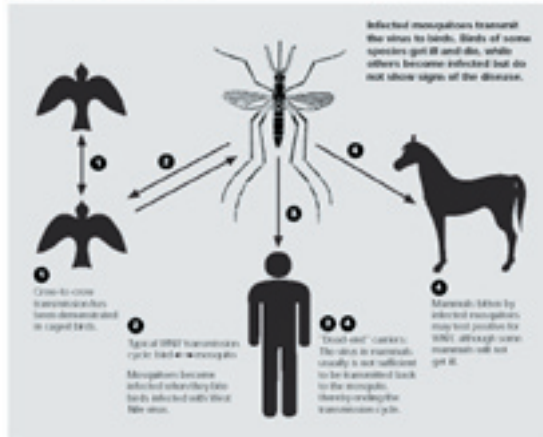


## What is West Nile Virus?

West Nile Virus entered Utah in the summer of 2003. This disease has killed thousands of crows and caused a number of human and equine deaths in North America since it first appeared in New York City in 1999. It has been detected in over 208 species of birds, over 40 species of mosquitoes as well as in horses, bats, cats, rabbits and other animals. Birds carry the virus, and mosquitoes spread it to other birds, animals or man. Animals other than horses and birds rarely show any illness from the infection and are not of concern for spread of the virus from them to others. It does also affect humans, especially those over 50 years of age.

Because of the great distances that infected (virus carrying) birds can travel, the appearance of this disease in a specific area is very unpredictable. But, it should now be considered as potentially present in the entire continental United States.



*Transmission Cycle of West Nile Virus*

Mosquitoes become infected after biting infected birds that serve as the primary host of the virus. The virus multiplies inside the mosquito and accumulates in the salivary glands. Mosquitoes salivate every time they bite and are capable of transmitting the virus 10 to 14 days after feeding on an infected bird, so bites after that time are infectious. Only female mosquitoes bite but female mosquitoes require a blood meal before they can lay eggs. They bite every few days during their entire adult lives, which may last several weeks.

## Will West Nile Virus Affect Cats and Dogs?

West Nile virus is not likely to be much of a problem for dogs and cats although it has apparently caused a few rare cases of illness. Dogs and cats can be infected with West Nile virus (WNV), but they don't transmit it to humans or other animals. Veterinarians and owners should take normal infection control precautions when caring for an animal suspected to have this or any viral infection.

Dogs and cats usually become infected by WNV the same way humans do, by the bite of infectious mosquitoes. Mosquitoes become infected when they feed on infected birds, which may circulate the virus in their blood for a few days. The virus is located in the mosquito's salivary glands and during blood feeding, the virus is injected into the animal and then multiplies. Cats can also be infected by eating infected mice.

There is no reason to destroy a dog or cat just because it has been infected with West Nile virus. Full recovery from the infection is likely. Treatment should be supportive and consistent with standard veterinary practices for animals infected with a viral agent.

## WNV and Birds

WNV is not likely to be much of a problem for indoor birds, because of their protection from mosquitoes. But other zoo and aviary birds are at risk. Corvids and raptors are the two types of birds that are most commonly affected by West Nile Virus. Corvids are large perching birds that have strong bills such as ravens, crows, jays, and magpies. Raptors include eagles and hawks. These birds have long curved talons and strong hooked beaks.

All birds can potentially carry West Nile Virus, but ravens, crows, magpies, jays and birds of prey (i.e., hawks, falcons, eagles, and owls) tend to be more likely than other birds to die when they become infected with the virus. If you find one of these birds and it is dead or appears to be very ill – it may be unable to fly or appear to be wobbling or staggering - please call and report this to the Division of Wildlife Resources (801-538-4700), your local health department, your local mosquito abatement district, or the Utah Department of Health Office of Epidemiology (801-538-6191). Some of these birds may be collected for testing by trained personnel.

If you need to handle a dead bird, take precautions to avoid exposure to diseases the bird might have. Wear latex/protective gloves to pick up the bird. If WNV is suspected, it is also recommended that you wear a facemask. All dead birds should be double-bagged prior to disposal in an outdoor waste container, with a cover to prevent access by scavenger animals.

## Will West Nile Virus Affect Other Birds?

Although most West Nile virus-positive birds in other states have been American crows, infections also have been confirmed in over 140 other avian species. West Nile Virus has occurred in a commercial turkey flock and some workers became infected. Poultry producers should implement effective mosquito control measures as well as bird handling precautions.



The extent to which West Nile virus may be present in wild game birds is unknown. Surveillance studies are currently underway in collaboration with the U.S. Geological Survey (USGS) National Wildlife Health Center (in Madison, Wis.) and with state and local wildlife biologists and naturalists to answer this question. It is important to remember that even though there is no evidence that game birds can transmit WNV to humans, latex / protective gloves should be worn when handling any dead bird or mammal. Because of their outdoor exposure in areas of West Nile virus activity, game hunters are at risk if they are bitten by mosquitoes.

Hunters should follow the usual precautions when handling wild birds and animals - wear gloves when handling and cleaning animals to prevent blood exposure to bare hands, and cook meat thoroughly. As an additional precaution, hunters should not harvest or consume any animals, including birds, that appear to be exhibiting unusual behaviors, or appear to be ill or in poor condition prior to being harvested

## West Nile Vaccine for Horses



Data from previous years would predict that 25 percent of the horses infected with WNV would die or require euthanasia.

Clinical signs in horses are related to encephalitis and the effects of the virus on the brain function of the horse. These signs may include: staggering, loss of appetite, depression, fever, weakness or paralysis of the hind limbs, head pressing, inability to swallow, circling, hyperexcitability, convulsions or coma.

