

Zoonotic Disease Newsletter

Washington State Department of Health's bulletin on zoonoses and vector-borne diseases

October 2007

Volume 1, Issue 10

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Cold weather has rodents scurrying indoors

Washington State Department of Health, News Release, October 30, 2007

Mice and other rodents may seek shelter from cold winter weather, so they may be moving into your home soon. The key to keeping rodents from becoming your newest roommates is keeping them out and eliminating their food sources.

"In addition to being annoying and causing structural damage, rodents can spread disease through their urine and feces," said Dr. Ron Wohrle, environmental health veterinarian at the state Department of Health. "Fleas, ticks and mites, which can ride along on rodents, can also carry diseases which make people sick."

There are three important tips to prevent rodents from moving in and possibly spreading disease to you and your family.

First, seal up any openings or cracks large enough to squeeze a pencil through. Steel wool and caulk are good for blocking small holes. Sheet or lath metal, hardware cloth or concrete can cover larger holes. It's also important to remove trash and debris from inside and outside the home to minimize places for rodents to live. Eliminate potential rodent food sources by cleaning dirty dishes, spilled food, and keeping tight lids on food storage containers and garbage cans.

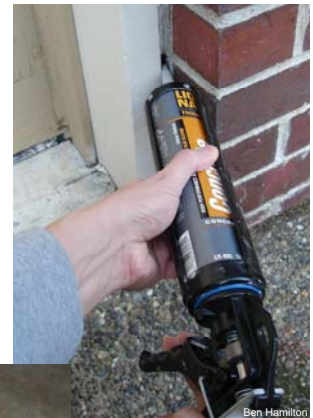
"Just imagine what that big bowl of dog food or left over dinner scraps on the kitchen counter looks like to a mouse," said Dr. Wohrle.

Next, get rid of the rodents that have already moved in. Snap traps baited with peanut butter can be placed in areas where rodent droppings or nests have been found. Flea and tick control should also be considered. If a rodent infestation is severe or can't be handled by the resident, a pest control professional should be called.

Properly cleaning rodent-contaminated areas is the final tip to keep you and your family safe. Droppings, urine, nests and dead rodents should be sprayed with a disinfectant or a solution of one part bleach to nine parts water before cleaning up and being thrown away.

"Sweeping or vacuuming rodent-contaminated areas can stir-up dust that's harmful to breathe," said Dr. Wohrle. "Hantavirus pulmonary syndrome, a rare but potentially fatal disease spread by deer mice, usually infects people when they inhale virus particles from rodent droppings that have been stirred into the air."

More information can be found at CDC's Rodent Control: Seal Up! Trap Up! Clean Up! Web page www.cdc.gov/rodents/index.htm.



Ben Hamilton



Ben Hamilton

**Seal Up!
Trap Up!
Clean Up!**



Ben Hamilton



The adult pelicans at Medicine Lake National Wildlife Refuge fly up to 150 miles one way a day looking for food, which includes other areas known to have West Nile virus carrying mosquitoes.



Stable flies look like common house flies, but they have a painful bite. They come from a different family than horse flies or deer flies.



American White Pelicans have a localized distribution in eastern Washington. They nest on Crescent and Badger Islands in the Columbia River, and at Sprague Lake. Non-breeding birds can be found throughout the Columbia Basin. Wintering pelicans occur along the Columbia River from the mouth of the Walla Walla River to Priest Rapids and increasingly farther north.

Stable flies are suspected in West Nile deaths of pelicans

By Evelyn Boswell, Montana State University News Service, September 27, 2007

Stable flies are the latest suspect that may be involved in the West Nile virus deaths of hundreds of pelican chicks at the Medicine Lake National Wildlife Refuge in northeast Montana. West Nile virus killed 800 to 1,000 pelican chicks in 2003, averaged 400 in each of the next three summers and more than 600 this year.

Veterinary entomologist Greg Johnson of Montana State University said earlier this year that he considered the possibility that lice were transmitting West Nile virus to pelicans. He became suspicious after collecting very few mosquitoes in 2006, but seeing pelicans continue to die at a high rate. Johnson discovered previously that the *Culex tarsalis* mosquito is the primary carrier of West Nile virus in Montana and that the Medicine Lake refuge was one of the hot spots for the virus.

Many of the dead pelicans at Medicine Lake had lice crawling inside and outside of their beak, Johnson continued. Mike Rabenberg, deputy refuge manager, said external parasites - especially pouch lice and feather lice - are common on the Medicine Lake pelicans. The lice may be more prevalent, he said, on pelicans that are sick or weakened.

