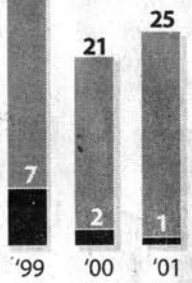
WEST NILE INFECTIONS

62 Since it first appeared in the United States in 1999, West Nile virus has infected 108 people, including 10 deaths.



By BRADY TEUFEL
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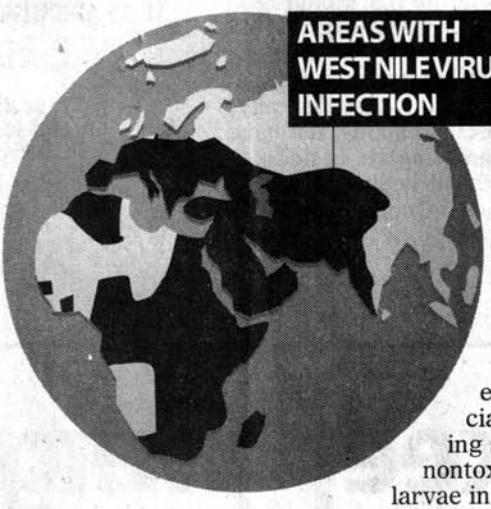
Six months after the first cases of the mosquito-borne West Nile virus were discovered in St. Louis, local health officials have stepped up their vigilance.

"Over the winter there has been a concerted effort by the public health system to get awareness out there about the West Nile virus. As of today, we haven't had an official case of the virus in Boone County but it probably will come," Gerry Worley, environmental health manager for the Columbia/Boone County Health Department, said last week.

The disease was blamed for the deaths of eight American crows in the St. Louis area last fall. Since its discovery in New York in 1999, the virus has been detected in 27 states. It is feared that it will spread as far west as Colorado by the end of 2002, Worley said.

According to the Center for Disease Control in Atlanta, the West Nile virus has been diagnosed in humans, birds and other vertebrates in Africa, West Asia and the Middle East since as early as 1937, but was not discovered in the United States until the summer of 1999. Serious cases of the disease can lead to encephalitis, or inflammation of the brain, and death. There have been 149 incidences of the West Nile virus in the United States, including 18 deaths.



Local health department officials have used the winter months, when the mosquito population is at a minimum, to make preparations for a possible West Nile virus outbreak this year.

"We've developed a surveillance network among doctors, clinics and hospitals so that they can report back as soon as possible if a case of the virus occurs," Worley said. "We've also prepared a video about the virus for city cable which will air sometime in the next couple weeks and employed environmental health specialists to investigate potential breeding sites." Health officials will use a nontoxic bacteria to eradicate mosquito larvae in these sites, Worley said.

The department is also in the process of setting up three traps around Boone County to collect mosquitoes. Department employees will monitor the traps, which will be on the east and west sides of town, and specimens will be sent to Southeast Missouri State University for testing.

Although the department began preliminary trapping and testing of mosquitoes last October, full-scale collection efforts will not begin until later this month.

"Most of the traps are designed to attract a specific species of mosquito, the culex pipien, which is known to be a carrier of the virus," Worley said. "After a blood meal, the female mosquito seeks a place to lay her eggs. It is attracted to the stagnant water, which the trap emulates."

Disposing of stagnant water is the most effective way to keep the mosquito population down, Worley said. "Any standing water, including old tires and bird baths, that have stood for more than a few days are perfect sites for mosquitoes to lay their eggs."

Following the discovery of West Nile virus in St. Louis, the Missouri health department has refocused its efforts to identify and respond to potential occurrences of the disease. With the help of an anticipated $300,000 grant from the Centers for Disease Control — significantly more than last year's allotment of $90,000 — the department will expand surveillance for the virus to include every county in the state.

"We will be starting an active human case surveillance in which health departments will be calling doctors to see if they're seeing any of these cases instead of waiting for the doctors to call us," said Howard Pue, chief of the Department of Communicable Disease Control and Veterinary Health at the state health department. "The CDC wants us to develop an infrastructure to look for more insect-borne diseases, not just the West Nile virus."

