

# Common Ticks of North Carolina: An Identification Guide

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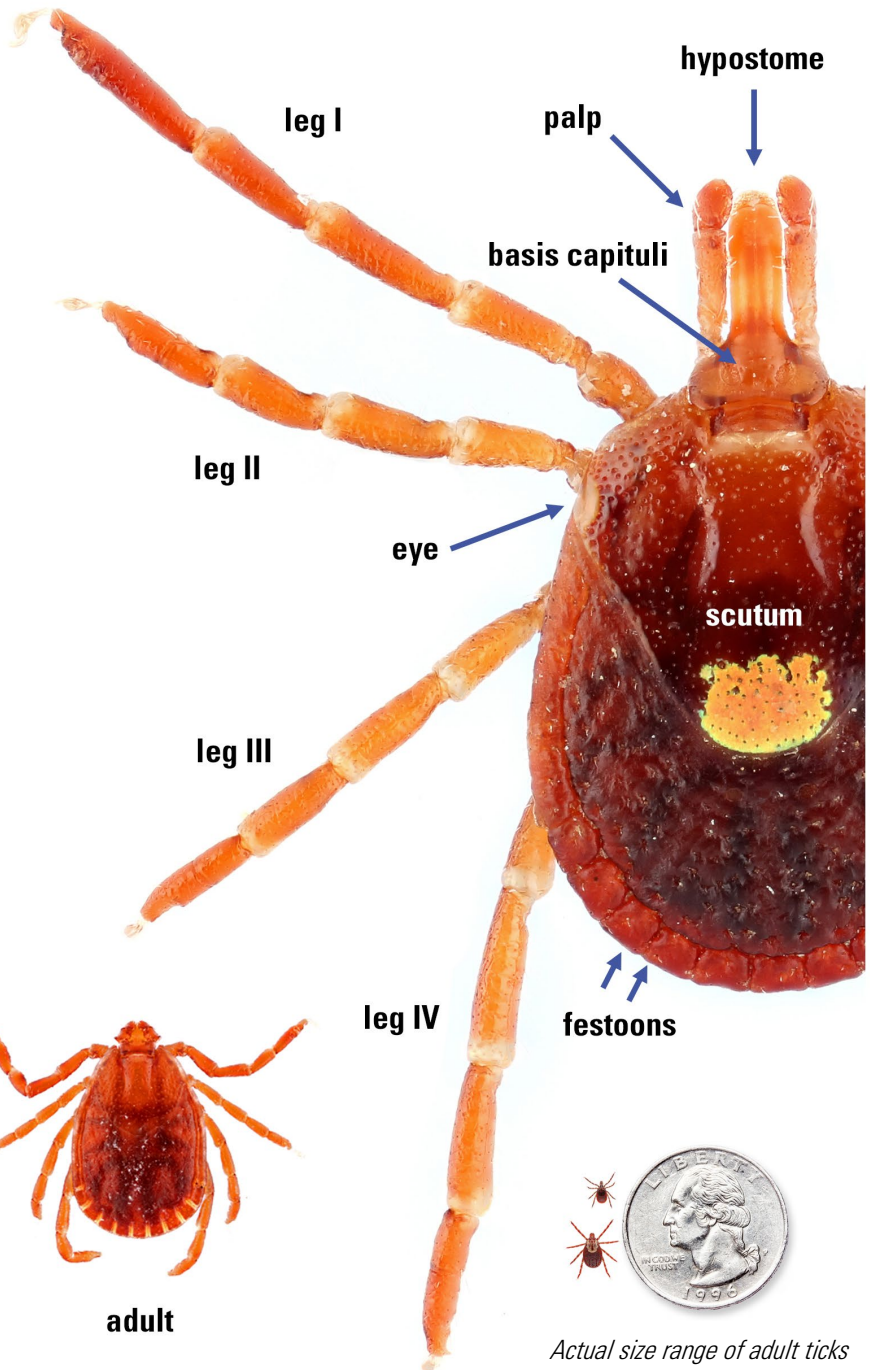
Ticks (here referring to hard ticks, Ixodidae) are blood-feeding parasites of many animals, including humans. Some also transmit dangerous diseases. This guide shows the most common tick species in North Carolina, many of which are also in neighboring states.

This guide is primarily for identifying species of ticks and shows mostly adults, and only specimens that are not filled with blood. Blood-filled ticks can be difficult to ID. If you have questions, please contact the [NC State Plant Disease and Insect Clinic](#) for help. A table at the end of the guide (page 16) lists the common diseases associated with hard ticks. For more information on ticks and tick-borne diseases please visit: <https://content.ces.ncsu.edu/ticks-and-tick-borne-diseases>

# Anatomy of a tick

(only left side shown, below)

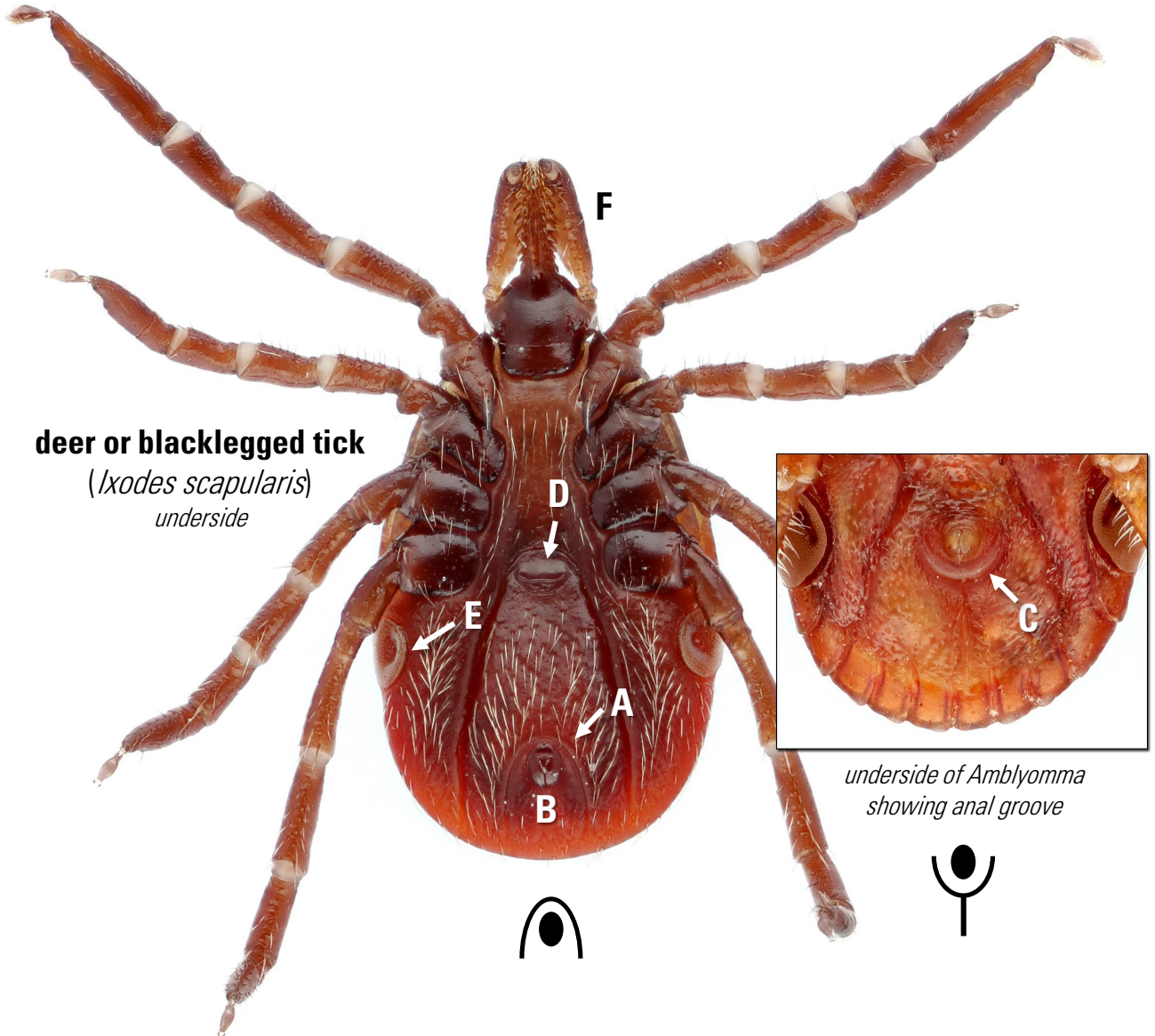
Ticks are arachnids, meaning adults and nymphs have 8 legs. However, larvae (first stage) have only 6 legs (*see below*). Ticks have one main body part with distinct mouthparts in front. **Palps** are small, leg-like structures around the mouth. Their shape and size are often helpful for identification. The **hypostome** has teeth and is inserted into animals to feed. The palps and hypostome are connected to the **basis capituli** (what might be called the "head"). Many ticks also have a pair of **eyes**. Ticks have a shield or **scutum** on their back. It is small in females and covers most of the body in males. The rear edge of ticks may be scalloped or resemble pie crust - these structures are called **festoons**, and the number is sometimes diagnostic. On the underside (*see next page*) there is a large **spiracular plate** behind leg IV, and two openings along the center of the body: the front being the **genital opening** and the rear being the **anus**.