The lice were cleared, however, after Johnson sent pelican tissue samples and lice to the Centers for Disease Control and Prevention in Fort Collins, Colo. The lab tested approximately 800 lice, but none was found to have West Nile even though most came from pelicans that tested positive.

Stable flies caught Johnson's attention when he came across a bird with blood on its neck and some flies feeding on the blood during the third week of July.

"This (the stable fly scene) was very unusual because stable flies are only reported to feed on domestic livestock, humans and companion animals," Johnson said. "There are no reports in the literature of stable flies feeding on domestic or wild birds."

Johnson observed the stable flies feeding on birds several more times. He also collected about 1,300 flies and divided them into 60 groups. Eighteen of those groups tested positive for West Nile virus.

"This is the first report of stable flies feeding on wild birds, or pelicans for that matter, and the first report of stable flies infected with West Nile virus," Johnson said. "These results suggest that stable flies might be involved in amplification and/or transmission of West Nile virus at the pelican colony and possibly could serve as a vector of West Nile virus to other pelicans."

If the theory proves correct, he will have to modify some of his study methods because they currently focus on mosquitoes, Johnson said. He added that the number of captured mosquitoes was high this summer, as well as the West Nile infection rate in those mosquitoes.

As far as the relationship among lice, pelicans and West Nile virus goes, Johnson said the lice created wounds that could be a point of entry for the virus, however they don't pass along the virus.

"I don't think they are playing a primary role in West Nile transmission because they don't have to have blood for egg development, energy and survival," Johnson said. "Rather, they feed on epidermal or skin cells which creates wounds, causing blood to exude and then they feed on the blood. The wounds they cause may provide entry sites for West Nile virus, and the young pelicans can get infected that way."

The Medicine Lake National Wildlife Refuge between Plentywood and Culbertson contains the fifth largest colony of American white pelicans in North America. Rabenberg said the colony normally includes 8,000 to 10,000 breeding adults and approximately 4,000 nests. The adult pelicans typically winter along the Gulf coast, but some reach southern Mexico.



Female phlebotomine sand flies are vectors of parasites which cause leishmaniasis in people and other animals.



During the course of a single day in Iraq, sand fly bites can leave hundreds of irritating welts on unprotected skin.



Cutaneous leishmaniasis starts at the site of the infected sand fly bite with a bump that enlarges and becomes an ulcer. It often develops into a volcano-like sore and scars.

View the U.S. Army Center for Promotion and Preventive Medicine's leishmaniasis Web site at <http://chppm-www.apgea.army.mil/news/Leishmaniasis.asp>.

Troops battle sand flies and leishmaniasis in SW Asia

By Ben Hamilton, Health Services Consultant, WA DOH Zoonotic Disease Program

Commonly known as the "Baghdad boil" by U.S. troops in Iraq, leishmaniasis is an infection of animals and people caused by a parasitic protozoa that is transmitted by the bite of an infected female sand fly.

There are different forms of leishmaniasis. The most common form is cutaneous leishmaniasis, which causes skin sores that develop weeks or months after a person is bitten. Left untreated, the sores will heal, but this may take months or even years. The sores often leave ugly scars. Another form, visceral leishmaniasis, affects internal organs and can be deadly if not treated.

Colonel Alan Magill, a tropical disease expert at the Department of Defense, believes that since U.S. forces deployment in Iraq and Afghanistan, about 2,000 cases of cutaneous leishmaniasis have occurred up through mid-2006. Five cases of the more serious visceral form were detected during the same time period.

"Educational briefings are provided to personnel pre, during, and post deployments," said Lieutenant Colonel Sonya Schleich, entomologist with the U.S. Army Center for Health Promotion and Preventive Medicine-West. "The Department of Defense, Insect Repellent System, combines the use of permethrin treated uniforms with the insect repellent DEET applied to the skin. This is particularly important in fighting diseases like leishmaniasis that don't have preventive vaccines or chemoprophylaxis."

The military services vector-borne disease surveillance programs, which include sand flies and mosquitoes in Iraq and Afghanistan, ensure the implementation of targeted control measures with timely disease prevention messages, said Schleich.

Leishmaniasis is found in nearly 90 countries around the world, most of which are in the tropics or subtropics. About 1.5 million people are infected with cutaneous leishmaniasis and about 500,000 are infected with visceral leishmaniasis every year.

