

Rocky Mountain Spotted Fever

California Fact Sheet for Veterinarians



Key Facts

- Ongoing outbreaks of RMSF in humans and dogs in Tijuana, Tecate, and Mexicali
- RMSF can be FATAL in humans and dogs. Early treatment is CRITICAL.
- Cases (illness or fatalities) in dogs often precede cases in humans.
- RMSF is caused by the bacteria *Rickettsia rickettsii*
- In our region, the vector is the brown dog tick (*Rhipicephalus sanguineus*).
- Managing ticks and canine RMSF protects people and other dogs.
- Controlling ticks on dogs is the best way to control brown dog tick populations.
- Brown dog ticks live in houses, yards, and kennels (anywhere dogs reside).

Treatment and Diagnostic Notes

- Suspected and confirmed cases should receive doxycycline and effective tick prevention.
- Co-exposure to other tick-borne agents (*Ehrlichia* or *Anaplasma*) is common.
- *Ehrlichia* and *Anaplasma* may cause chronic infection while RMSF is not chronic.

Signs of RMSF in dogs may be mild or severe

- Fever
- Lethargy
- Petechiae
- “Puffy” in appearance: facial, limb, or scrotal swelling
- Thrombocytopenia
- Neutrophilia or neutropenia
- Conjunctivitis or ocular discharge

History Questions for Owners

- Have they seen ticks on their dog(s)?
- Has the dog traveled to Mexico, or are they planning to travel to Mexico?

Diagnosis: *Treatment should not be delayed while waiting for results*

- Samples should be taken before starting antibiotics whenever possible.
- Immunohistochemistry or PCR may be performed on tissues post-mortem.

PCR

- In some commercial or university laboratories.
- Usually performed on whole blood. May also be performed on tissue samples/biopsy.
- Detects active infection.
- Low sensitivity: negative in some RMSF cases.

Serology

- Serology (IFA) is NEGATIVE in the first 7-10 days.
- A positive result may be due to previous exposure or cross-reaction with other rickettsial species.
- Single high titer suggests but does not confirm diagnosis.
- A 4-fold increase in antibodies after 14-21 days retrospectively confirms RMSF.



Brown dog ticks may be present anywhere dogs congregate, indoors or out. The engorged female brown dog tick in the right hand photo is looking for a place to lay her eggs indoors.

Identifying Brown Dog Ticks in the Clinic

- Size and shape depends on tick stage and sex and how long it has been feeding.
- Most common around ears, the collar, in the axillae, and between the toes.
- They may cluster, especially on ears.
- They are plain brown, without patterning along the back.
- Nymphs and adults have 8 legs. Larvae are not usually seen on pets.
- Engorged female body color ranges from light yellow to dark brown, but the scutum is always brown.

Products Effective Against Brown Dog Ticks

- Long acting prevention is optimal
- Fluralaner (Bravecto)
- Sarolaner (Simparica)
- Seresto collar
- Fipronil alone is not sufficient
- Ticks may be resistant to fipronil/permethrin products



What about other rickettsial diseases?

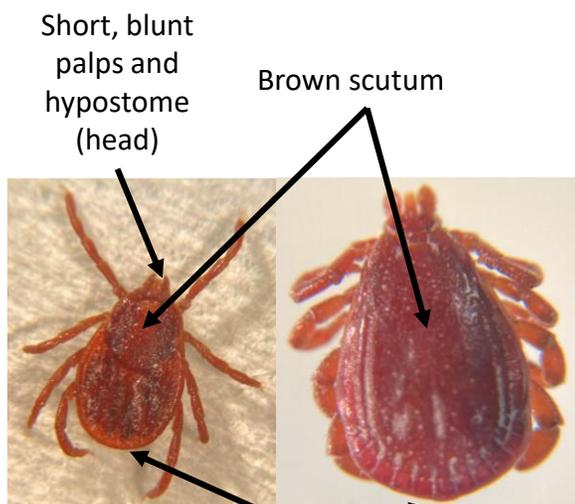
In California and Arizona, dogs may be infected with *Rickettsia massiliae*, *R. parkeri*, *Anaplasma platys*, *A. phagocytophilum*, and *Ehrlichia canis*. Clinical signs are similar but less severe than those of RMSF. Serology may cross-react between *Rickettsia* species.

Reporting and Additional Resources

- Clients concerned about their family's health should contact their physician.
- Clients concerned about ticks in the home should contact county vector control or a licensed pest management company.
- Veterinarians should notify both state and county public health departments and environmental health with suspected or confirmed cases. Reporting requirements vary by jurisdiction.

For information on RMSF and ticks in the southwestern United States, go to www.pacvec.us/ticks.

Contact calticks@pacvec.us with questions.



Female (left) and male (right) brown dog ticks

Client Education

- Encourage owners to treat with products effective against brown dog ticks (see next box)
- Educate owners on the human health importance of controlling brown dog ticks on their dogs
- Brown dog ticks may bite humans in the home (unlike other ticks, which are more common in natural areas)
- If owners see ticks around their home, they should contact their county vector control or a commercial pest control company.



The Border Tick Rickettsia Surveillance Program is a collaborative program between University of California, Davis, the University of Arizona, and community and government partners funded through the Pacific Southwest Center of Excellence in Vector-borne Diseases (PacVec) and the Centers for Disease Control.