## Starting the guide: *Ixodes* vs. other ticks

*Ixodes* is the genus containing deer or blacklegged ticks. They are distinctly different from our other species in a few ways. For one thing, adult *Ixodes* are typically smaller than adults of other ticks (about 3 mm or 1/10" long); they also lack eyes (also lacking in *Haemaphysalis*, pages 10 & 11). *Ixodes* can transmit the pathogen that causes Lyme disease. Below are some characteristics to look for when identifying the two groups.

**deer or blacklegged tick**  
(*Ixodes scapularis*)  
underside

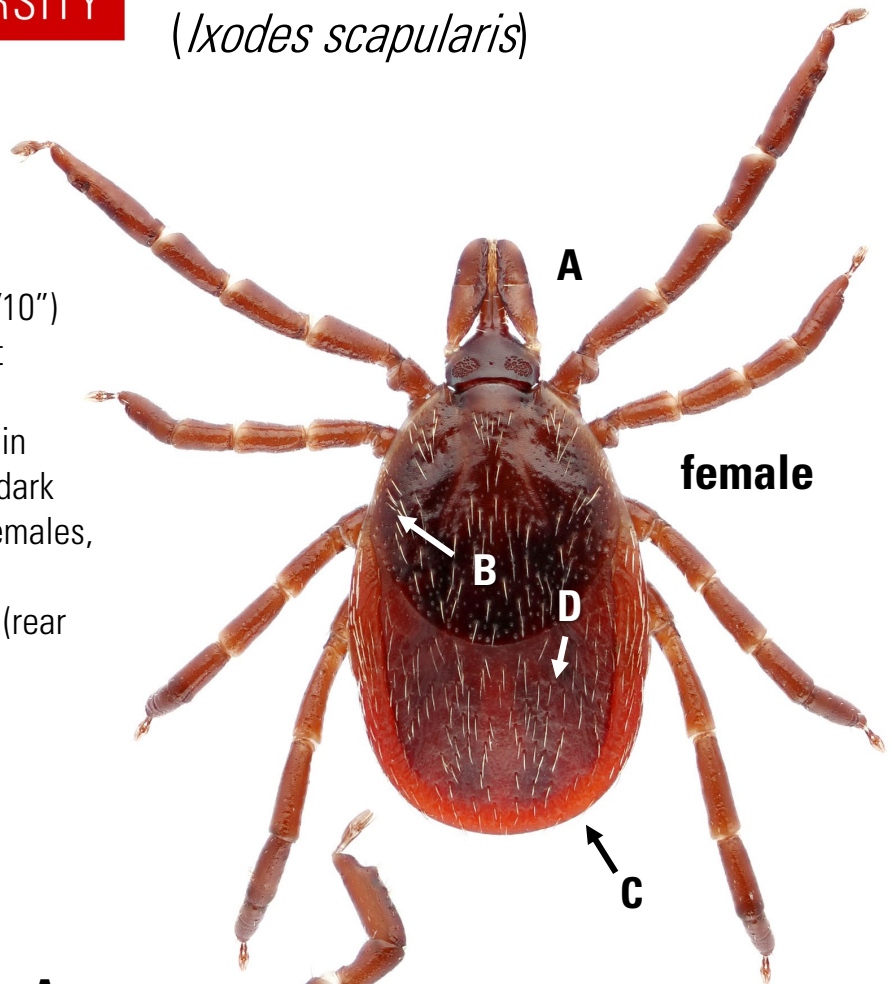


underside of *Amblyomma*  
showing anal groove

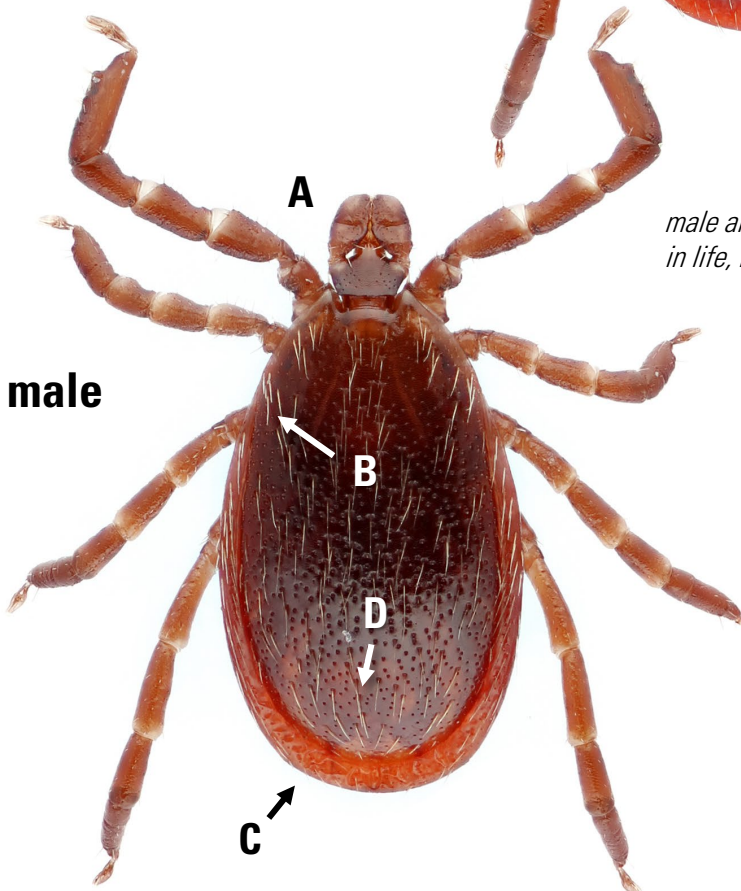
The main image above shows the underside of a female *Ixodes* tick. *Ixodes* have a groove (**A**) that curves in front of the anus (**B**) and looks like an arch. This is not found in other types of ticks, where the groove is behind the anus (though sometimes faint; **C**). In this image you can also see the genital pore (**D**) and spiracular plates (**E**), common to all hard ticks. *Ixodes* have long, flat palps (**F**), though long palps can also be found in some other ticks (e.g. *Amblyomma*, pages 14 & 15).

# deer or blacklegged tick (*Ixodes scapularis*)

- adults smaller than an average tick (~3 mm, 1/10")
- body long/oval, without patterns
- reddish-brown to black in color; legs and scutum dark
- palps long and flat in females, shorter in males (**A**)
- no eyes (**B**) or festoons (rear edged smooth; **C**)
- body with fine hairs (**D**)



**female**



**male**

*male and female not to scale;  
in life, males are smaller*

Although several species of *Ixodes* live in North Carolina, only *scapularis* commonly attacks humans. These ticks can transmit the pathogen that causes Lyme Disease.

