

# Infestation of Parthenogenetic *Haemaphysalis longicornis* Ticks in New York Schoolyards: Implications for Spread of Tick-Borne Disease

Schnecker, Audrey (School: Ossining High School)

A newly invasive tick species, native to East Asia, has recently established itself in 17 U.S. states: *Haemaphysalis longicornis*, the Asian Longhorned tick. This invasion is of great concern as this arthropod is a known vector of multiple tick-borne diseases in its region of origin. Additionally, there remains a lack of research which examines tick species in areas where children are susceptible to exposure to tick-borne pathogens. Thus, this study performed tick surveillance to measure tick abundance and tick-borne pathogen yield in four schoolyards in Westchester County, NY over seven months. Cotton flannel drags measuring 1m<sup>2</sup> were used to collect ticks over 100m<sup>2</sup> transects, and wind speed, humidity, soil temperature, soil moisture, soil pH, temperature, and vegetation were recorded at each site. Results indicate an acute invasion of the *H. longicornis* tick, with 650 of the 668 total ticks collected (~97.3%) identified as *H. longicornis*, a marked change from previous studies in the region. Of all ticks collected, significantly more were found on 'non-manicured' than 'manicured' transects ( $p < .05$ ). There were no significant correlations between environmental factors and tick populations collected ( $p > .05$ ), nor were there substantial pathogens detected; only one *I. scapularis* tick carried *Rickettsia parkeri*. However, as *H. longicornis* continues to grow as a vector for disease in the US, and, as supported by this research, as an environmentally resilient species, this spread suggests a major threat to human health. The results of this study help document the expansion of *H. longicornis* populations in NYS and serve to inform local tick management strategies for schoolyards, to protect students as the tick emerges as a vector for tick-borne disease in the US.