



Asian Longhorned Tick

Authored by Theresa A. Dellinger, Diagnostician, and Eric Day, Lab Manager, Insect Identification Lab, Entomology, Virginia Tech

Introduction

The Asian longhorn tick (ALT; *Haemaphysalis longicornis* Neumann) is an invasive species of hard tick in the family Ixodidae (Fig. 1). This tick was not known to be present in the US until it was found on a sheep in NJ in 2017, but a review of collections tick specimens revealed that ALT has been present since at least 2010. By January 2023, ALT has been found in 17 states in the eastern US. To date, 38 counties in Virginia have established populations of ALT.



Figure 1. Adult Asian longhorned tick (Eric Day, Virginia Tech, Bugwood.org).

ALT is native to China, Korea, Japan, and eastern Russia. It is also established in New Zealand and Australia. ALT has been intercepted previously on animals during inspections at US ports. As a small tick, ALT may have entered the US unnoticed on animals not recognized as being infested with ticks.

Description

Adult ALTs are smaller than other ticks commonly found in the US, measuring about 3-4 millimeters (0.1-0.2") in length when unfed (Fig. 2). Fully engorged adults may reach 8-10 mm in length,

approximately the size of a pea. ALT is reddish-brown in color without any distinctive markings as immatures and adults (Fig. 1). The mouthparts are both short and broad (Fig. 3) in contrast to the long, narrow mouthparts of many common species of hard ticks in Virginia.



Figure 2. Adult Asian longhorned tick with penny for scale (Eric Day, Virginia Tech, Bugwood.org).



Figure 3. Mouthparts of adult Asian longhorned tick (Eric Day, Virginia Tech, Bugwood.org).

Habitat and Distribution

Longhorn ticks, like other species of hard ticks, prefer areas with tall grass and a high humidity level at the soil surface. These sites include pastures, hay

fields, and similar unmowed areas, but ALT can also be found in forested and urban areas. High densities of ALT can develop within a given area, and infested animals may harbor large numbers of ALT.

Populations of ALT in the US appear to be largely concentrated in the MidAtlantic region, particularly along the Great Appalachian Valley. However, this distribution may reflect transport of livestock and other animals rather than natural dispersal alone.

Life History

ALT populations in the US consist of parthenogenetic self-cloning females that produce viable eggs without mating. Both immature and mature ALTs can be found together on infested animals, especially late in the year. Immature hard ticks are found typically in the spring with adults appearing later in the summer, but researchers have found ALT nymphs and adults in early spring, suggesting that both immature and mature ALT overwinter.

Like other hard ticks, ALT has a life cycle with egg, larval, nymphal, and adult stages. The mobile stages must feed on a host before molting to the next developmental stage or producing a batch of viable eggs. Larvae have six legs, are very small and often overlooked. They climb up on vegetation and attach to a host, feed for several days, then drop off the host to molt into the nymphal stage. Nymphs have eight legs, measure about 2 mm long, and molt to the adult stage only after a successful blood meal. Adult females must feed on a host before developing a clutch of eggs, which are laid in the soil after leaving the host. ALT spends most of its life in the environment rather than feeding on a host.

Host Range

ALT has been found on many species of wildlife found in the Appalachian region as well as on domesticated animals. It has been collected from songbirds, waterfowl, raptors, and chickens. In addition to humans, common mammalian hosts include white-tailed deer, dogs, cattle, and other wildlife such as raccoons, Virginia opossum, striped skunk, and foxes. Surprisingly, trapping studies suggest that mice are not a preferred host of ALT.

Potential for Damage and Disease Transmission

ALT is primarily a concern for livestock in the US. Infested animals may carry so many ALTs that they lose weight, become anemic, and, in some cases, die. Lowered milk production or reduced wool quality and quantity are concerns for dairy cattle and sheep, respectively. In the US, ALT vectors the intracellular protozoan parasite *Theileria orientalis* Ikeda responsible for theileriosis in cattle, which can result in poor weight gain, poor performance, or late term abortion in cattle. ALT vectors other animal diseases in other countries as well.

Human pathogens have been found in field-collected ALT in the US. Under laboratory conditions, ALT has been shown to vector some human pathogens, including the Powassan and the Heartland viruses as well as the bacterium responsible for Rocky Mountain Spotted Fever. Thankfully, ALT does not appear to be a vector of Lyme disease. While no natural transmission of human disease has been documented in the US to date, continuing research may show increasing significance of ALT as a competent vector of human and animal diseases.

Control

The normal precautions against tick exposure should be used where ALT is found. See [VCE publication 2906-1396, Common Ticks of Virginia](#), for information on how to remove attached ticks and how to avoid ticks. Any questions about unusual ticks on humans, livestock, or pets, including appropriate control measures, should be directed towards your local Cooperative Extension office. Consult a medical professional for any questions regarding possible tick-transmitted diseases or symptoms in humans, and a veterinarian for diseases in animals.

Revised

Theresa A. Dellinger, May 9, 2023.

Visit Virginia Cooperative Extension: ext.vt.edu

Virginia Cooperative Extension is a partnership of Virginia Tech, Virginia State University, the U.S. Department of Agriculture, and local governments. Its programs and employment are open to all, regardless of age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, genetic information, military status, or any other basis protected by law.