As of 2001, the CDC listed the West Nile virus as the second most common mosquito-borne disease to involve serious human cases. The first is LaCrosse encephalitis, which involves an average of 70 cases per year. Other insect-borne diseases include St. Louis encephalitis, which is also spread by mosquitoes, and Rocky Mountain spotted fever and rabid fever, both of which are transmitted by ticks.

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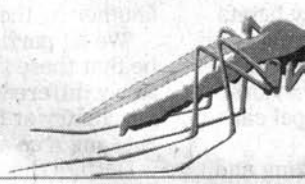
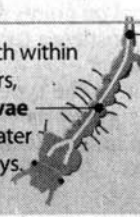
A MOSQUITO'S LIFE CYCLE

About 2,500 species of mosquitoes exist worldwide, of which 55 occur in Missouri. Insecticides can control mosquito populations, but reducing stagnant water suitable for larval and pupal growth is most efficient.

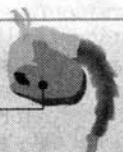


1 Female mosquitoes lay hundreds of **eggs** on the surface of stagnant water.



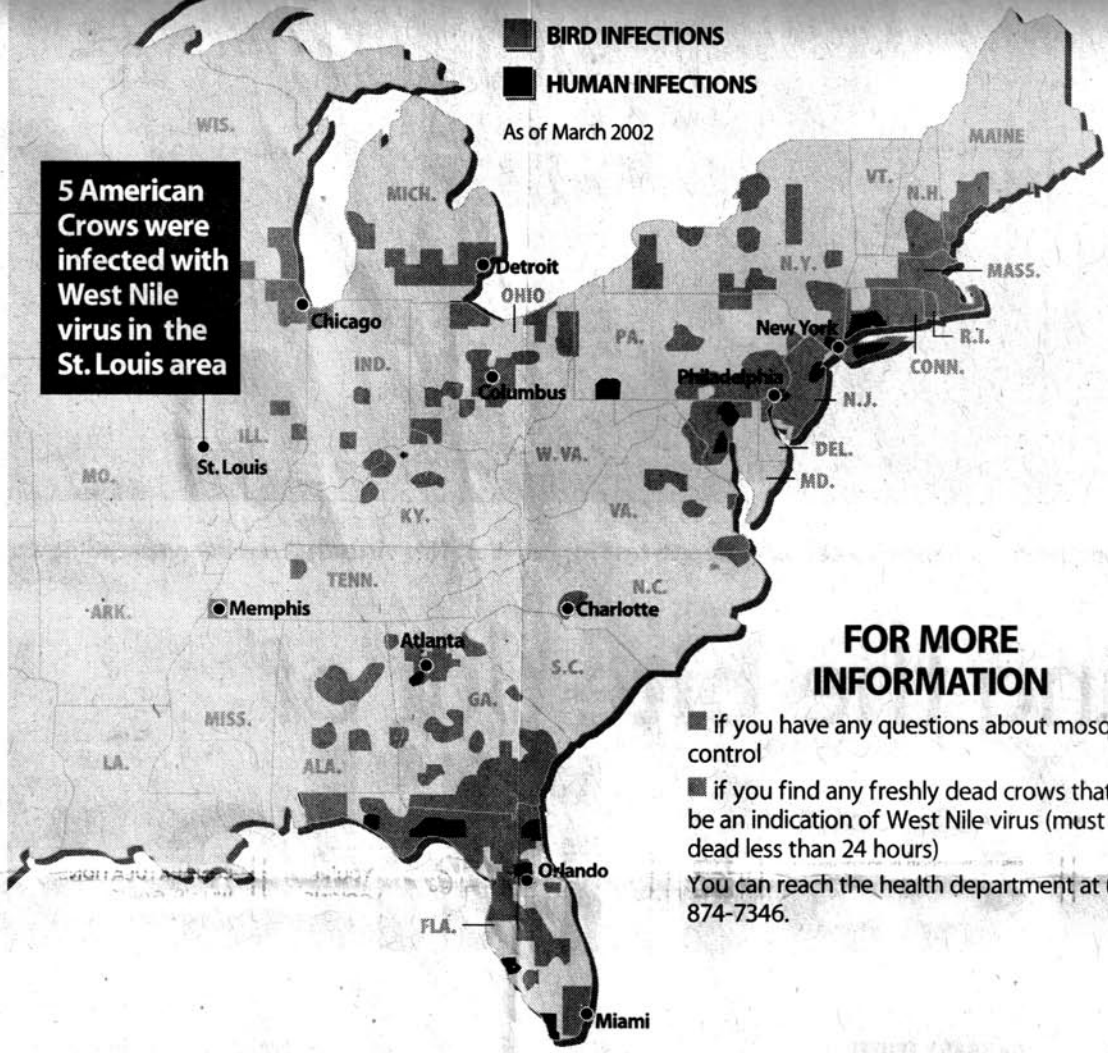
2 Eggs hatch within 24 to 48 hours, releasing **larvae** that live in water for 7 to 14 days.