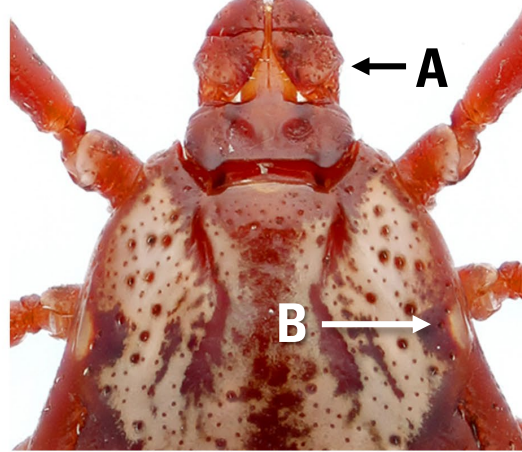
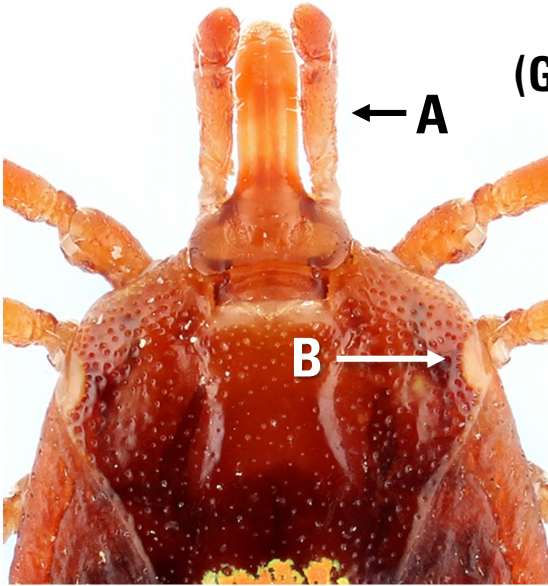
# Key to common species of non-*Ixodes* hard ticks in NC

## Step 1

Before using this key, please note that skin from the animal/human may still be attached to the mouthparts of the tick, or the mouthparts may be missing. If covered in skin, use a fine needle or pin to gently tease the tissue away from the mouthparts before attempting an ID.

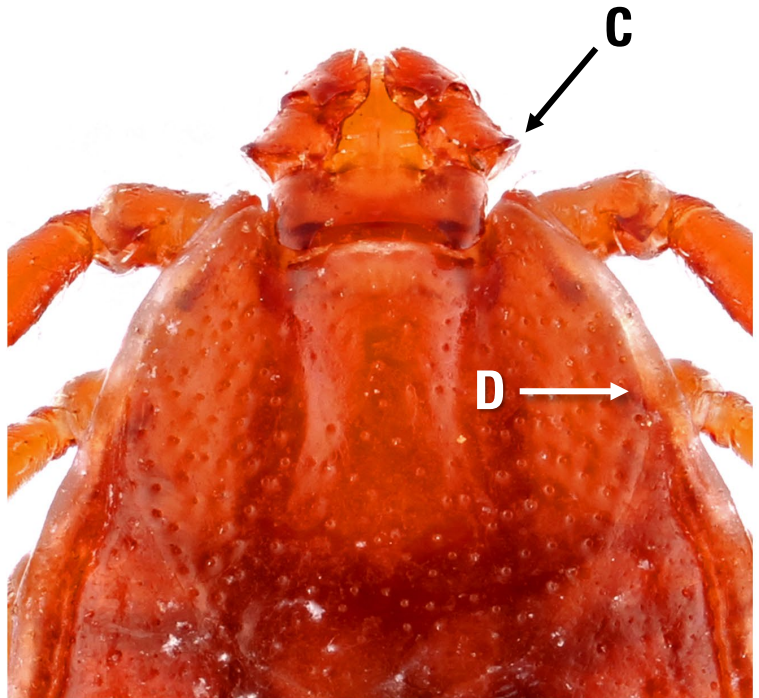
- segment 2 of palps not wide and pointed (A)
- eyes present (B)

(Go to Step 3)



- segment 2 of palps wide and distinctly pointed on side (somewhat triangular) (C)
- eyes absent (D)

*Haemaphysalis*  
(Go to Step 2)

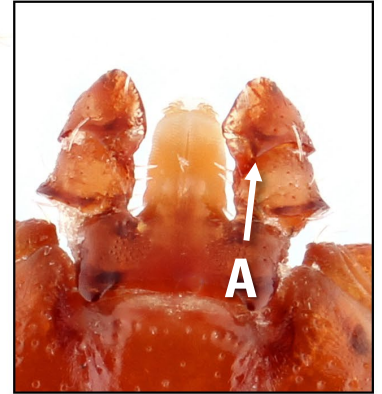


# Key to common species of non-*Ixodes* hard ticks in NC

## Step 2



top of mouthparts

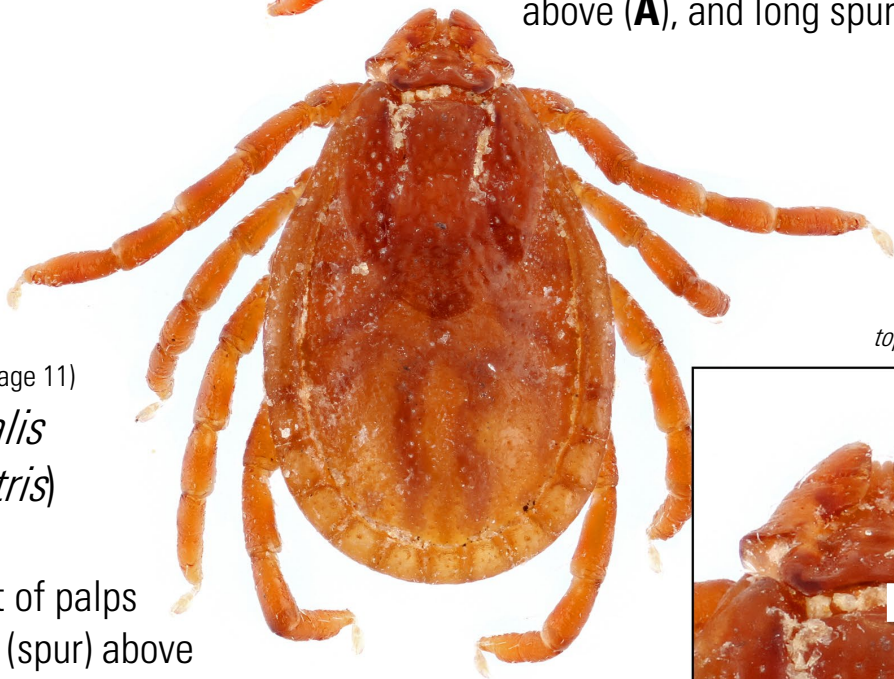


**Asian longhorned tick** (page 10)  
(*Haemaphysalis longicornis*)

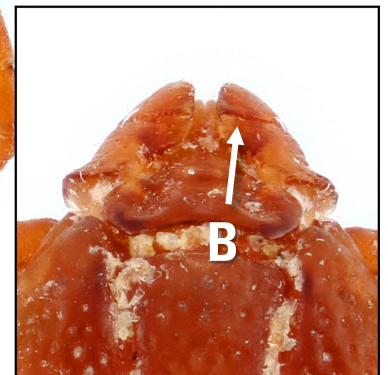
- third segment of palps with prominent, rear-facing point (spur) above (**A**), and long spur underneath

**rabbit tick** (page 11)  
(*Haemaphysalis leporuspalustris*)

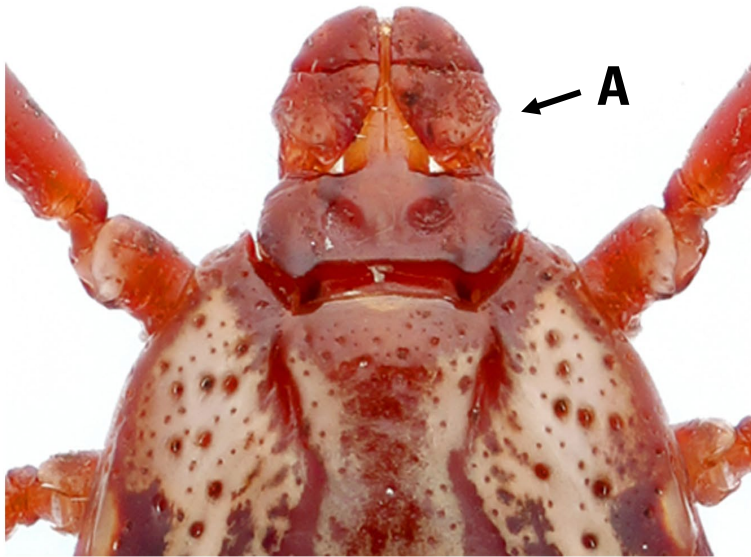
- third segment of palps without point (spur) above (**B**); spur underneath short, blunt



top of mouthparts



**Step 3**



- palps not much longer than head (basis capituli); second segment about as long as wide (**A**)

