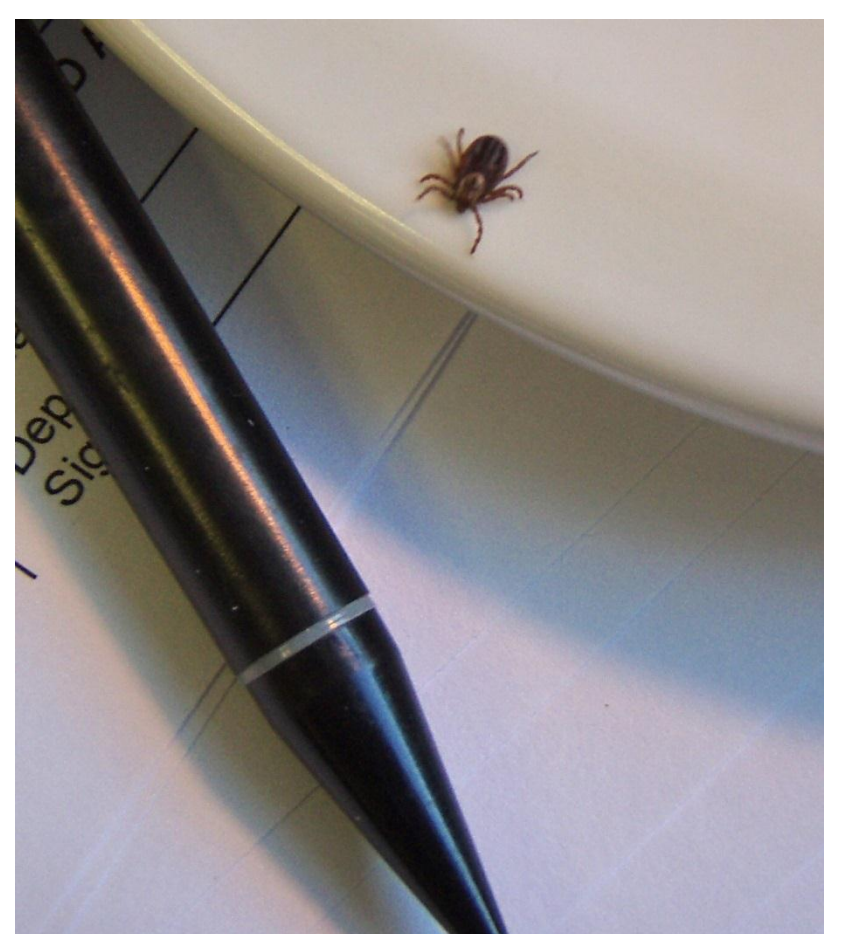




# Dog ticks introduced and establishing in Alaska: Increased risks for tick-borne zoonoses

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## Introduction

Enhanced tick surveillance was initiated for the early detection of the Moose Winter Tick (*Dermacentor albipictus*) which is already establishing in the Yukon Territory on elk and moose. Other species of ticks typical on small mammals and birds are enzootic to Alaska; however “dog” ticks were not thought to be present. Despite this, between 2011-2013, numerous “dog” ticks were submitted to ADF&G or the Office of the State Veterinarian. Most of these are also competent vectors of serious zoonotic and animal diseases.



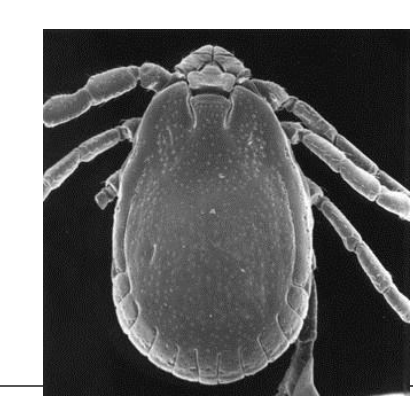
## Methods

- Interdepartmental, public service announcements, and informational materials were distributed to encourage submission of external parasites found on pets and wildlife to ADF&G's Wildlife Health and Disease Surveillance Program.
- Veterinarians, biologists and members of the public submitted ticks to ADF&G or the Office of the State Veterinarian (OSV) for identification.
- Ticks were received alive, frozen, dried, fixed in ETOH or formalin. Specimens were transferred to 80% ETOH and submitted to Dr. Lance Durden at Georgia Southern University for identification to species.

