

Between November of 2004 and April of 2005, serology specimens from 198 dogs and 172 cats were sent to the Washington Animal Disease Diagnostic Laboratory (WADDL) by 21 veterinarians in 18 counties in Washington State. The specimens were collected as part of a serosurvey of pets to be tested for evidence of antibodies to plague (*Yersinia pestis*) and tularemia (*Francisella tularensis*). The goal of the serosurvey was to understand whether outdoor pets in Washington may be exposed to wildlife or ectoparasites carrying plague and tularemia. Both of these infections can cause acute febrile illness in pets and infection can be transmitted to their owners and to veterinarians. The pets tested were at least 8 months old, spent ample time outdoors, and had not traveled outside of Washington in the past two years (after December 2002).

Summary of tularemia in Washington and the national pet trade: In most years, 2 to 4 human cases of tularemia are reported to the Washington Department of Health. Occasionally a wild animal such as a snowshoe hare, muskrat or beaver is found infected with tularemia. Recent human exposures have included insect bites and a squirrel bite (a cat owner was bitten while removing a squirrel from a cat's mouth). During 2004, two incidents highlighted the potential for pet hamsters to be infected with tularemia. A child was infected with tularemia in Colorado after a bite from a recently purchased pet hamster [ref. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5351a3.htm>] and in Canada, a group of hamsters that were destined for pet shops were found to be infected with tularemia; most of them died or were euthanized. They were infected by contact with wild rodents at the breeder's facility. A few years ago an outbreak of tularemia among prairie dogs in the pet trade caused human infection [ref. <http://www.cdc.gov/ncidod/EID/vol10no3/03-0695.htm>.] Tularemia can cause febrile illness in cats and dogs. A very small number of organisms can cause infection; transmission can occur through inhalation, ingestion, or direct contact.

Summary of plague in Washington: *Yersinia pestis* (plague) was introduced into Washington State in imported rats at seaports circa 1900. Sylvatic plague has since been established here and in other Western states, however the in the Pacific Northwest, the specific reservoirs, vectors, and geography are not well known. The last recognized human case of plague in Washington State was in a hunter in 1984.

Serosurveillance for plague antibodies in 4,195 wild carnivores collected in Washington during the years 1975-1986 and 1997-2000 showed that an average of 4.7% (range 0.2- 13%) of sampled coyotes and other wild carnivores have low levels of plague antibodies. During the 2004-2005 season, however, of the 213 wild carnivores tested, there have not been any positive results indicating that the plague cycle in nature may be below detection with this tool.

Recent Serosurvey of cats and dogs for plague and tularemia: Table 1 shows the preliminary results of the survey. Specimens from the animals that tested positive have been forwarded to the Centers for Disease Control and Prevention (CDC) for confirmation. ***It is important to note that this serosurvey detected antibody indicating past exposure rather than acute infection. Exposures might have occurred from contact with rodents or through ectoparasite vectors. Antibodies persist for months after exposure. This survey was not designed to find clinically

affected animals. This sample was a small cross section and results cannot be generalized to the entire population.

Tularemia: Antibody tests for *F. tularensis* (tularemia) were positive in 1/172 cats (0.6 %) and 6/198 dogs (3.0 %). The positive animals originated in six counties from across the state.

Table 1. Cats and Dogs with serologic antibody to *F. tularensis* *

<u>Species</u>	<u>County</u>
Cat	Lewis
Dog	Stevens
Dog	Cowlitz
Dog	Cowlitz
Dog	Skagit
Dog	Asotin
Dog	Pierce

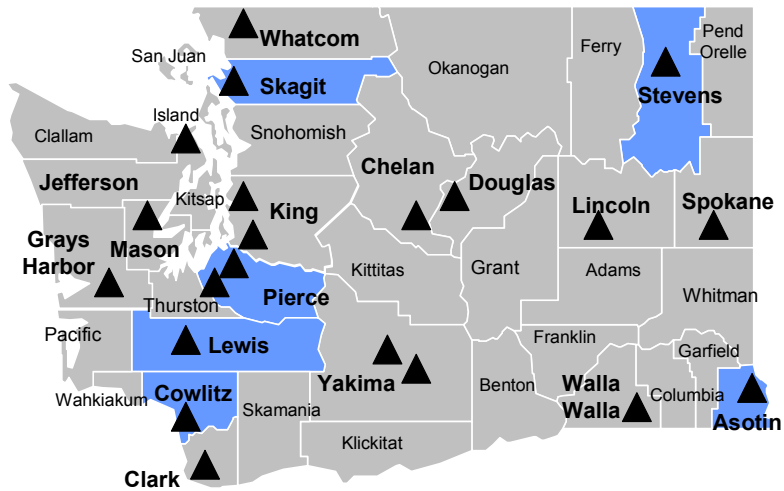
*These results indicate that these animals were exposed to *F. tularensis* at some point, and do NOT indicate that the animals were infected with tularemia when their blood was drawn. Wild animals are the reservoir for tularemia, and it is likely that these dogs and cat came in contact with an infected wild animal or a vector such as a tick.

Plague: Results of antibody tests for *Y. pestis* (plague) were less clear. Of 369 pets tested, 4 specimens were “indeterminate” and the balance were negative. The specimens read as “indeterminate” will be sent to the CDC for re-testing.

CONCLUSION: Outdoor pets in Washington may be exposed to tularemia and plague, especially in years when the pathogens are epizootic (circulating in higher numbers of small mammals and insects). These diseases cycle in nature (amplify and diminish) so fluctuations from year to year are expected. Outdoor cats and dogs may be exposed to sick and dead rabbits and rodents and their ectoparasites. Veterinarians should keep these diseases in their differential diagnosis of acute febrile illness, and use prevention and control measures to avoid zoonotic disease transmission. Both of these bacterial diseases respond to appropriate antimicrobial therapy.

Tularemia serosurvey in cats and dogs, 2005

Participating veterinary clinics/animal shelters and counties with animals found with antibodies to tularemia



- ▲ Participating veterinary clinic/animal shelter
- Animal found with antibodies to tularemia