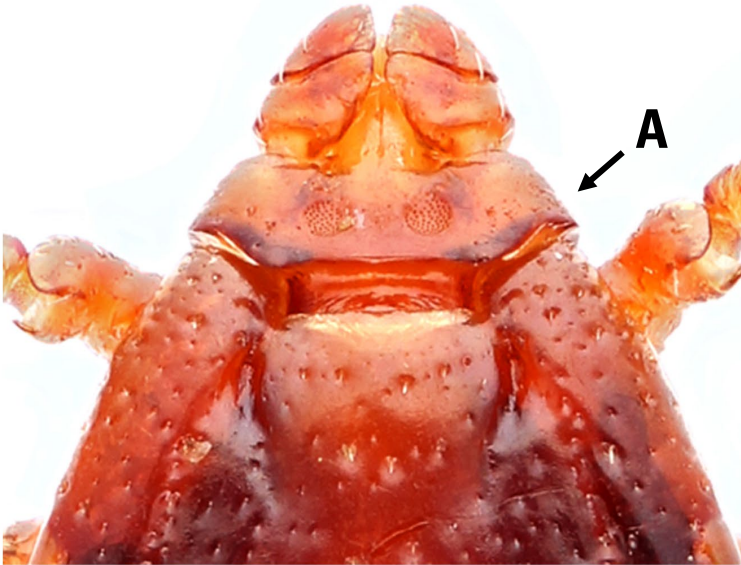
**(Go to Step 4)**

- palps much longer than head (basis capituli); second segment much longer than wide (**B**)

***Amblyomma***  
**(Go to Step 5)**



Step 4

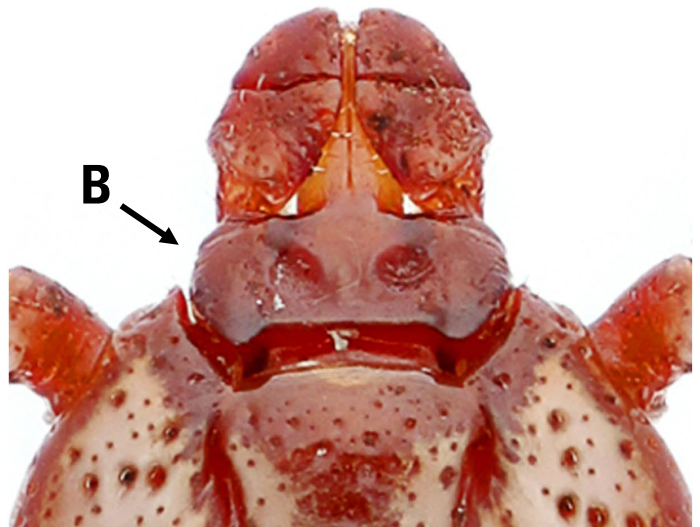


- head (basis capituli)  
more hexagonal, sides  
angular or with points  
(A)

**brown dog tick**  
(*Rhipicephalus*  
*sanguineus*)  
(page 12)

- head (basis capituli)  
more rectangular, sides  
parallel, rounded (B)

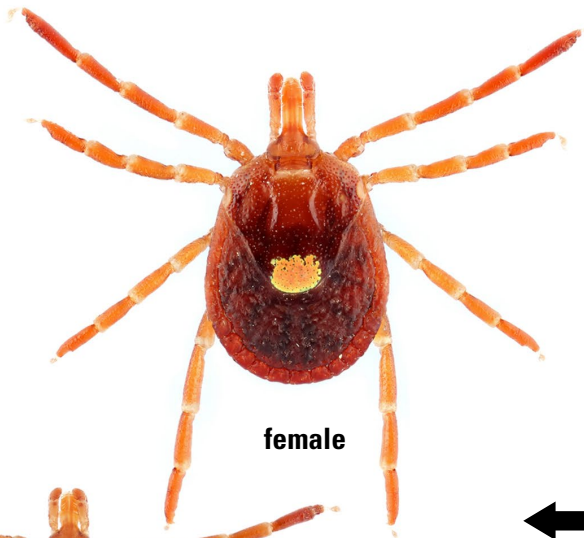
**American Dog Tick**  
(*Dermacentor variabilis*)  
(page 13)





# Key to common species of non-*Ixodes* hard ticks in NC

## Step 5



female

- common on humans; shape more round; female with single pale spot on rear of scutum; male with network of pale patterns; legs unmodified

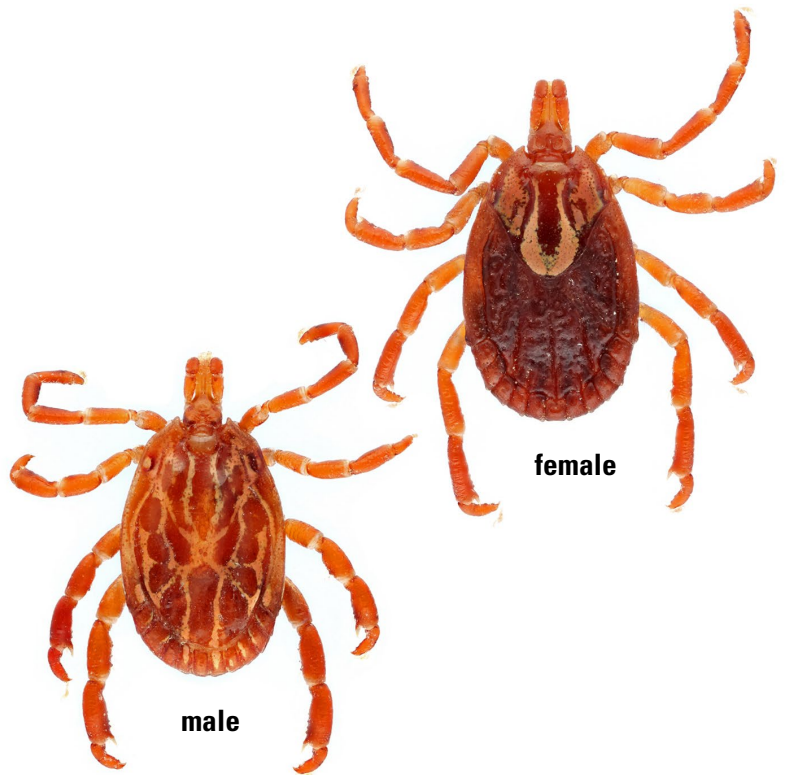
← **lone star tick**  
(*Amblyomma americanum*)  
(page 14)



male

- uncommon on humans; body more elongate, oval; male and female with network of pale patterns; legs II-IV appearing claw-like, with strong spurs

