



STATEWIDE TICK SURVEILLANCE HIGHLIGHTS WIDESPREAD ESTABLISHMENT OF TICKS & PATHOGENS

Since 2018, the Medical Entomology Laboratory at the Prairie Research Institute (PRI) has been tracking ticks throughout the state and testing them for tick-borne pathogens through partnerships with the Illinois Department of Public Health (IDPH) on active tick surveillance and increasingly through community-engaged passive surveillance. This work has drastically expanded our knowledge on the presence of ticks and the pathogens of human health concern they transmit in the state.

TICK SURVEILLANCE RESULTS

Between 2019 and 2023, the Medical Entomology Lab has performed state-wide active surveillance with support from IDPH. Tick collection methodology was based on Centers for Disease Control (CDC) guidelines for quantitative tick surveillance. Surveillance sites were chosen based on past suspected human exposure to tick bites and/or suitable environmental criteria.

Over this period, scientists have collected 13,398 ticks from 87 of Illinois' 102 counties, testing 9,297 ticks for multiple pathogens each.

Through this work, we have greatly expanded our knowledge of the geographic distribution of tick species of public health concern, the tick-borne pathogens associated with them, and

have documented the presence of new disease-carrying ticks in Illinois.

An online interactive map makes it easy for all Illinoisans to access the tick surveillance data and find out what ticks have been found in their area:

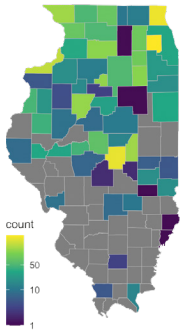
go.illinois.edu/illinois-ticks.

COMMUNITY-ENGAGED SURVEILLANCE

The Medical Entomology Lab also maintains a community-engaged passive tick surveillance program, which has been supported by the Illinois Lyme Association and the Illinois Department of Natural Resources (IDNR). This approach can be used to support and add to active surveillance. Through this program, members of the public can submit ticks that will be identified and a subset of them tested

for a range of pathogens for surveillance purposes. **Insights from passive submissions to date include detection of the Gulf Coast tick in additional counties (e.g., DuPage) and the first record of *Ixodes cookei*, the groundhog tick, recovered from a human in the state. This species plays a role in the transmission of the Powassan virus, a tick-borne virus of growing concern.** This work includes collaborations with IL Extension, the Field Museum, the Urban Wildlife Institute at the Lincoln Park Zoo, and the DuPage County Forest Preserve District.

Medical Entomology Lab staff have also provided field training and/or training materials and given talks across Illinois to health departments, public health organizations, and conservation district staff.



Blacklegged tick

The blacklegged tick was found in 61 counties, predominantly across northern and central Illinois. This tick can carry the disease agent that causes Lyme disease, as well as three emerging pathogens. One of these, *Babesia microti*, was detected in ticks in the state for the first time as a result of this program.

Lyme disease

- ▶ *Borrelia burgdorferi* s.s. | ~39% prevalence in adult female ticks and 23% in nymphs

Tickborne relapsing fever

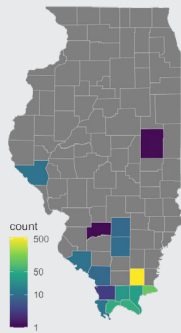
- ▶ *Borrelia miyamotoi* | ~1.6% prevalence in tested ticks

Human granulocytic anaplasmosis (HGA)

- ▶ *Anaplasma phagocytophilum* | ~3.4% prevalence in tested ticks

Babesiosis

- ▶ *Babesia microti* | ~1% prevalence in tested ticks

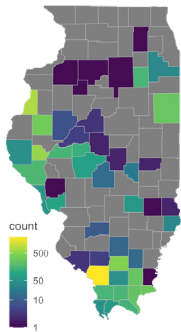


Gulf Coast tick

The Gulf Coast tick has expanded its range into the southern half of Illinois and has been detected through this program in 15 counties. It transmits a pathogen that causes *R. parkeri* rickettsiosis, a disease similar to Rocky Mountain Spotted Fever.

R. parkeri rickettsiosis

- ▶ *Rickettsia parkeri* | ~21% prevalence in tested ticks



Lone Star tick

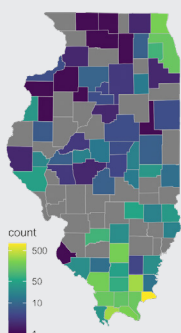
The highly invasive Lone Star tick is expanding its range throughout Illinois. It carries pathogens responsible for ehrlichiosis and Heartland virus disease, and its bite is associated with Alpha-Gal Syndrome.

Ehrlichiosis

- ▶ *Ehrlichia chaffeensis* | ~2.3% prevalence in tested ticks
- ▶ *Ehrlichia ewingii* | ~2.9% prevalence in tested ticks

Heartland virus disease

- ▶ Heartland virus



American dog tick

The disease agent that causes Rocky Mountain Spotted Fever was documented, but found to be rare, in the American dog tick.

Rocky Mountain Spotted Fever

- ▶ *Rickettsia rickettsii* | ~0.0005% prevalence in tested ticks



LEARN MORE

For more information about the Medical Entomology Lab visit medical-entomology.inhs.illinois.edu or contact Angie Coy, PRI coordinator of stakeholder engagement, at wisehart@illinois.edu or 217.265.4677.