

# Zoonotic Disease Newsletter

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

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## Wildlife, exotic pets, and emerging zoonoses

By Dr. Bruno B. Chomel, Director, World Health Organization/Pan American Health Organization Collaborating Center on New and Emerging Zoonoses at the University of California, Davis

Emerging and reemerging infectious diseases have received increasing attention since the end of the 20th century. An estimated 75% of emerging infectious diseases are zoonotic, mainly of viral origin, and likely to be vector-borne.

Wildlife constitutes a large and often unknown reservoir of emerging infectious diseases and can be a source for reemergence of previously controlled zoonoses. Although the discovery of such zoonoses is often related to better diagnostic tools, the leading causes of their emergence are human behavior and modifications to natural habitats (expansion of human populations and their encroachment on wildlife habitat), changes in agricultural practices, and globalization of trade. However, other factors include wildlife trade and translocation, live animal and bushmeat markets, consumption of exotic foods, development of ecotourism, access to petting zoos, and ownership of exotic pets.

The emergence and rapid spread of West Nile virus in North America and the monkeypox outbreak in pet prairie dogs have been major awakening public health events that underscored the need for closer collaboration between the veterinary profession, wildlife specialists, and public health personnel. These events emphasized the role that veterinarians and other wildlife specialists can play in surveillance, control, and prevention of emerging zoonoses, as their training in disease recognition and population medicine makes them well suited for early detection networks. To reduce risk for emerging zoonoses, the public should be educated about the risks associated with wildlife, bushmeat, and exotic pet trades; and proper surveillance systems should be implemented.

Read the complete synopsis in the January 2007 issue of *Emerging Infectious Diseases* at [www.cdc.gov/ncidod/eid/13/1/6.htm](http://www.cdc.gov/ncidod/eid/13/1/6.htm).



Prairie dogs, such as this napping one, have become popular exotic pets for some people. In 2003, an outbreak of monkeypox (71 human cases) in the US resulted from contact with infected prairie dogs that had been housed or transported with African rodents imported from Ghana.

## Canine leptospirosis tracked in Washington State

By Liz Dykstra, Ph.D. Entomologist, WA DOH Zoonotic Disease Program

Canine leptospirosis, a bacterial disease caused by several species of the spirochete *Leptospira*, has been tracked by the Department of Health since 2004 in an effort to determine the prevalence and nature of this disease in Washington. Since then, 133 confirmed and suspect canine cases have been reported to DOH. Thirty-four (25%) of the infected dogs were euthanized or died from the illness.

Typically, the number of canine cases increases during the colder months. December through February has averaged 8.5 cases per month. The summer months of June through August average only 1.5 cases per month. Infected dogs have a median age of 7 years and have an approximate 50:50 male to female ratio.

*Canine leptospirosis* continues on page 2

*Canine leptospirosis* continued from page 1

Dogs who love the water, like Copper, are good candidates for the available vaccines. One type provides protection against serovars *canicola* and *icterohaemorrhagiae*, while a newer vaccine provides protection against *canicola*, *icterohaemorrhagiae*, *grippityphosa*, and *pomona*. Boosters are needed annually.

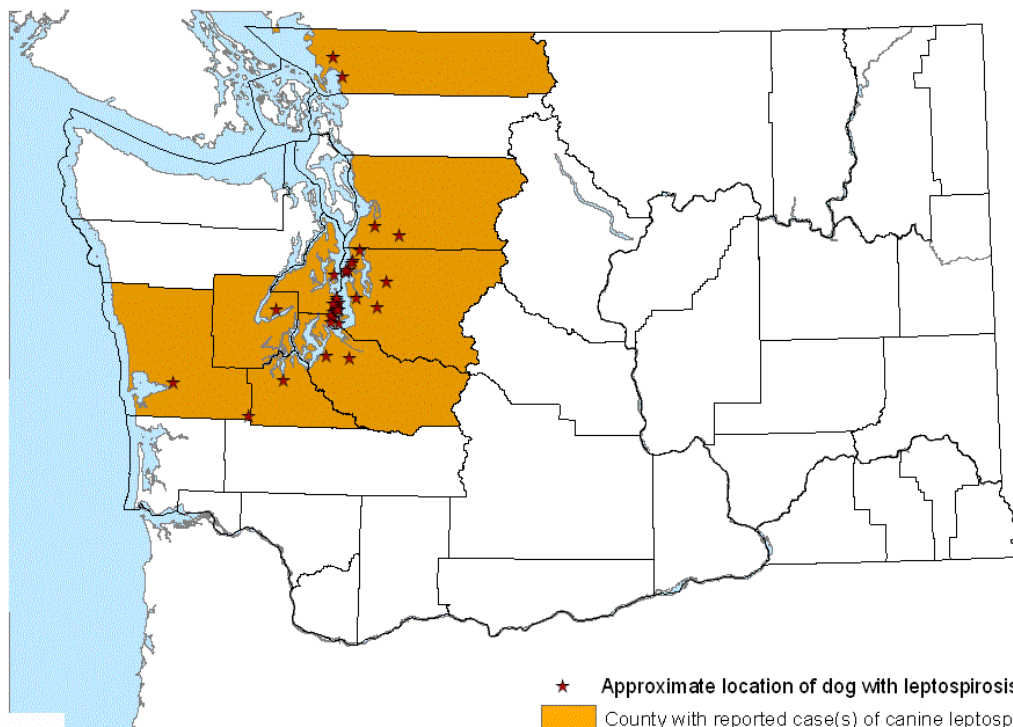
Sixty-one cases of canine leptospirosis were reported in 2006, with 34 cases from 8 counties being confirmed by titer (see map below). All 8 counties were in Western Washington. Owners of affected dogs have reported potential exposures that include contact with dead animals (opossum, rodents), having raccoons and rats living nearby, and swimming or playing in ponds, streams, or swampy areas. An outbreak of leptospirosis from December 2005 through February 2006 occurred in King County, primarily among non-vaccinated dogs.