**Gulf Coast Tick** →  
(*Amblyomma maculatum*)  
(page 15)



female

male

# Asian longhorned tick

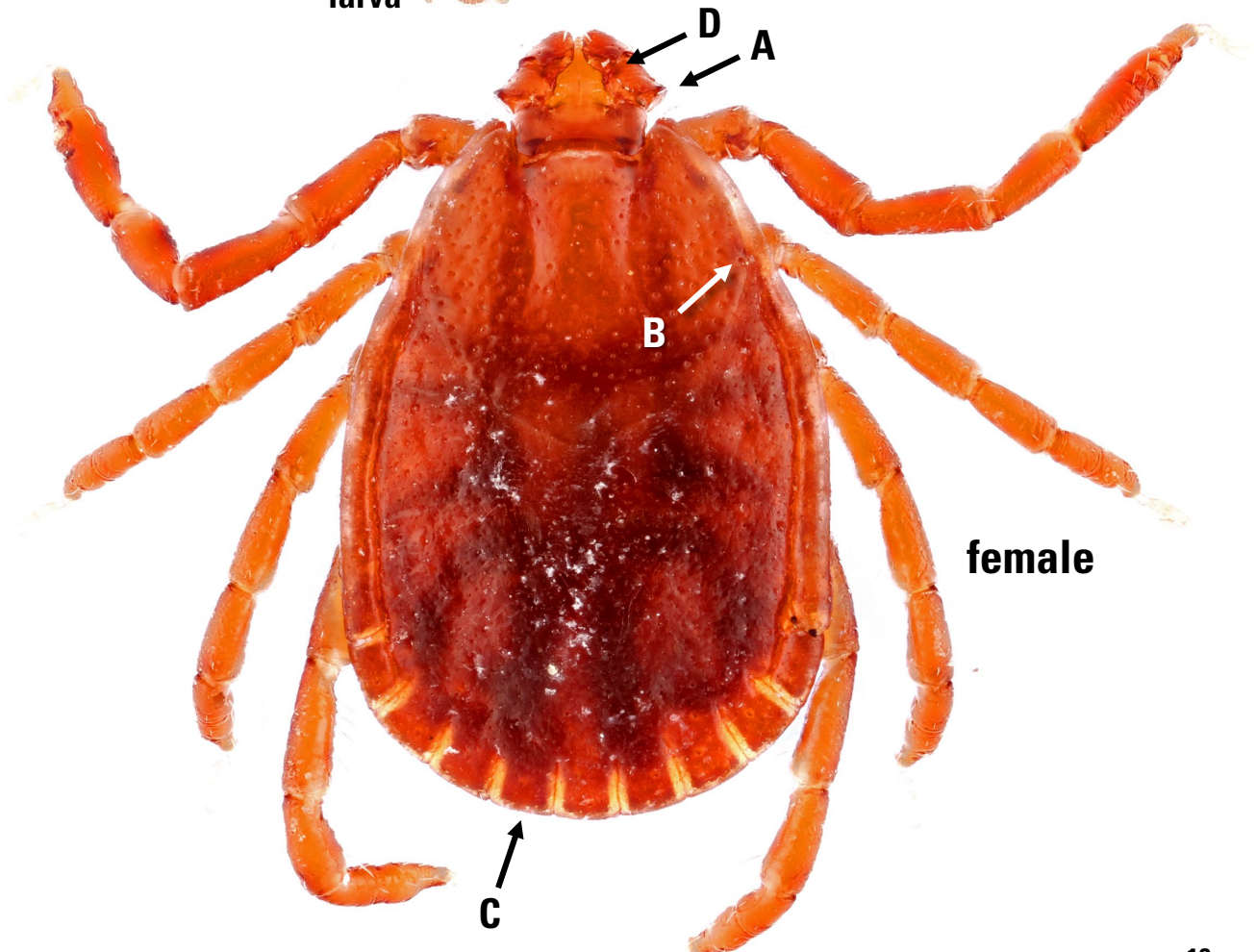
*(Haemaphysalis longicornis)*

- body long/oval, seed-shaped
- reddish-brown base color with some darker areas
- palps very short, with pointed sides (**A**) and eyes absent (**B**)
- festoons present (**C**)
- differs from rabbit tick in having a prominent point/spur above and below last segment of palps (**D**; inset shows underside)

The Asian longhorned tick is a new species to the US (since 2010) and found in North Carolina. All Asian longhorned ticks in the US are female and reproduce without mating. They rarely feed on humans, most frequently feeding on wildlife, pets, and livestock.



**larva**

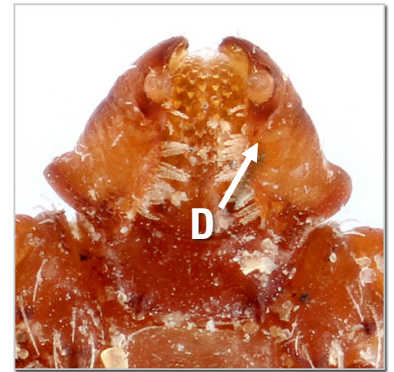


## rabbit tick

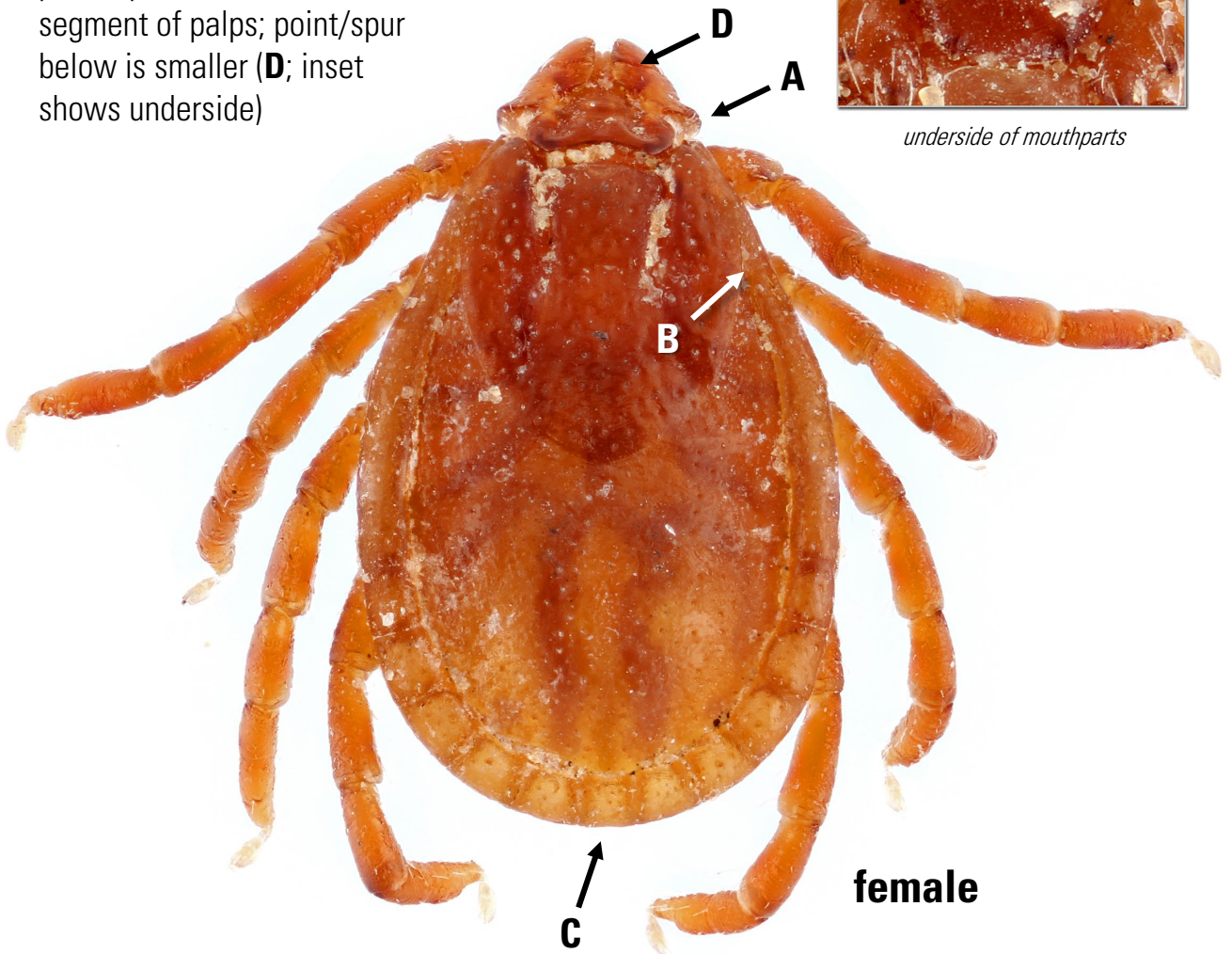
(*Haemaphysalis leporispalustris*)

- body long/oval, seed-shaped
- reddish-brown base color with some darker areas
- palps very short, with pointed sides (**A**) and eyes absent (**B**)
- festoons present (**C**)
- differs from Asian longhorned tick in lacking a point/spur above last segment of palps; point/spur below is smaller (**D**; inset shows underside)

The rabbit tick is a native species that is infrequently seen by people. While young individuals feed on various small animals (e.g. rodents or birds), adults almost exclusively feed on rabbits. In fact, their reproduction is tightly associated with the rabbit's cycle. They very rarely are found on humans.