According to the article "MRMC 2006 Review" published in *Military Medical Technology*, the occurrence of cutaneous leishmaniasis among soldiers deployed to the Middle East was not unexpected because the disease is relatively common there. However, the authors believed the sudden increase of infected soldiers during initial operations had an impact on deployed units and created an unexpected burden on the medical system.

Because cutaneous leishmaniasis can be confused with other tropical skin problems and there is a lack of an easy field method for diagnosing the disease, soldiers suspected of having an infection are evacuated back to the U.S. to receive treatment.

Given the disruption to deployed units and the cost, which Magill estimates at around \$40 million when the evacuation, treatment, and lost duty time is tabulated, alternatives for dealing with this disease became a priority. The U.S. Army Medical Research and Materiel Command began working on an antibiotic cream that can be applied topically to cutaneous leishmaniasis lesions. Early tests show the cream is effective and, pending FDA approval, it could be utilized as a first-line treatment for cutaneous leishmaniasis by U.S. soldiers. Contracted developers of the topical cream are also looking to partner with non-governmental organizations to ensure the drug is available to populations who have lived with this disease for centuries.

Leishmaniasis Outbreak in North Texas

For the first time, nine residents in North Texas were recently identified as having contracted cutaneous leishmaniasis locally. Sporadic cases of cutaneous leishmaniasis have occurred in South Texas for years, but this is the first time it has been detected in North Texas. It is suspected that the sand fly or the rodent reservoir of the disease is moving north. Read about the leishmaniasis outbreak in North Texas at www.utsouthwestern.edu/utsw/cda/dept353744/files/411952.html.



As part of WDFW's avian influenza monitoring, migratory waterfowl are captured and tested. This Green-winged Teal was tested for avian influenza and banded for later identification if recaptured or harvested.



A group of students on a field trip watch Brad Otto, wildlife science technician at WDFW, as he demonstrates how an avian influenza sample is taken from a live bird.



Bird feeder visitors, such as the American Goldfinch, may shed salmonella bacteria in their feces. Regularly cleaning the bird feeder with a bleach and water solution will help minimize the spread of the disease to other birds, people, and pets.

Call WDFW toll-free line to report dead wild birds

Washington Department of Fish and Wildlife, News Release, October 11, 2007

With the annual wild bird migration under way, the Washington Department of Fish and Wildlife (WDFW) reminds people to report dead wild birds on a toll-free telephone line.

"We continue to test birds for the highly pathogenic form of avian influenza, and this reporting tool contributes to that surveillance effort," said Dr. Kristin Mansfield, WDFW veterinarian.

Wild birds are known to carry various strains of avian influenza, often without serious health effects. However, one strain, known as Highly Pathogenic Avian Influenza H5N1 (HPAI H5N1), has sickened and killed birds in Asia, Europe and Africa.

No birds in Washington have tested positive for the highly pathogenic avian influenza, Mansfield said. Over the past year, WDFW, the U.S. Department of Agriculture and other agencies and organizations have tested more than 4,000 birds in Washington.

Most dead bird reports can be submitted by calling WDFW's toll-free line at 1-800-606-8768. The exceptions are dead crows, ravens, magpies and jays, which should be reported to local city or county health departments that are tracking those species for West Nile virus.

Callers to WDFW's reporting line will be asked to leave their name, telephone number, the date and time of the call, the number of dead birds they are reporting, the specific location of the birds and – if known – the species and approximately how long the birds have been dead.

Reports will be reviewed by WDFW wildlife experts, who will respond as needed. The bird species and the apparent circumstances of its death will determine whether a dead bird is tested for avian influenza, said Mansfield. Recently deceased waterfowl, such as ducks, geese and swans, are the birds most likely to be tested. Birds that die because they flew into a window or were hit by a car do not warrant reports, she said.

While wild bird die-offs occur naturally each year, the department plans to investigate large or unusual events, Mansfield said.

For more information on avian influenza monitoring visit WDFW's website at wdfw.wa.gov/wlm/avian_flu/index.htm.

Salmonellosis cases decline; bird feeding cautions eased

Washington Department of Fish and Wildlife, News Release, October 16, 2007

Those who enjoy feeding birds in their yards can resume the practice now that reports of a bird disease have tapered off.

The Washington Department of Fish and Wildlife (WDFW) advised people earlier this year to stop backyard feeding after receiving dozens of reports of sick or dead birds at feeders and a laboratory analysis confirmed salmonellosis disease in bird carcasses.