Leptospirosis is found worldwide and there are numerous varieties or serovars of *Leptospira* that are pathogenic. Those commonly found in Washington dogs include *canicola*, *autumnalis*, *grippityphosa*, *hardjo*, *icterohaemorrhagiae* and *pomona*. Common reservoirs for *Leptospira* species include raccoons, rats, mice, squirrels, coyotes, cattle, pigs and dogs. While all dog breeds are susceptible to leptospirosis, dogs most at risk of infection are hunting dogs, show dogs, and dogs with access to water such as ponds. Vaccines for dogs are available from veterinarians.

The incubation period in dogs ranges from 4 to 12 days. *Leptospira* infections range from asymptomatic or mild to severe. Initial signs of infection are usually nonspecific, but can include any or all of the following: lack of appetite, vomiting, abdominal pain, fever, depression, anorexia, and general stiffness. Leptospirosis is treated with antibiotics and most treated dogs recover after about 2 weeks. Severe cases that experience kidney failure or liver damage can be fatal.

The bacterium is transmissible to humans and is a notifiable condition in both humans and dogs. An average of 0-2 human cases of leptospirosis is reported annually in Washington. Human exposure risks identified in Washington include contact with animals, contaminated water, or soil contaminated with urine from rats or dogs. Veterinarians should consider leptospirosis in their differential diagnosis, and report new cases to DOH's Zoonotic Disease Program at (360) 236-3388.

### Reported Confirmed Cases of Canine Leptospirosis in Washington, January 1, 2006 - December 31, 2006 (N = 34)



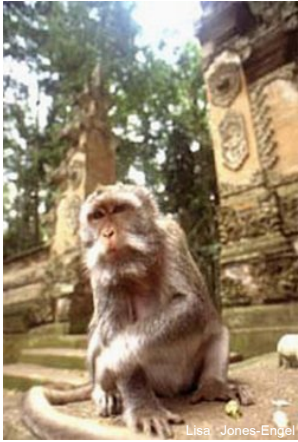
★ Approximate location of dog with leptospirosis  
 County with reported case(s) of canine leptospirosis



Note: Confirmed case is defined as MAT titer of >1:800, FA positive, or PCR positive, in addition to clinical signs.

### Web Page Coming Soon

A new Web page on canine leptospirosis will be available this spring on the ZD Program Web site. Report forms for veterinarians will be posted on the page.



Lisa Jones-Engel

Hundreds of thousands of tourists interact with primates in Asia every year. In addition to bushmeat hunting, people are in close contact with monkeys in many settings such as religious temples (above), open-air markets, street performances, nature preserves, zoos, and even homes, where monkeys are sometimes kept as pets.



Lisa Jones-Engel

A macaque at a monkey temple begging for food from a visitor is the type of setting which could provide an entry point for monkey viruses to infect humans, or for human viruses like measles to jump to monkeys. Either population can be at risk from these transmissions: measles can devastate monkey populations, while some monkey viruses can also harm people.

## Viruses can jump between primates and humans

By Justin Reedy, Science Writer/Editor, University of Washington

Viruses that jump the species barrier between monkeys and humans can harm both people and animals, and we should take steps to reduce the risk of virus transmission. That's the message running through the September 2006 issue of the *American Journal of Primatology*, a special issue on disease risk analysis edited by a primate expert at the University of Washington.

"Viruses are already jumping the species barrier and affecting both people and animals, and there is the potential for much worse," explained Dr. Lisa Jones-Engel, a research scientist in the Division of International Programs at the UW's Washington National Primate Research Center and guest editor for the journal's special issue. "It's especially cause for concern in Asia, where people and monkeys have so much interaction, and there has been little research done on this topic."