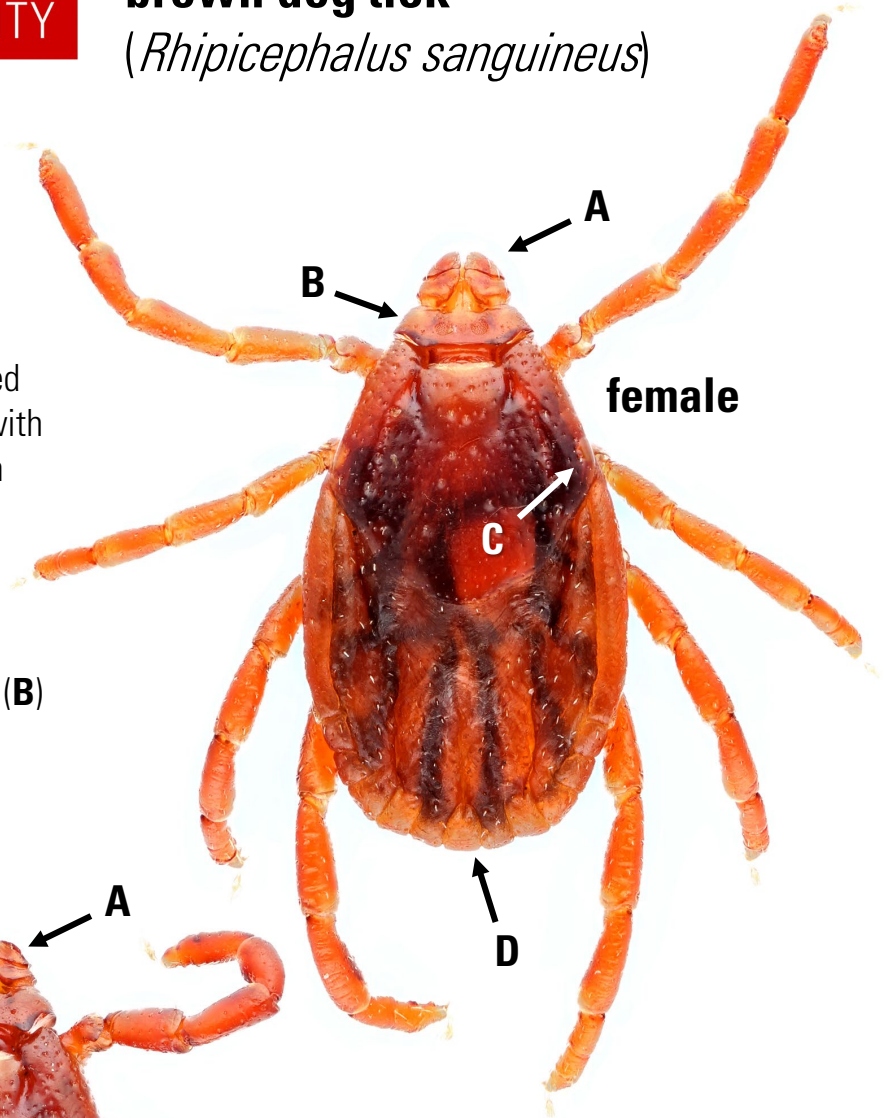
underside of mouthparts



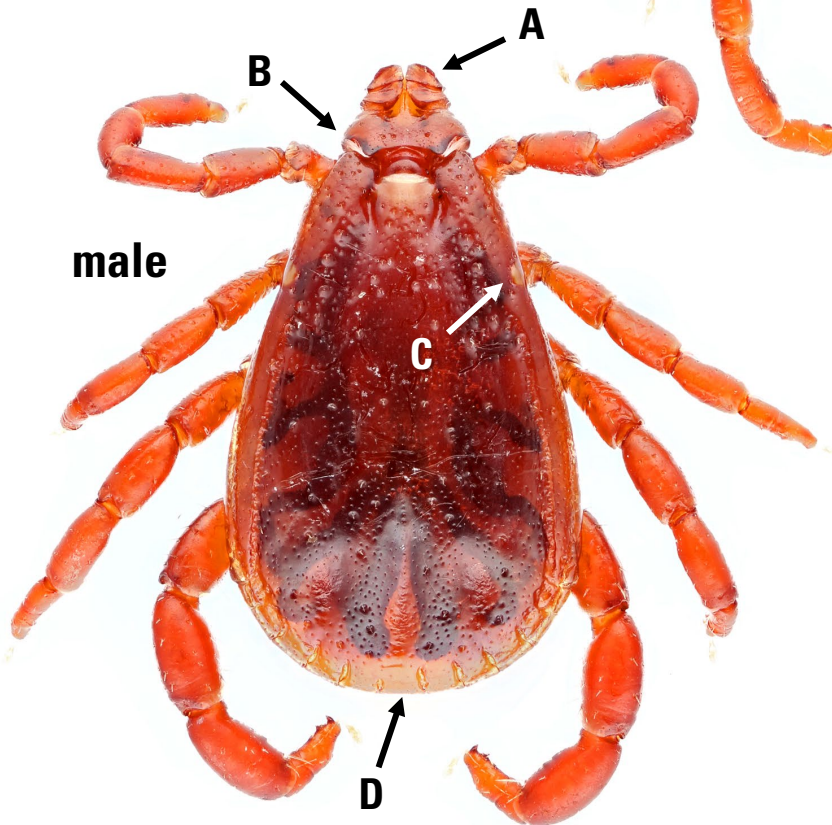
female

**brown dog tick**  
(*Rhipicephalus sanguineus*)

- adults typical size for ticks
- body long/oval, seed-shaped
- reddish-brown base color with some dark markings in both sexes
- palps relatively short (**A**)
- head (basis capituli) hexagonal, with sharp angles/points on each side (**B**)
- eyes present (**C**)
- festoons present (**D**)



