallard, American robin, several species of hawks and gulls, and belted kingfisher all tested positive for the West Nile virus.

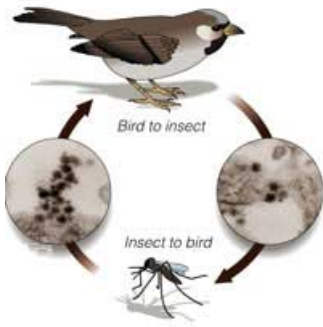
The Mosquito-People-Bird Connection

The West Nile Virus is an *arboviral infection*, which means that it originates within insect populations—generally blood-sucking insects like mosquitoes or ticks—and undergoes changes in the insect prior to transmission. Fortunately, not all species of mosquitoes carry the disease—West Nile is primarily transmitted by the *Culex* mosquito. Unfortunately, while only a small number of *Culex* mosquitoes may carry the disease, they are generally prone to biting birds and people.

Birds can't transmit the disease directly to people, but once they become infected, the virus can be transmitted back to mosquitoes for about four to five days. During that time, birds can fly hundreds of miles, carrying the disease with them. Should they be bitten again by a mosquito, that mosquito becomes a new carrier of the disease.

The Threat of West Nile Virus vs. The Threat of Broad-scale Pesticide Spraying

The West Nile virus generally attacks those with weakened immune systems or immune deficiency diseases. All seven victims of the 1999 outbreak were elderly. While the West Nile virus is rarely fatal, its encephalitis stage is extremely damaging. Swelling of the brain may cause high fevers, headaches, uncontrollable violent seizures, and sometimes death.



The cycle of West Nile as it spreads from bird to mosquito. More information on prevention may be found at:

- <http://www.west-nile-virus-prevention.com/>
- <http://www.cdc.gov/ncidod/dvbid/westnile>

Broad-scale spraying of malathion and other chemicals to control the spread of disease carries its own set of risks. Malathion's label warns against spraying near water sources or where runoff is likely to occur—a difficult if not impossible task when aerially spraying the chemical. Ironically, the pesticide has also been found to weaken the immune system (*Journal of Immunology*, 140(2)), thereby making those exposed to it more vulnerable to disease.

Authorities continue to monitor disease outbreak and severity each year and weigh controversial spraying with threats posed by the disease. If state health and environmental departments implement preventative measures outlined by the National Center for Disease Control, conducting wide-spread pesticide spraying may not be necessary.

Attracting Birds Safely

There are simple precautions people can take to reduce of mosquito bites and still enjoy attracting birds to their properties.

- Most important, remove stagnant backyard pools or birdbaths, old tires, or rainwater barrels that invite breeding mosquitoes.
- Wear protective clothing outdoors and use insect repellents containing DEET to reduce the risk of mosquito bites.
- Finally, should you find dead birds on your property with no visible sign of injury, contact your local wildlife pathology department or health department to find out whether the bird should be tested for West Nile virus. Don't handle the dead bird with your bare hands.

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