Siphon: breathing tube for obtaining oxygen



3 Larvae grow and shed their skins four times, becoming a **pupa** after the fourth change.

4 Pupae rest in water fro to 4 days before the adult develops. The new adult st on the water surface for a minutes to dry its wings.



FOR MORE INFORMATION

- if you have any questions about mosquito control
- if you find any freshly dead crows that may be an indication of West Nile virus (must be dead less than 24 hours)

You can reach the health department at (573) 874-7346.

VIRUS TRANSMISSI

When a mosquito bites an infected animal, the West Nile virus remains on its **salivary glands**.

If the mosquito then bites a human, the virus may be injected into the human's blood stream.

Fewer than one percent of mosquitoes are infected, and fewer than one percent of people bitten by an infected mosquito become severly ill.

Three to 15 days following transmission, the virus multiplies in the blood stream, interfering with the central nervous system and causing inflammation of brain tissue.

West Nile: Experts say the virus isn't a big threat to the public

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Among the first animals to become infected with the West Nile virus when it enters an area are crows, jays, raptors and horses. Known as the virus' 'sentinel species,' these animals are "generally more susceptible than others" and can become infected by lower concentrations of the virus, said Phil Johnson, associate professor of veterinary medicine at MU. For this reason, these animals often serve as warning signs for an outbreak.

Pue noted that the West Nile virus reached epidemic proportions within the U.S. horse population during 2001.

"There were 700 cases of the virus in equines last year, and 500 of those cases were in Florida," Pue said, adding that the virus has already turned up in various hosts this year in Florida, Louisiana and Virginia.

Although no human vaccine for the West Nile virus exists, an equine version is being marketed to horse owners throughout the country and its popularity is surging. "Some vets don't even have enough of the vaccine to offer anymore," said Steve Kleiboeker, MU professor of veterinary pathobiology.

Although the West Nile virus has increasingly been in the news, many experts tend to downplay the threat it poses to public health. According to the CDC, less than 1 percent of those infected with the disease will actually develop severe illness and among those with the illness, fatality rates range from 3 percent to 15 percent.

"In my opinion, animal owners and the general public have little to fear from West Nile virus," Kleiboeker said. "There are a number of equally dangerous encephalitic pathogens currently circulating in the U.S., and while West Nile virus adds an additional risk to animals and people, it is a relatively small risk."

Pue agrees with Kleiboeker's assessment but noted that certain segments of the population are at a higher risk. "If you're a person who's between 68 and 70 years old, you might not agree with that statement," said Pue, who noted that most deaths in the U.S. from the West Nile virus have occurred among this age group.

Residents are urged to contact the health department at (573) 874-7346 if they find any freshly dead crows. Specimens must not have been dead for more than 24 hours. In addition, residents should contact the health department if they have any questions about mosquito control.

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