Scientists believe that HIV, the virus that causes AIDS, started out as simian immunodeficiency virus (or SIV), and jumped to humans decades ago when African bush meat hunters became infected by the monkeys they were hunting for food. Other viruses, like influenza, have also jumped species barriers with frightening results.

In one article, researchers estimate that about six people out of every thousand who visit a monkey temple in Bali, Indonesia, will be infected with simian foamy virus (SFV) from a monkey bite. SFV is a primate retrovirus that so far has not been shown to cause disease in humans. Monkey temples are religious sites that have become gathering spots for populations of wild macaque monkeys fleeing deforested areas.

"This study is basically the first step in quantifying the risk associated with human-to-monkey viral transmission," said lead author Dr. Gregory Engel, attending physician at Swedish/Providence Hospital in Seattle, and clinical assistant professor of family medicine at the UW. "We have a lot more work to do in determining the risk of viruses jumping the species barrier in these different settings, but the risk is obviously there."

Though SFV and a similar primate virus called SRV are not yet known to cause disease in humans, both are retroviruses, which are typically slow-acting in their host. It could be many years before physicians know the effects of those virus exposures. Other viruses carried by monkeys can cause disease and death in humans.

Visitors to monkey temples shouldn't avoid monkeys at all costs, Engel said, but they should use caution and common sense to keep themselves and the animals safe. People should not feed the monkeys or encourage the animals to climb on them. Such precautions can help reduce the risk of exposure. In the event of a bite or scratch, proper wound care can reduce the likelihood of infection, he said.

"Governments and non-governmental organizations can also take steps to reduce the risk of virus transmission," said Jones-Engel. "Better management of monkey populations, disease surveillance of human and primate populations, and improved public sanitation can all cut down on the risk of viral transmission within monkey populations, and between animals and people."

## Avian Flu Site



Dr. Sharon Hopkins, Public Health Veterinarian, Public Health Seattle-King County

Public Health Seattle-King County has a new comprehensive website devoted to avian influenza. "Making Sense of Bird and Human Flu Viruses" opens with a look at how avian influenza is different from pandemic influenza and seasonal flu. Clicking on the mallard duck (Avian Influenza) will lead you to a series of 54 questions & answers grouped into 10 categories such as "Avian Flu in Wild Birds", "Domestic Poultry Meat & Eggs", "Pets and Avian Flu" and "Considerations for Travelers." Clicking on the big Question Mark leads to another eight questions & answers addressing the differences between avian flu, pandemic flu and seasonal flu. View the new Web site at [www.metrokc.gov/health/avianflu/](http://www.metrokc.gov/health/avianflu/).

## *Cryptococcus gattii* journal articles from *EID*

Centers for Disease Control and Prevention. Volume 13, Number 1 – January 2007



Two research articles on *Cryptococcus gattii* are featured in the January 2007 issue of *Emerging Infectious Diseases*. Between 1999 and 2006, 165 human cases have been reported in British Columbia. Eight people have died.

### **Spread of *Cryptococcus gattii* in British Columbia, Canada, and Detection in the Pacific Northwest, USA.**

MacDougall L, et al. [www.cdc.gov/ncidod/eid/13/1/42.htm](http://www.cdc.gov/ncidod/eid/13/1/42.htm)

**Abstract:** *Cryptococcus gattii*, emergent on Vancouver Island, British Columbia (BC), Canada, in 1999, was detected during 2003–2005 in 3 persons and 8 animals that did not travel to Vancouver Island during the incubation period; positive environmental samples were detected in areas outside Vancouver Island. All clinical and environmental isolates found in BC were genotypically consistent with Vancouver Island strains. In addition, local acquisition was detected in 3 cats in Washington and 2 persons in Oregon. The molecular profiles of Oregon isolates differed from those found in BC and Washington. Although some microclimates of the Pacific Northwest are similar to those on Vancouver Island, *C. gattii* concentrations in off-island environments were typically lower, and human cases without Vancouver Island contact have not continued to occur. This suggests that *C. gattii* may not be permanently colonized in off-island locations.

### ***Cryptococcus gattii* Dispersal Mechanisms, British Columbia, Canada.**

Kidd SE, et al. [www.cdc.gov/ncidod/eid/13/1/51.htm](http://www.cdc.gov/ncidod/eid/13/1/51.htm)

**Abstract:** Recent *Cryptococcus gattii* infections in humans and animals without travel history to Vancouver Island, as well as environmental isolations of the organism in other areas of the Pacific Northwest, led to an investigation of potential dispersal mechanisms. Longitudinal analysis of *C. gattii* presence in trees and soil showed patterns of permanent, intermittent, and transient colonization, reflecting *C. gattii* population dynamics once the pathogen is introduced to a new site. Systematic sampling showed *C. gattii* was associated with high-traffic locations. In addition, *C. gattii* was isolated from the wheel wells of vehicles on Vancouver Island and the mainland and on footwear, consistent with anthropogenic dispersal of the organism. Increased levels of airborne *C. gattii* were detected during forestry and municipal activities such as wood chipping, the byproducts of which are frequently used in park landscaping. *C. gattii* dispersal by these mechanisms may be a useful model for other emerging pathogens.