**female**

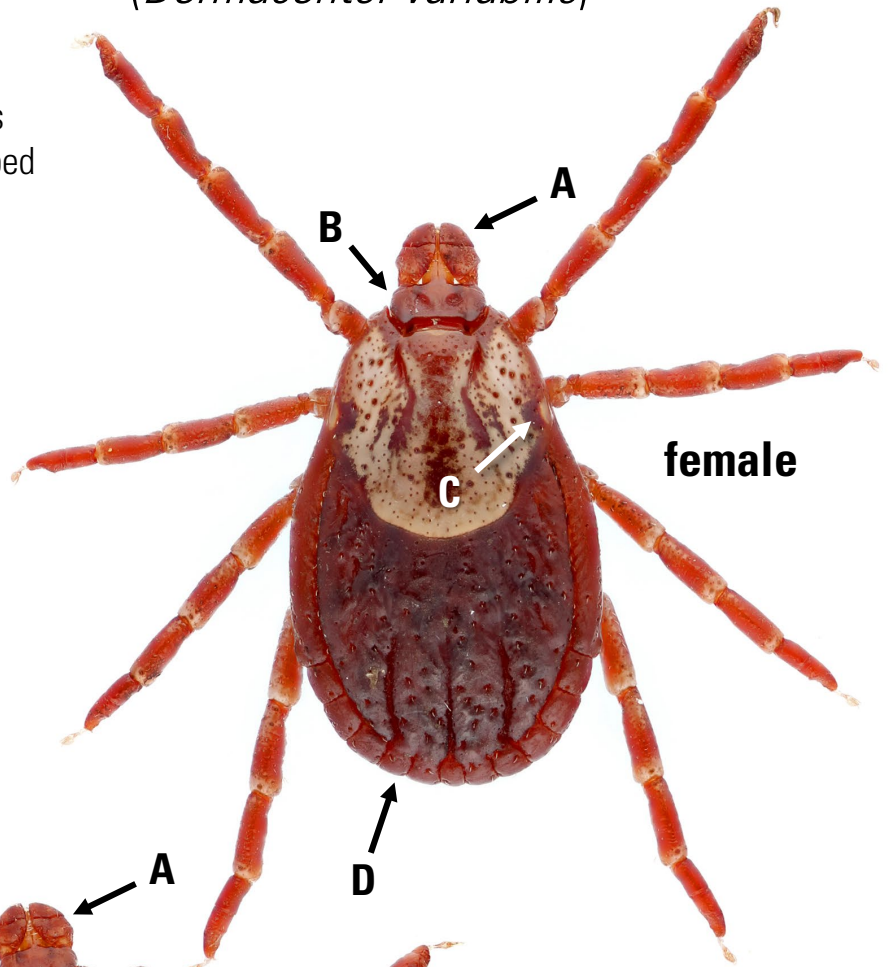


**male**

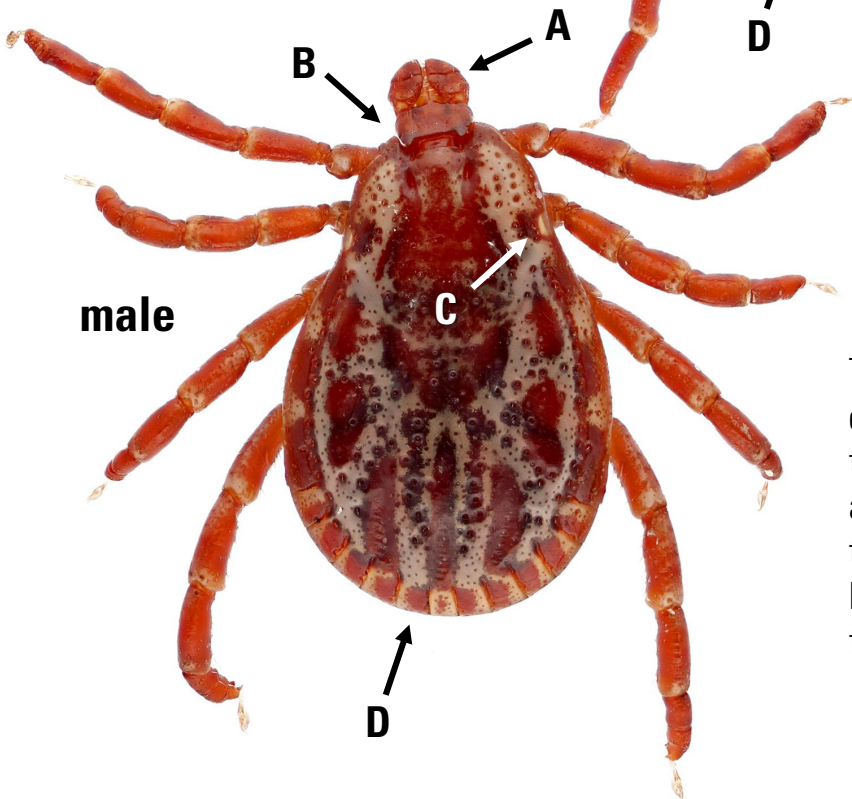
Brown dog tick largely feeds on dogs, though it may feed on humans and other mammals. Unlike other ticks, brown dog ticks can survive and reproduce indoors, and outbreaks can happen in kennels, for example.

# American dog tick (*Dermacentor variabilis*)

- adults typical size for ticks
- body long/oval, seed-shaped
- reddish-brown base color
- female with small gray-brown scutum
- male with network of variable, gray-brown ornamentation
- palps relatively short (**A**)
- head (basis capituli) with straight, parallel sides (**B**)
- eyes present (**C**)
- festoons present (**D**)



**female**



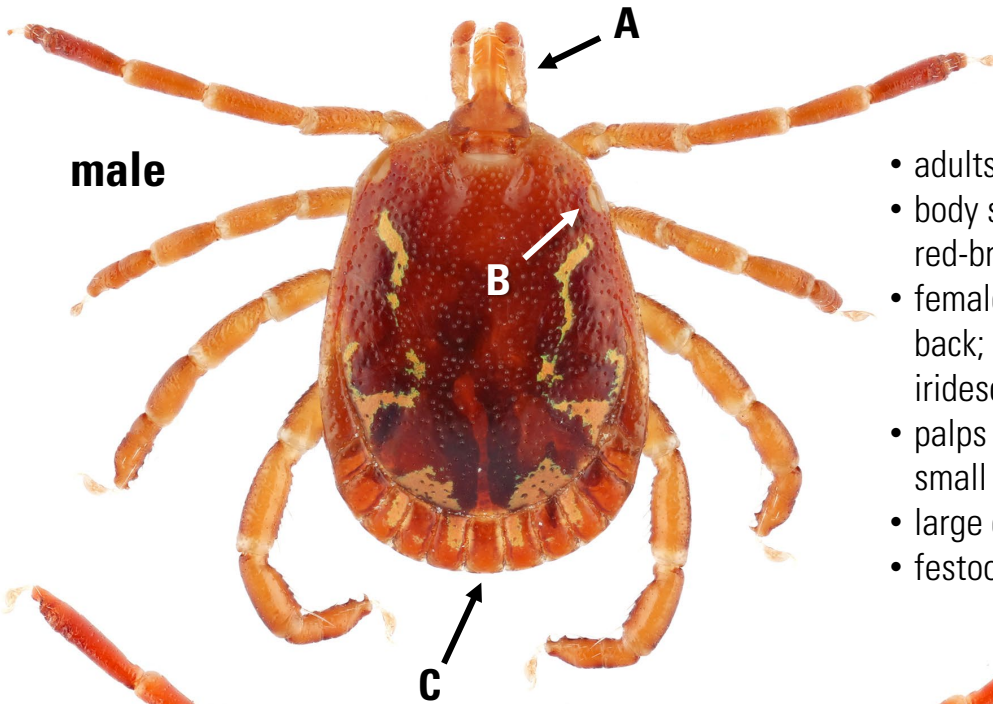
**male**

The American dog tick is common in NC. As adults they attack mainly dogs and humans. American dog ticks can carry and transmit Rocky Mountain spotted fever.

# lone star tick

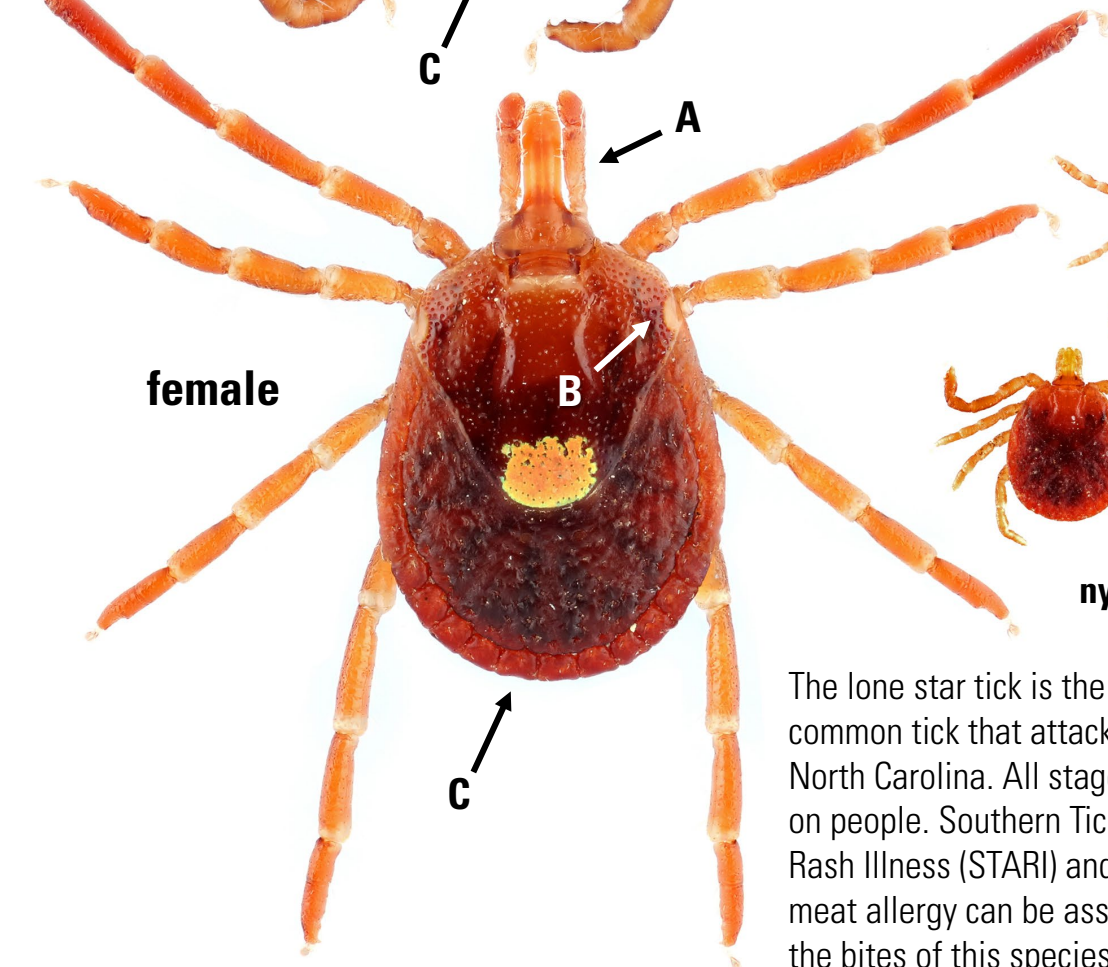
(*Amblyomma americanum*)

male



- adults typical size for ticks
- body somewhat round with red-brown base color
- female with distinct spot on back; male with network of iridescent markings
- palps long, thin and with a small segment at the tip (A)
- large eyes present (B)
- festoons present (C)

