



Ticks, the Ultimate Parasite

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Abstract: Ticks are notorious vectors of disease causing pathogens such as the pathogens that cause Lyme disease, Rocky Mountain spotted fever, and tick paralysis. Ticks are second only to mosquitoes in terms of public health importance. Ticks are found in many climates around the world but tend to frequent warmer areas with higher humidity (Centers for Disease Control and Prevention). In conjunction with a local humane society samples of ticks were collected from various dogs. Five ticks were collected, an *Ixodes scapularis* (Arachnida: Acari: Ixodidae: L.), two *Amblyomma americanum* (Arachnida: Acari: Ixodidae: L.) and two *Dermacentor variabilis* (Arachnida: Acari: Ixodidae: L.). Findings from this survey imply that there are possible tick vectors within the Brazos Valley Area.

Keywords: Tick-borne, *Amblyomma americanum*, *Dermacentor variabilis*, *Ixodes scapularis*, Brazos Valley, Prevalence

Ixodes scapularis, the Black Legged Tick, is normally concentrated in the Southeastern sea board of the United States, and is highly proliferated within the ecosystem (Brownstein et al). *I. scapularis* can vector the Lyme disease causing pathogen, and are known to feed on human hosts (Centers for Disease Control and Prevention).

Dermacentor variabilis, the American Dog tick, it is a major pest of both human and animals throughout the central and southern United States and are active in late winter and throughout spring. They are potential vectors of Rocky Mountain spotted fever causing pathogen and can cause tick paralysis (Centers for Disease Control and Prevention).

Amblyomma americanum, the Lone star tick, is found throughout the United States. *A. americanum* is an aggressive tick that has a large variety of suitable hosts. These ticks typically prefer wood-like habitats. The peak months for *A. americanum* are April through August, during this time these ticks quest for suitable hosts, which includes humans. The Lone star tick was regarded as primarily as a nuisance species, but a significant increase in *A. americanum*-associated pathogens has been observed (Childs)

Due to the erratic climate in the area, not normal to the season, it is possible that the tick population was impacted negatively. The purpose of this survey was to determine the prevalence of possible tick vectors. All species collected have potential medical and

veterinary importance (Centers for Disease Control and Prevention).

Materials and Methods

The ticks were collected at a local humane society in Bryan, Texas. When a dog presented with a tick a vet technician would remove the tick from the animal humanely. Once the ticks were removed and collected the specimens were identified and sent to the Department of State Health Services in Austin, TX.

Results

One adult *I. scapularis* and two adult *D. variabilis* were found in April. Two *A. americanum* ticks were found in May.

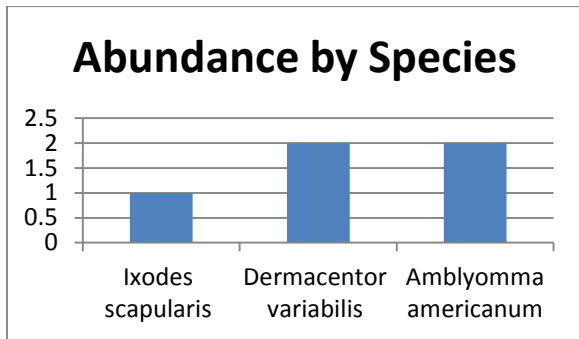


Figure 1: Tick abundance by species.

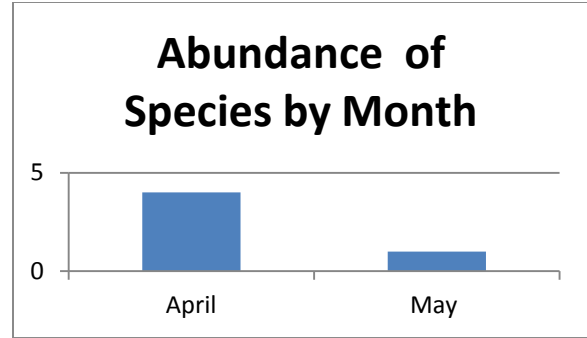


Figure 2: Tick abundance by month.

Discussion

The tick species that were the most common, *D. variabilis* and *A. americanum* were found most commonly in April. The exact location of all the species were not specified due to the nature of the collection of the specimens but all patients which the specimens were removed were native to the Brazos Valley area. This finding implies that that there are potential tick vectors within the Brazos Valley area.

Lyme disease, Rocky Mountain spotted fever, Ehrlichiosis and Relapsing Fever, all caused by tick-borne pathogens, have all been confirmed in Texas (Texas Department of State Health Services).

This survey builds upon previous studies and population models of the specimens in question, cementing the finding that there are competent vectors within the immediate Brazos Valley area. Prevalence of the tick vectors could not be tested however due to the small, erratic, sample size that was obtained.

References

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