## Questions and answers on *Cryptococcus gattii*

Globe and Mail's *Cryptococcus gattii* Q&A

[www.theglobeandmail.com/servlet/story/RTGAM.20070210.wfungusQA0210/BNStory/ClimeteChange](http://www.theglobeandmail.com/servlet/story/RTGAM.20070210.wfungusQA0210/BNStory/ClimeteChange)

British Columbia Centre for Disease Control's Cryptococcal disease Q&A

[www.bccdc.org/topic.php?item=109](http://www.bccdc.org/topic.php?item=109)

### Regarding *C. gattii*



Dr. Ron Wohrle,  
Environmental Health  
Veterinarian, WA DOH  
Zoonotic Disease Program

The Zoonotic Disease Program is assessing the possibility of a collaborative effort with scientists from British Columbia Centre for Disease Control and the University of British Columbia. The effort would extend British Columbia's research and investigative efforts to monitor for the presence and/or spread of *Cryptococcus gattii* into Washington State. Previously, *C. gattii* was identified in a limited number of environmental samples and a small number of animals in Whatcom County. The Zoonotic Disease Program will review the importance and feasibility of ongoing environmental monitoring for *C. gattii* through our DOH and program planning process and in consultation with the Zoonotic Disease Advisory Committee and other key partners.

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[www.doh.wa.gov/ehp/ts/ZOO/HTM](http://www.doh.wa.gov/ehp/ts/ZOO/HTM)

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## *New pesticide license system unveiled by WSDA*

By Margaret Tucker, Licensing Branch Manager, Washington State Department of Agriculture

A new database will improve a pesticide licensee's ability to access their information. It also allows searching for a licensee record by name, license number, or company.

A licensee will no longer receive a paper license card when they renew or add license types or categories. All updates will be reflected on WSDA's Web site. The licensee will receive a plastic card identifying them as a license holder and a printout showing the current license status (all licenses, categories and expiration dates).

The benefits for a licensee include next day access via the Internet to license updates; commercial applicators can ensure that WSDA has up-to-date information about their insurance, employed commercial operators, and registered equipment; and dealers can easily verify that a pesticide license has been updated so that a restricted use pesticide sale can be made.

Anyone can also access licensee information through a new search feature. So, say a city wants to check the license categories of the new commercial pest controller they're going to hire. A simple search by name, license number, or company reveals the applicator has the correct endorsements for aquatic mosquito control in the city's storm water catch basins. Also, in the near future, you will be able to create lists of commercial applicators by county and endorsements held.

See the Pesticide Licensing & Education Web site for more information and access the licensee search function at [agr.wa.gov//PestFert/LicensingEd.htm](http://agr.wa.gov//PestFert/LicensingEd.htm).

## *Ecology sticks with aquatic pesticide permits*

By Kelly McLain, Environmental Specialist, Washington State Department of Ecology

The Department of Ecology will continue using permits to control the use of aquatic pesticides in and around Washington waters. Ecology made the decision to stick with the permits because the permits are working for the environment, for our citizens, and even for our permit holders.

Use of the permits came into question when the U.S. Environmental Protection Agency ruled in November 2006 that a pesticide applied according to the federal label is not a pollutant under the federal Clean Water Act and is not subject to NPDES permitting. The EPA ruling has caused legal ambiguity and, to date is being appealed in 11 circuit courts throughout the country. Washington is awaiting the outcomes of these judicial proceedings before changing its practice of permitting aquatic pesticide use.

Without permits the state could not track aquatic pesticide use. Tracking helps reduce the use of pesticides, avoids harm to non-target species, and protects public health. Without permits, there would be no requirement for applicators to notify the public when certain products are used and there would be no environmental monitoring.

Aquatic pesticides provide important societal and environmental benefits like controlling West Nile virus, toxic algae blooms, and other threats to human health. However, the application of pesticides to waters must be carefully managed.

After the new EPA rule, Ecology met with interest groups representing each of the permit areas, as well as agricultural and environmental groups. After a public comment period, most of the feedback Ecology received requested that the state continue its current permitting program, pending the outcome of the EPA rule appeal.

View Ecology's focus sheet at [www.ecy.wa.gov/biblio/0710013.html](http://www.ecy.wa.gov/biblio/0710013.html).