## Results

Eighty-nine tick specimens representing 48 infestations from June 2011- Oct 2013 were identified. Host distribution was 28 dogs, 8 humans, 2 cats, and 1 each, hare, and marten. The most frequent identification was the enzootic squirrel tick, *Ixodes angustus*. Four species of dog ticks exotic to Alaska were detected with *Dermacentor variabilis* most frequent in 2011-12 and *Rhipicephalus sanguineus* in 2013, *D. andersoni* and *Amblyomma americanum* with 2 cases each. No *D. albipictus* were found. Results are reported in Table 1.

**Table 1. Tick Surveillance Summary.** Species of ticks in **bold** were not previously reported to be enzootic to Alaska. \*Ticks and disease agents enzootic in Alaskan wildlife.

Species	Common name(s)	Preferred host/distribution	Host in AK and location	Remarkable discoveries	Pathogens vectored
<i>Dermacentor variabilis</i> 	<b>American dog tick or wood tick</b>	Small mammals (larvae), Dogs, humans (adult ticks) 	<b>10 cases: dogs, humans; North Pole, Fairbanks Anchorage, Juneau, Sitka, Valdez, Willow, Denali NP</b>	<b>On dogs that had never left Valdez or Juneau, Anc dog documented tick-free on arrival frequented Potter's marsh</b> , other dogs had been out of state	Rocky Mtn Spotted Fever, *Tularemia
<i>Dermacentor andersoni</i> 	<b>Rocky Mountain wood tick</b>	Mammals, esp humans, dogs 	2 cases: dogs; Sitka and Anchorage	Dogs returning from OR and CA, two wks previous (the latter in January)	Rocky Mtn Spotted Fever, *Tularemia, Anaplasmosis, Tick paralysis, Tick fever, Q fever
<i>Rhipicephalus sanguineus</i> 	<b>Brown dog tick</b>	Mammals, esp dogs; prefers indoors 	<b>13 cases: dogs, humans; Fairbanks, Anchorage &amp; Sitka</b>	<b>All life stages and severe infestations on dogs resident to Fairbanks in 2013; engorged females on dogs from Sitka, Anchorage</b>	Rocky Mtn Spotted Fever, Canine ehrlichiosis, canine babesiosis, Lyme Disease, *Q fever
<i>Amblyomma americanum</i> 	<b>Lone star tick</b>	Deer, dogs, humans 	2 cases dogs; Fairbanks & Eagle River	Dog in Eagle River who was never out of fenced yard; Fairbanks dog returning from TX, FL, PA	Ehrlichiosis, *Tularemia
* <i>Ixodes auritulus</i> 	No common name <b>new host record</b>	Seabirds Reported in Alaska	1 case dog; Sitka	Seabird tick not previously recorded on a dog	Not documented
<i>Ixodes texanus</i> 	Raccoon tick <b>new range record</b>	Raccoons and dogs Not reported in Alaska	1 case marten; Connell Lake near Ketchikan	Possible example of climate change- mediated range expansion?	Not documented
* <i>Haemaphysalis leporispalustris</i> 	Rabbit tick	Hares, rabbits, other small mammals and birds. Reported in Alaska	1 case: human; Haines	Vector of potentially lethal zoonoses and was embedded on person	*Q fever, *Tularemia
* <i>Ixodes angustus</i> 	Squirrel or vole tick	Lemmings, squirrels, hares Common in Alaska	17 cases: dogs, humans, cats, hare; Homer, Anchor Point, Anchorage, Sitka, Juneau, Wasilla, Gustavus	Consistently reported annually by residents who believe Alaska is tick-free	Lyme disease, Babesiosis, (*Tularemia suspected)

## Discussion

Climate changes are expected to facilitate the northward expansion of tick geographic ranges and previous studies demonstrate that Moose Winter Tick will be able to survive in the Alaskan Interior if introduced (Zarnke et al. 1990). Our goal was to detect the introduction of Winter Tick as early as possible to initiate management actions. However, the detection of numerous exotic dog ticks on not only traveling pets/people but also resident pets, increased our concern that at least *D. variabilis* and *R. sanguineus* may already have become established. We modified our initial goal to include to increasing awareness about prevention necessary for pets traveling to Alaska and for veterinary or human health practitioners to consider previously unreported tick-borne diseases for differential diagnoses.

**Literature Cited:** Zarnke, R.L., W.M. Samuel, A.W. Franzmann, R. Barrett. 1990. Factors Influencing the Potential Establishment of the Winter Tick (*Dermacentor albipictus*) in Alaska. J. Wildl. Dis. 26:412-415. **Acknowledgements:** This project was only possible through the expertise of Dr. Lance Durden. I am also grateful to ADF&G staff especially Phil Mooney, Skye Brandt and Stephanie Crawford as well as the State Veterinarian Dr. Robert Gerlach, veterinarians, groomers and the members of the public that submitted ticks.

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