West Nile Virus Update

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Spring has definitely arrived in the Mid-Columbia region. And, although the winter was quite mild, it did provide a brief, but welcome respite from the advance of the West Nile Virus throughout Oregon and Washington. The virus was detected in a dead raven collected near Newport, Washington early last fall. Government officials are warning that the virus and the disease it causes will, almost without uncertainty, appear in Oregon and other parts of Washington during the coming spring or summer.

According to information from the US Department of Agriculture (USDA), the West Nile Virus was first isolated in 1937 in eastern Africa. It has spread from there causing epidemics in other parts of Africa, Europe, and the Middle East. The virus and the disease it causes were first documented in the United States in 1999 during an outbreak in New York City. Since then, it has spread rapidly across most of the country. According to the US Department of Health and Human Services Centers for Disease Control and Prevention, as of mid-March, 2003, there have been 4161 human cases resulting in 277 fatalities nationwide. In states bordering Oregon and Washington, confirmed human West Nile Virus cases have occurred only in California. Non-human cases have occurred in Idaho and Washington.

There are many facets to this disease. Perhaps of greatest concern is the impact it may have on human health. Symptoms of infection by the West Nile Virus range from none to moderate to very severe, the latter including death in a small percentage of cases. According to a national alert published by the USDA, most humans infected with the virus do not experience any symptoms. For those who do develop symptoms, they are usually only mild. These include fever, headaches, body aches, swollen lymph glands, and a body rash. Severe symptoms, including encephalitis (inflammation of the brain), high fever, headaches, neck stiffness, disorientation, tremors, convulsions, paralysis, and coma, are estimated to occur in less than one percent of those infected with the virus. If you suspect that you have been infected with the virus, contact your physician.

Despite the ability to cause human fatality, we are considered to be incidental hosts for West Nile Virus. An incidental host is one that generally does not transmit the virus to other animals. Horses are another incidental host. Wild birds, such as crows, are considered to be the primary hosts of the virus. They play a key role in the spread of the disease. Mosquitoes, the only known vector for the disease, are an essential element of the infection cycle. They transmit the virus from infected birds to other birds, humans, horses, and other mammals.

As noted above, the virus has only been detected in the northeast corner of Washington, but not yet in Oregon. The geographic spread of the virus is probably limited to relatively short distances as mosquitoes transmit it from bird to bird. It may, however, be spread considerably longer distances as birds undertake their seasonal migration. Additionally, warmer weather increases the rate of mosquito population growth with increased potential for spread among birds, humans, and horses.

With the imminent spread of this virus throughout Washington and Oregon, it seems prudent to plan ahead for the prevention of infection. There are three main strategies for prevention of the disease: mosquito control, mosquito avoidance, and in the case of horses, vaccination.
Adult female mosquitoes lay their eggs in slow moving or standing water where they develop through the larval and pupal stages and then onto the adult stage. Reducing or eliminating aquatic habitats can significantly reduce mosquito populations. Eliminating all mosquito habitats in an area like the Mid-Columbia would not be practical. Great strides may be made in eliminating non-natural habitats that may serve as breeding sites. These include any site or object that collect and provide standing water for even a few days at a time. Examples are used tires, metal or plastic containers, clogged roof gutters, bird baths, wheelbarrows, wading pools, etc.

Mosquitoes may also be controlled with insecticides. Insecticide treatments are aimed at either the adults or larvae. Treating adult mosquitoes entails the use of an insecticide such as malathion applied as an ultra-low volume or aerosol spray. The resulting aerosol droplets suspended in air kill adult mosquitoes on contact. Treatment against larvae requires treating their aquatic habitats. There are several types of materials available for treating these. Achieving mosquito control without harming other aquatic organisms can be accomplished with microbial larvicides, which are selective for mosquito larvae and considered non-toxic to other aquatic organisms and humans. The most common of these are products that contain a bacterium known as *Bacillus thuringiensis israeliensis* (Bti).

Fish provide a form of biological control by consuming mosquito larvae and adults. Precautions must be taken to prevent the escape of exotic fish into natural waterways including creeks, streams, sloughs, ponds, and ditches if connected to natural waterways. For information on permitted stocking of exotic fish such as mosquito fish in Oregon, contact the Oregon Department of Fish and Wildlife at 503-872-5268 or visit their website: http://www.dfw.state.or.us/. In Washington, contact the Washington Department of Fish and Wildlife at 360-902-2936.

Avoiding mosquitoes entails exclusion of mosquitoes from homes and other structures with tight fitting window and door screens, wearing clothing that mosquitoes cannot bite through, and using mosquito repellents. When applying insect repellents, be sure to follow label instructions, paying particular attention to those when applying these products to children.

A vaccine is available for immunizing horses against the virus. Effective vaccination requires a series of three shots, each administered at three-month intervals and an annual booster thereafter. Ideally, horses would receive the full course of vaccination before the build up of mosquito populations. Contact your local veterinarian for more information about the vaccine.

Monitoring the spread of West Nile Virus in Oregon and Washington will be a coordinated effort of state and county agencies. Both states have telephone information lines and websites with extensive links to provide information on many aspects of the virus: Oregon Department of Human Services 866-703-4636, [http://www.dhs.state.or.us/publichealth/acd/wnile/index.cfm](http://www.dhs.state.or.us/publichealth/acd/wnile/index.cfm); Washington State Department of Health: 1.866.788-4787, [http://www.doh.wa.gov/ehp/ts/Zoo/WNV/WNV.html](http://www.doh.wa.gov/ehp/ts/Zoo/WNV/WNV.html).

You may be aware that testing dead birds for the virus is a way of monitoring its geographic spread. Specific information on dead bird testing is available from the telephone information lines or websites listed above.