The one small piece of good news about this disease is that a vaccine is available for use in horses to protect them against WNV. Actually two vaccines are currently available from two different companies. Both are sold only through veterinarians because of regulatory concerns about actual use of the vaccine.

One vaccine is produced by Fort Dodge Laboratories and is called Innovator. Millions of doses have been used with minimal reactions or problems, confirming that it is safe for use. The vaccine effectiveness is currently calculated to be 94 percent, which is high for any vaccine.

Another vaccine is now available from Merial and is called RecombiTEK and it too has been tested with natural exposure. It was released for sale in January 2004.

Vaccination of all accessible horses is recommended. Give the first dose approximately two months prior to the expected mosquito season, if possible. Give a second dose three to four weeks later, according to the directions for the specific vaccine used. Realize that the horse will likely not achieve a protective level of immunity until two to three weeks after the second dose of vaccine.

If WNV activity is heavy in your area during the summer, a booster (third) dose could be given at 3-4 months after the second dose. If an individual horse's immunity had begun to decrease or was never optimal, this extra vaccination may boost it to a protective level. Maps which show the past history and current status of WNV activity can be found at: [http://westnilemaps.usgs.gov/usa\\_vet.html](http://westnilemaps.usgs.gov/usa_vet.html). Additional measures to protect horses include reducing the mosquito population and protecting horses from mosquitoes.

For pregnant mares and foals an important decision must be made about the timing of the vaccination to give the best protection to both mares and foals. Because of the great variation in foaling dates and emergence of mosquitoes, it is best to discuss this with your veterinarian as you make the decision for your horses. Realize that young foals may not develop good immunity to vaccination, so you may want to protect them by vaccination of the dam to provide antibodies that can pass to the foal in the colostrum. However, these antibodies may then interfere with response to the vaccine, so the foal will be older before the vaccine can be effective. Another option to consider is that of giving the foal a series of three vaccinations instead of the usual two. Discuss the specific timing for your situation with your veterinarian.

### **Reducing Mosquito Numbers for Human and Animal Protection**

Home and land owners can have an impact on mosquito numbers by reducing the amount of standing water available for mosquito reproductive sites. Mosquitoes require water on which to lay their eggs and for new larvae to develop. Even small amounts of water are sufficient, such as that in birdbaths, small plastic wading pools, old tin cans, plastic containers or used auto tires. Even clogged roof gutters, wheelbarrows, boats, ornamental pools or plastic covers may collect enough water to allow mosquito reproduction. Get rid of all these sites or with items like the birdbath, clean it out at least once each week.

Mosquito "Dunks" can be added to standing water to control mosquitoes. The dunks are small donut shaped and sized objects that release a small amount of bacteria that kills mosquito larva. The "Dunks" can be used with landscaping ponds, bird baths, rain barrels, clogged gutters, sewers which hold water, retention ponds, drainage ditches, slow moving streams, bottoms of planters and anywhere water is able to accumulate and provide mosquitoes a place to reproduce. The "Dunks" are widely available at retail outlets.

Farms or ranches with ponds or waste lagoons may need to implement control methods to reduce mosquito reproduction in those areas. Management practices include: eliminating weedy growth along lagoon shorelines; mowing bank vegetation every one to two weeks; regularly cleaning floating debris from the lagoon surface; and (if pupae numbers become large) applying approved larvicides in a zone 10 feet wide from the shoreline outward.

Farms which use tires to hold down plastic covers on silage pits should cut these tires in half and place or store them so they do not trap and hold water that can become breeding sites for mosquitoes.

Mosquito Abatement personnel are available in many areas and are a great resource in control of mosquitoes. Some areas or communities with high populations of mosquitoes may want to implement a mosquito control district. The use of larvicides enables control procedures to be much more effective than is just fogging for adult mosquitoes.

### **Other Methods to Protect Animals from Mosquitoes**

Additional protection can be provided by keeping horses stabled (housed) during dawn to dusk when mosquitoes are most active. Keep screens on the stable windows. Use fluorescent lights, which do not attract mosquitoes. At night, turn off any lights at which attract mosquitoes. Apply mosquito repellents. Fogging of the stable premises may also be of help in areas with especially high mosquito populations.

### **Humans**

Although most people infected with West Nile Virus will show no signs of illness, approximately 20 % of those infected will get West Nile Fever. The symptoms associated with West Nile Fever include fever, headache, body aches, occasionally a skin rash on the trunk of the body, and swollen lymph glands. These symptoms typically last 2-7 days.

More severe forms of the illness are West Nile Meningitis, Encephalitis and Acute Flaccid Paralysis. Approximately one in 150 individuals infected with WNV will develop one of these neurologic illnesses. The symptoms of West Nile Meningitis include fever, headache, neck stiffness, and nausea. All of these symptoms are also present with West Nile Encephalitis in addition to altered mental status such as confusion and irritability. Persons over 50 years of age and immunocompromized individuals are at greater risk of developing these more severe forms of West Nile infection.

To decrease the risk of becoming infected with WNV, persons should take the following precautions: keep screens in open windows, avoid mosquito-infested areas especially at dawn and dusk, wear long-sleeved shirts and long pants when outdoors apply DEET-containing repellents as needed.

### **Contacts**

If you have questions about animals and concerns related to West Nile Virus contact your USU County Extension office, your local veterinary practitioner or one of the USU Extension Veterinarians – Dr. Doug Hammon or Dr. Clell Bagley at (435-797-1880) <http://extension.usu.edu/cooperative/ah/>.

If you have questions about human health concerns and WNV, contact your local Health Department, your own health provider or the Utah Department of Health (801-538-6191) <http://health.utah.gov/wnv/>.

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# Utah Alert: West Nile Virus

