Asian longhorned ticks

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A swarming, exotic tick species is now living year round in N.J.

This invasive tick can clone itself and suck livestock dry
In its native East Asian range, the longhorn tick spreads potentially fatal human diseases

Exotic tick species invades New Jersey and appears to be spreading

This Self-Cloning Tick is Terrorizing More States
Asian longhorned tick, *Haemaphysalis longicornis*

- Native to east Asia (China, Korea Peninsula, Japan)
- 1900’s - established in Australia and the south Pacific
- 2017 - field populations first detected in NJ
- 3 host tick
- Parthenogenetic populations - no males have been found in the US
- Very large infestations can develop from single individuals
- Broad host range (pets, livestock, wildlife, people)
- In its native range can transmit dangerous pathogens to humans

US Distribution

- 12 states: AR, CT, DE, KY, MD, NJ, NY, NC, PA, TN, VA, WV
- Hosts: dog, cat, coyote, grey fox, red fox, opossum, raccoon, groundhog, cow, goat, sheep, white-tailed deer, elk, horse, red-tailed hawk, Canada goose, human

specimens collected in 2010 and 2013 found in archived samples
The good news

- No human pathogens have been detected in US populations of this tick.
- Asian longhorned ticks are not capable of transmitting the Lyme bacterium\(^1\)
- Compared to local blacklegged ticks and lone-star ticks, Asian longhorned ticks seem uninterested in humans\(^2\); standard tick repellents and acaricides are effective\(^3\)

Bad news

- Asian longhorned ticks infected with *Theileria orientalis* Ikeda were collected in Virginia in areas where dead cattle infected with this pathogen had been found\(^4\)
- Asian longhorned ticks are capable of transmitting *Rickettsia rickettsii*, the agent of Rocky Mountain spotted fever, a deadly bacterial disease endemic to the US\(^5\)
- Larval Asian longhorned ticks can reach extraordinarily high numbers in the Fall and there are some reports of biting - research is ongoing

When are Asian longhorned ticks active?

First detections each year:
- 2018 - April 14 (at index site)
- 2019 - March 30 (Union Co.)
- 2020 - March 9 (Bergen Co.)

thousands of individuals
## Invasive ticks in the US

<table>
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<tr>
<th>Tick Species</th>
<th>Native range</th>
<th>Host range?</th>
<th>Outside native range?</th>
<th>Detected in the USA?</th>
<th>Dangerous?</th>
<th>Additional characteristics</th>
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</thead>
</table>
| **Rhipicephalus annulatus**       | cattle tick       | Middle East/Mediterranean    | One-host tick - CATTLE, deer | YES                   | YES        | Babesia bigemina; Babesia bovis  
Historically as far north as VA. Eradication effort in first 1/2 of 20th century. Now limited to Texas/Mexico border. Emergent due to Insecticide Resistance (IR) |
| **Rhipicephalus microplus**       | southern cattle tick | India/Indonesia              | One-host tick - CATTLE | YES                   | YES        | Babesia bigemina; Babesia bovis  
Eradicated from S US, remains in Mexico. Often detected in the US. |
| **Rhipicephalus sanguineus**      | brown dog tick    | Africa?                      | “Three”-host tick - DOGS | YES                   | YES        | Canine ehrlichiosis & babesiosis  
Worldwide invasive. Indoors. Public Health concern: Rocky Mountain Spotted fever (RMSF) |
| **Haemaphysalis longicornis**     | Asian longhanded tick | temperate Asia               | Three-host tick; broad host range | YES                   | YES        | Feeds on livestock but also on small mammals (e.g. pets, wildlife). Public Health concern: RMSF, SFTS |
| **Amblyomma variegatum**          | African bont tick | sub-Saharan Africa           | three-host tick; CATTLE; broad host range | YES | Intercepted on imported reptiles  
Ehrlichia ruminatum (Heartwater disease)  
Established in the Caribbean ← Public Health: African tick-bite fever (Rickettsia africae). |
3 main takeaways

- **Standardized tick surveillance** is basic preparedness - needs to be implemented

- **Current risk** to us from Asian longhorned ticks is **minimal** compared to endemic species such as the blacklegged tick. Veterinary risk is being evaluated.

- **Prevention** also includes not moving stowaways into the US or into new states/areas
  - Loopholes need to be closed (e.g. companion animals and people are not currently inspected)
  - **Informed public** and **civic responsibility** are needed
Thanks go to:

The NJ citizen that contacted the local County Health when she became infested with ticks while shearing her sheep, Hannah.

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