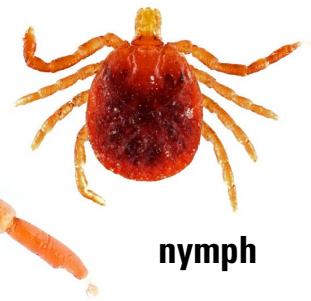
female



larva



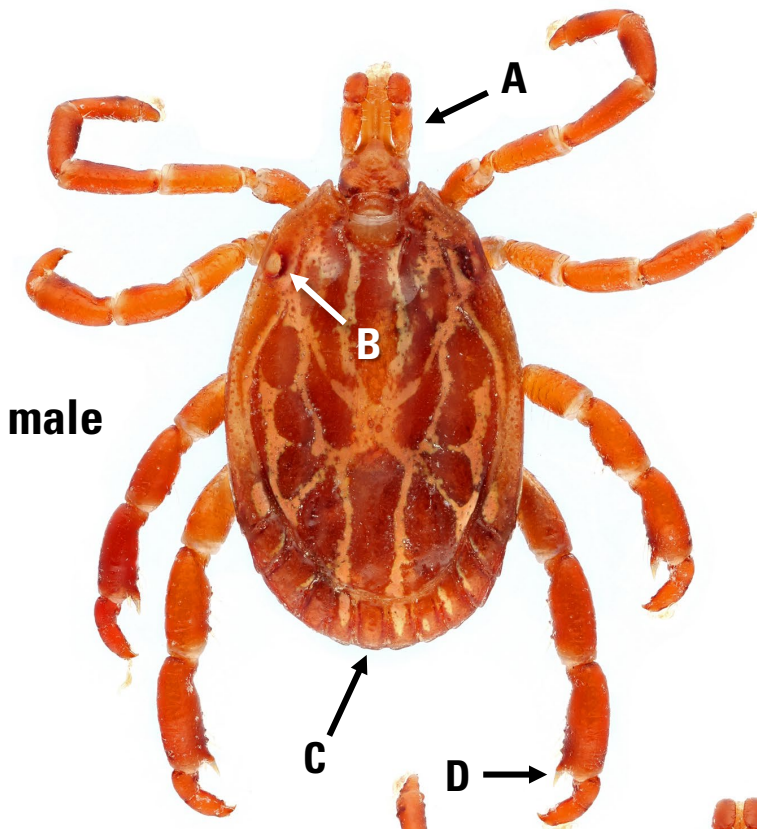
nymph



The lone star tick is the most common tick that attacks humans in North Carolina. All stages will feed on people. Southern Tick Associated Rash Illness (STARI) and alpha-gal meat allergy can be associated with the bites of this species

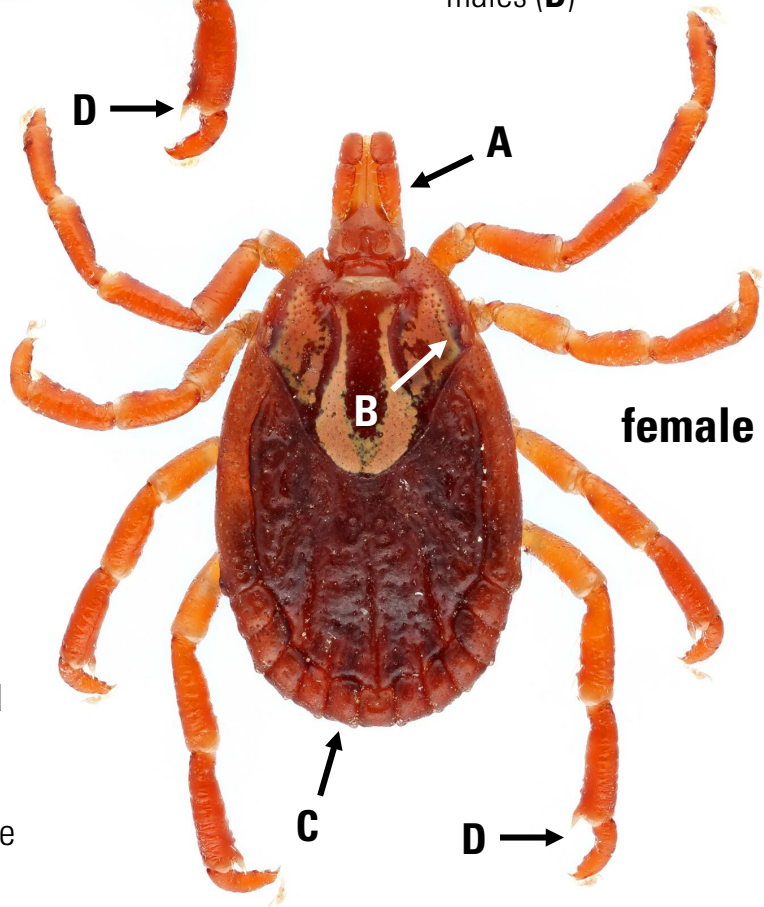
## Gulf Coast tick

(*Amblyomma maculatum*)



male

- adults somewhat larger than an average tick
- body elongate oval with red-brown base color
- female with distinct scutum marked with light patterns
- male with network of light markings across entire back
- palps long, thin and with a small segment at the tip (**A**)
- eyes present (**B**)
- festoons present (**C**)
- third and fourth legs thick, with large spurs, especially in males (**D**)



female

Gulf coast ticks are found around the coastal regions of the Southeastern US, from Maryland to Florida, west to Texas and as far north as Kansas and Missouri. Their preferred habitat is grass prairies and coastal uplands. Adults preferentially feed on large mammals, livestock, and humans. Gulf coast ticks can transmit a few diseases to humans and other animals (see page 16).

**Table 1.** Regional tick-borne diseases of human and animal importance, and their tick vectors

Disease	Pathogen/agent	Tick vector(s)	Hosts	Distribution in US
Human babesiosis	<i>Babesia microti</i>	blacklegged tick ( <i>Ixodes scapularis</i> )	humans & rodents	Northeast & Upper Midwest
Powassan encephalitis	Flavivirus	blacklegged tick, perhaps others	humans & rodents	Northeast & Upper Midwest
Rocky Mountain Spotted Fever	<i>Rickettsia rickettsii</i>	American dog tick ( <i>Dermacentor variabilis</i> ) brown dog tick ( <i>Rhipicephalus sanguineus</i> ) and others	humans, dogs & rodents	Widespread, but most occur in South Central and Southeast
Rickettsiosis, & other spotted fever group	<i>Rickettsia parkeri</i> <i>Rickettsia felis</i> <i>Candidatus</i> spp.	Gulf Coast tick ( <i>Amblyomma maculatum</i> )	humans, cats, livestock	Southeast, Mid-Atlantic states
Human ehrlichiosis	<i>Ehrlichia chaffeensis</i> , <i>Ehrlichia ewingii</i>	lone star tick ( <i>Amblyomma americanum</i> )	humans, deer & dogs	Most occur in South Central & Southeast
Human anaplasmosis	<i>Anaplasma phagocytophilum</i>	blacklegged tick, Western blacklegged tick ( <i>Ixodes pacificus</i> )	humans, rodents, dogs & deer	Northeast & Upper Midwest, West Coast
Heartland virus	Phlebovirus	lone star tick, Gulf Coast tick	humans	Most occur in South Central & Southeast
Lyme disease	<i>Borrelia burgdorferi</i>	blacklegged tick, Western blacklegged tick	humans, dogs, cats, livestock	Northeast & Upper Midwest, West Coast
STARI (Southern Tick Associated Rash Illness)	Unknown agent	lone star tick	humans	Most occur in South Central & Southeast
Meat allergy	Alpha-gal (sugar found in mammal meat)	lone star tick	humans	Most occur in South Central & Southeast
Tularemia	<i>Francisella tularensis</i>	lone star tick, Am. dog tick, rabbit tick ( <i>Haemaphysalis leporispalustris</i> ), & some biting flies.	hares, rodents, carnivores, humans	Plains & South Central
Tick paralysis	Tick salivary proteins	American dog tick & others	cattle, sheep, dogs, humans	Widespread, but rare
Theileria	<i>Theileria orientalis</i>	Asian longhorned tick ( <i>Haemaphysalis longicornis</i> )	cattle, goats, sheep	Southeast, newly invasive in the 2020s
Anaplasmosis	<i>Anaplasma marginale</i>	American dog tick & others	cattle, sheep, ruminants	Widespread