PHOENIX CENTRAL LABORATORY
Excellence in Veterinary Science

Did You Know?
Tick-Borne Disease

The Washington State Department of Health has recently been collecting ticks from the veterinary community to identify them and determine what species appear to be native to our state and to determine whether they carry agents of rickettsial disease. The results for the last three years are as follows.

2010-2011 Tick-Borne Disease Test Results

	Anaplasmosis	Borrelia	Babesia	E.chaffeensis**		
Counties	***Positive***	***Positive***	***Positive***	***Positive***	***Negative***	
Chelan	1	0	0	0	37	
Mason	1	2	0	0	40	
Thurston	1	0	0	0	53	
Others	0	0	0	0	95	**Total Tested/ Collected***
Totals	**3**	**2**	**0**	**0**	**225**	**230/987**

2012 Tick-Borne Disease Test Results

	Anaplasmosis	Borrelia	Babesia	E.chaffeensis		
Counties	***Positive***	***Positive***	***Positive***	***Positive***	***Negative***	
Clallam	0	1	0	0	6	
Mason	0	1	0	0	23	
Others	0	0	0	0	349	**Total Tested/ Collected***
Totals	**0**	**2**	**0**	**0**	**378**	**380/1183**

2013 Tick-Borne Disease Test Results

	Anaplasmosis	Borrelia	Babesia	E.chaffeensis		
Counties	***Positive***	***Positive***	***Positive***	***Positive***	***Negative***	
Clallam	0	4	0	0	15	
Klickitat	1	2	0	0	36	
King	0	1	0	0	96	
Mason	1	0	0	0	30	
Whatcom	0	1	0	0	13	
Others	0	0	0	0	146	**Total Tested/ Collected***
Totals	**2**	**8**	**0**	**0**	**336**	**346/880**

**Ixodes sp.* ticks were the only ones tested in all years; *Dermacenter sp*. also tested in 2013. Other ticks collected including *Amblyomma sp*., *Otobius megnini*, and *Rhipicephalus sanguineus* (brown dog tick) and those that were degenerated upon submission, were not tested.

** *Ehrlichia chaffeensis* is the agent of human monocytotrophic erhlichiosis.

This study will continue through Fall, 2014.

Information provided by Sandy Willis, DVM, MVSc, Small Animal Internist at Phoenix Laboratory, 1-800-347-0043, email: sandyw@pclv.net

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Screening for Rocky Mountain Spotted Fever
The Department of Health tested 280 *Dermacentor andersoni* (wood tick) and *Dermacentor variabilis* (American dog tick) in 2012-2013 and did not find any ticks positive for the presence of *Rickettsia rickettsii*, the causative agent of Rocky Mountain spotted fever. The 140 Dermacentor ticks collected in 2013 were also negative for *Francisella tularensis*, the agent of Tularemia.

Canine Granulocytic Anaplasmosis
This tick borne disease has been confirmed in Washington State in dogs, horses and rarely in cats. The causative agent is *Anaplasma phagocytophilum*, formerly called *Ehrlichia equi*. It is principally carried by *Ixodes pacificus*, the Western black-legged tick. This is an acute disease with clinical findings usually reported during the rickettsemic phase. Clinical signs include fever, and nonspecific signs of lethargy, depression and anorexia. Musculoskeletal pain manifested as reluctance to move, stiffness, weakness and lameness may be seen. Joint pain is uncommon. Petechia due to thrombocytopenia is often present. In addition to mild to severe thrombocytopenia, lymphopenia, eosinopenia, neutropenia or neutrophilia, mild nonregenerative anemia, mild hypoalbuminemia, and increased alkaline phosphatase can be seen with *A. phagocytophilum* infection.

Diagnosis is most commonly made from the identification of *A. phagocytophilum* morulae within neutrophils on a blood smear evaluation during the acute clinical phase of infection. Antibody titers become positive 2-5 days after morulae are first seen in the blood and thus may be negative when morulae are identified. PCR testing may detect *A. phagocytophilum* before morulae are seen. The disease is rare in cats, but appears similar to that seen in dogs. Patients with *A. phagocytophilum* infection should be treated with doxycycline for 3-4 weeks. Clinical improvement is usually rapid.

Lyme Borreliosis and Canine Monocytotropic Ehrlichiosis
The vector species for transmission of Lyme Disease, *Ixodes pacificus*, is widespread in Washington State and ticks do carry the causative agent, *Borrelia burgdorferi*. Confirmed human cases of Lyme Disease in our state are rare and the majority involve travel out of state. Confirmed cases of Lyme Disease in dogs are also rare. The seroprevalence of the causative agent of canine monocytotropic ehrlichiosis, *Ehrlichia canis*, has been reported to be very low in Washington, Oregon and California. We are not aware of any clinical cases of canine monocytotropic ehrlichiosis in native Washington dogs.

Tick-Borne Disease and Travel
Inquire as to travel history in the exam room. At Phoenix Central Laboratory we have diagnosed dogs with chronic *Ehrlichia canis* infections living in Washington State that were acquired from or had travel outside the state (Arizona, Mexico, South America, Puerto Rico) up to nine years previously. Findings in these cases with *E. canis* infections have included mild to severe nonregenerative anemia, thrombocytopenia, mature lymphocytosis (resembling chronic lymphocytic leukemia), hyperglobulinemia (both polyclonal and monoclonal) and proteinuria. The gold standard for diagnosis of *E. canis* infection is serology. The organism circulates for only a short period of time in the blood and PCR tests can be falsely negative.

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