



# Pest e-alerts



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## Longhorned Tick / Bush Tick (*Haemaphysalis longicornis*)

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The Longhorned Tick (also known as the Bush tick) (Figure 1) is an exotic tick and has been documented as a serious pest of livestock in Australia and New Zealand. Recently, this tick has been found on animals in New Jersey, Virginia, West Virginia and Arkansas. Longhorned Tick can be found on multiple animals and is considered a three-host tick. This three-host tick is unique in that it can reproduce either sexually (male and female mating) or through parthenogenesis. The reproductive biology of this tick can lead to large populations occurring in pastures or on animals in a short period of time if left unmonitored. However, since it is a three-host tick, it will typically complete their life cycle in 6-months with all active life stages (larva, nymph, and adult stages) feeding on animals.



Figure 1: Adult female Longhorned Tick. Source: R. Crane

The supposed seasonal activity of this tick can range from March to October in Oklahoma based on studies done in Korea and Japan with similar latitudes of 33–36° N (Kim 1973; Nakao and Takada 1997). Annual pattern of ticks is largely dependent on temperature, humidity, day length and host availability. Day length and temperature mainly control the timing and duration of activity, and host availability and humidity control abundance (Heath 2016). The optimal temperature range for this tick's eggs to hatch is between 82-90°F and all active host seeking stages (larva, nymph and adult) develop at an optimal rate in temperatures between 60-86°F (Heath 2016). Dehydration is one of the most limiting factors in tick populations even more so than temperature, especially in Oklahoma. Since this is a three-host tick, 90% of their life is spent off host in environments susceptible to drying (Needham and Teel 1991). This limiting factor has been documented in countries where this tick is typically found and the unfed adult stage is the most prone to dehydration but is active only when favorable humidity is higher and precipitation is reliable (Heath 2016). However, the unfed larva (also known as seed ticks with six legs) is able to withstand dehydration more than unfed adults but is usually more active when high temperatures and evaporation are more likely to occur (Leathwick and Stephens 2002). Since the larva stage is the most likely to be impacted by low humidity and soil moisture then this stage is probably this tick's limiting factor in becoming established west of I-35 with some exceptions in south-central Oklahoma.

Host associations for this tick are diverse and can infest both small birds as well as large ruminants such as cattle. Considering hosts and pasture types, these two factors will allow certain areas to be more susceptible to this tick. For instance, this tick does not move very far from available hosts when transitioning between life stages (Heath 2016). Therefore, areas that are regularly visited by cattle with vegetation that allows humidity to stay high such as wooded or tall grass areas are probably more likely to have this tick. This tick is also associated with wildlife such as deer, raccoons and opossums. A common area for ticks to be found in pastures are where these wildlife animals commonly reside such as deer trails. It is also an aggressive biter and causes a lot of stress in animals which can lead to economic impacts to beef animal performance.

Disease associations from this tick are important from the veterinary health aspect as well as the public health aspect. This tick has been identified as a competent vector of several bacterial pathogens including anaplasmosis, ehrlichiosis, spotted fever rickettsia, and Lyme disease. This tick is also associated with viruses mainly found in East Asia. However, the most likely pathogen that this tick can transmit is the protozoan pathogen that causes Theileriosis. In fact, the cattle that this tick was sampled from in Virginia tested positive for *Theileria orientalis* which causes bovine theileriosis which can cause high production losses and high mortality in susceptible beef animals.

Ticks in the *Haemaphysalis* genus are smaller (2-5 mm) than those in the *Dermacentor* and *Amblyomma* genus (6-9 mm). Below is a comparison of ticks commonly found in Oklahoma (Fig. 2). Of the ticks listed the most likely tick to be confused with the Longhorned tick is the Brown Dog Tick (Fig. 2F) due the similar structure of the mouthpart of these two ticks. The length of the mouthpart in *Amblyomma* ticks and *Ixodes* ticks (Fig. 2A-C) is much longer than in the Longhorned tick. The mouthparts of the American Dog Tick and Winter Tick, both of which are *Dermacentor* ticks, are shorter or in equal length as the basis that connects their mouthparts to their body (Fig. 2 E&F).

The Longhorned tick has some characteristics that distinguish it from other ticks but only trained personnel can see these differences. If you suspect that a tick is different from other ticks seen previously, then the tick can be sent to Oklahoma State University at the below address for identification. The local county extension office as well as your veterinarian can be contacted to assist in the collection. Also, when sending the tick, the best method is to place the tick into a sealable vial with 70% ethanol. The sample should include where the tick was collected (GPS coordinates or street address), type of animal or if it was collected from a person, and the date of collection. All of this will be required for identification. If a possible tick is presumed to be the Longhorned Tick then the State Veterinarian office within the Oklahoma Department of Agriculture, Food & Forestry will be notified as to the location of the positive tick sample.