"It's been several weeks since we've received any reports consistent with salmonellosis, so from a disease-prevention standpoint it appears to be safe to start feeding birds again," said Kristin Mansfield, WDFW veterinarian. "But people should make sure they clean and disinfect their feeders on a regular basis."

Salmonellosis, a usually fatal bird disease caused by salmonella bacteria, is a common disease spread at feeders in Washington. The disease afflicts species such as finches, grosbeaks and pine siskins that flock together in large numbers at feeders and transmit the disease through droppings.

Read the news release at wdfw.wa.gov/do/newreal/release.php?id=oct1607a.



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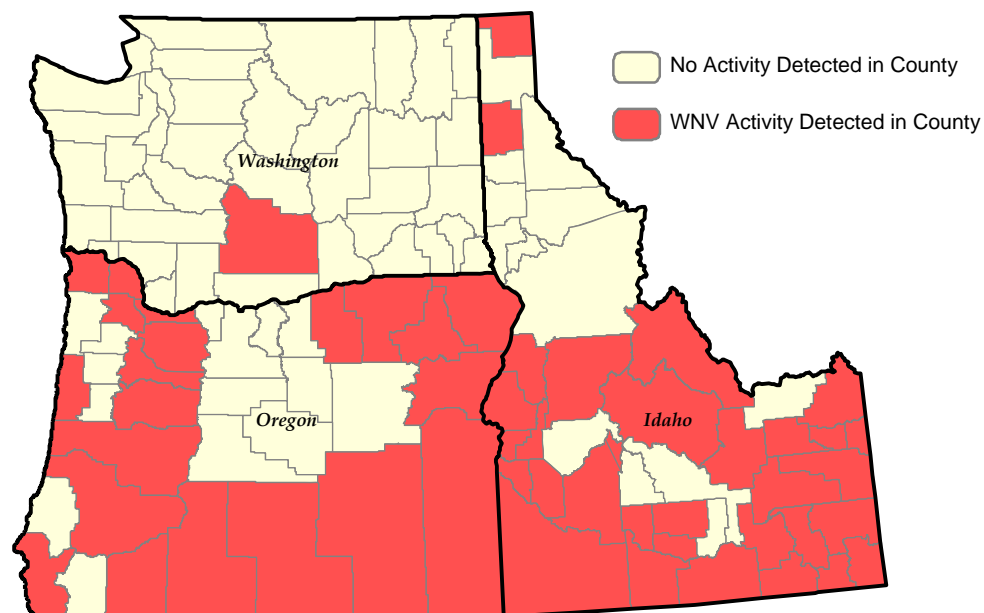
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www.doh.wa.gov/ehp/ts/ZOO.HTM

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West Nile virus activity in the northwest, 2007



State	Human	Horse/other mammal	Bird	Mosquito sample
Washington	0	8	1	0
Idaho	108*	16	14	(17 counties)
Oregon	25*	18	63	30

*Includes out-of-state acquired infections
Source: [WA](#) (Oct. 30, 2007), [ID](#) (Oct. 12, 2007), [OR](#) (Oct. 9, 2007) State Health Department Web Sites

West Nile Virus Weekly Update: www.doh.wa.gov/ehp/ts/Zoo/WNV/weeklyupdate.pdf

Zoonoses news and research headline links

[Deadly contact – How animals and humans exchange disease](#)

National Geographic Magazine, Feature: Infectious Animals, October 2007

[West Nile virus' spread through nerve cells linked to acute flaccid paralysis](#)

Washington University in St. Louis, Medical News Release, October 17, 2007

[Acute respiratory distress syndrome in people with tickborne relapsing fever](#)

Morbidity and Mortality Weekly Report, CDC, October 19, 2007, Volume 56, Number 41

[Fatal fungus \(*Cryptococcus gattii*\) creeps south into Washington](#)

Everett Herald, Local News, October 16, 2007

Emerging Infectious Diseases, Volume 13, Number 10 – October Issue

[West Nile virus infection among the homeless, Houston, Texas](#)

[Confronting potential Influenza A \(H5N1\) pandemic with better vaccines](#)

[Evolutionary relationships between bat coronaviruses and their hosts](#)

[Chlorine inactivation of highly pathogenic influenza virus \(H5N1\)](#)

[Super-sentinel chickens and detection of low-pathogenicity influenza virus](#)

[Rapid field immunoassay for detecting antibody to Sin Nombre virus in deer mice](#)