



**National Wildlife Health Center
Wildlife Health Bulletin 2000-02B**

To: Natural Resource/Conservation Managers
From: Director, USGS National Wildlife Health Center (Robert McLean)
Title: Update on West Nile Virus (issued October 30, 2000)

This is an update of the September 25, 2000, USGS Wildlife Health Alert (WHA 00-02) on West Nile Virus. Results from a study conducted at the USGS National Wildlife Health Center demonstrated that in a confined experimental setting the West Nile virus can be transmitted from crow-to-crow. It had been thought that the virus was only transmitted through the bite of a mosquito vector.

Nine American crows infected with the West Nile virus were placed into a mosquito-free aviary along with 7 non-infected crows. The 16 birds were housed in a flight room, measuring approximately 16-feet by 20-feet, where they shared food and water and sat on common perches.

All of the 9 infected birds died within five to eight days later. The contact control birds began to die five to eight days after the first infected bird died. The West Nile virus was then re-isolated from the contact control birds demonstrating that the virus was transmitted without the presence of a mosquito or other insect vector.

At this time we do not know how the virus moved from bird to bird. However, in an earlier experiment infected and non-infected crows housed in the same room, but in separate cages, showed no evidence of direct transmission of the virus indicating that the virus was not transmitted through the air in the laboratory. Other possible routes of transmission could be through oral contact though preening or feather picking or through contact with food, water, feces or the shared roosting perches.

We want to emphasize that this was a very controlled experiment and we do not know if or how this relates to what is happening in the wild. Crows have been shown to be highly susceptible to the virus and we believe they are more likely to transmit the virus through bird-to-bird contact than other bird species. Mosquitoes are still believed to be the primary means of transmission of the virus between birds and to humans. The threat of humans contracting the virus directly from birds is slim. We are recommending that people wear gloves or use an inverted plastic bag to pick up wildlife found dead of unknown causes.

Refuge and park visitors, as well as employees, should be reminded that there are many diseases that can be transmitted by contact with wildlife and they should wear gloves or use an inverted plastic bag to pick up wildlife found dead of unknown causes. As is the case with all wild game, hunters should be advised to only consume meat that is well cooked, to wear gloves when cleaning game, and to wash hands thoroughly after handling wild game.

West Nile virus (WNV) is an arthropod-borne virus that had never been reported in the Western Hemisphere until the fall of 1999. Wild birds, primarily crows, were affected in last year's outbreak in the greater New York City area along with several other native North American bird species, horses, and people. This year, wild bird mortality due to WNV was first detected in May 2000 in southeastern New York and northeastern New Jersey. Since then the disease has continued to expand both geographically (see map) and in the number and variety of species infected (see table). West Nile virus has been isolated from 64 species of birds, including 53 free-ranging species from 11 states, ranging from Vermont to Virginia and North Carolina. Free-living mammal species in New York were found positive for WNV for the first time this year (see table). The virus has again been detected in 38 horses from 6 states. Eighteen people have been reported as clinically ill from WNV this year with one fatality.

For further information and to report sick or dead crows or other unusual bird mortality contact [Dr. Linda Glaser](#), NWHC WNV Coordinator at 608-270-2446.

SPECIES FOUND POSITIVE FOR WNV**Free-Ranging Native North American species positive for WNV**

Bittern, Least	Goldfinch, American	Hummingbird, Ruby-throated	Skimmer, Black
Blackbird, Red-winged	Goose, Canada	Jay, Blue	Sparrow, Song
Bluebird, Eastern	Gull, Great Black-backed	Kestrel, American	Titmouse, Tufted
Cardinal, Northern	Gull, Herring	Killdeer	Thrush, Hermit
Catbird, Gray	Gull, Ring-billed	Kingfisher, Belted	Thrush, Wood
Chickadee, Black-capped	Grackle, Common	Merlin	Turkey, Wild
Cormorant, Double-crested	Grouse, Ruffed	Mockingbird, Northern	Turnstone, Ruddy
Cowbird, Brown-headed	Hawk, Broad-winged	Nighthawk, Common	Veery
Crow, American	Hawk, Cooper's	Ovenbird	Vulture, Black
Crow, Fish	Hawk, Red-tailed	Owl, Great Horned	Warbler, Blackpoll
Dove, Mourning	Hawk, Sharp-shinned	Phoebe, Eastern	Warbler, Black-throated Blue
Duck, Mallard	Heron, Great Blue	Rail, Virginia	Warbler, Canada
Finch, House	Heron, Green	Raven, Common	Warbler, Yellow-rumped
		Robin, American	Waxwing, Cedar

Captive North American species positive for WNV

Crane, Sandhill	Gull, Laughing	Night-Heron, Black-crowned	Owl, Snowy
Eagle, Bald	Magpie, Black-billed		

Other Free-Ranging Bird species positive for WNV

Dove, Rock (pigeon)	Sparrow, House	Starling, European	Swan, Mute
Pheasant, Ring-necked			

Free-Ranging Mammal species positive for WNV

Bat, Big brown	Bat, Little brown	Chipmunk, Eastern	Raccoon
Bat, Keen's	Squirrel, Eastern gray		

Mosquito species positive for WNV

<i>Culex pipiens</i>	<i>Culex salinarius</i>	<i>Aedes triseriatus</i>	<i>Anopheles punctipennis</i>
<i>Culex restuans</i>	<i>Aedes japonicus</i>	<i>Aedes vexans</i>	<i>Psorophora ferox</i>

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