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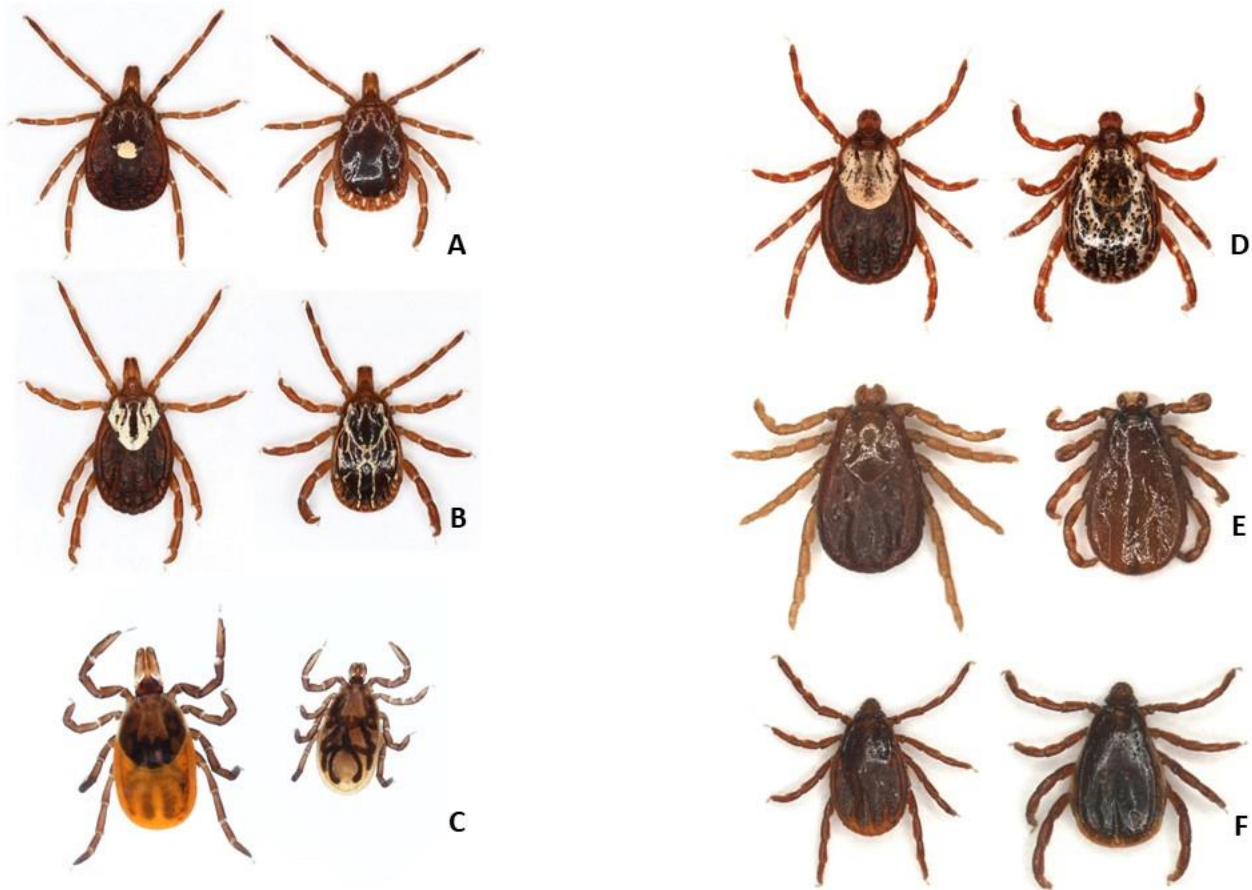


Figure 2: Commonly found ticks in Oklahoma. Female on left and male on right within each tick species. (A): Lone Star Tick (*Amblyomma americanum*); (B) Gulf Coast Tick (*Amblyomma maculatum*); (C) Deer tick or Black-legged tick (*Ixodes scapularis*); (D) American Dog Tick (*Dermacentor variabilis*); (E) Winter Tick (*Dermacentor albipictus*); (F) Brown Dog Tick (*Rhipicephalus sanguineus*). Credit: R. Grantham Oklahoma State University.

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