

CURTIS LITTON, STANLEY MARTIN, MELANIE SAL, & KIM BJORGO. Department of Biology and Environmental Sciences, West Virginia Wesleyan College, 59 College Avenue, Buckhannon, WV. An Overview of Tick and Tick-Borne Disease Research at West Virginia Wesleyan College: 2018-2025

Tick and tick-borne disease (TBD) research is an important aspect of public health, yet, little is known about their distribution in North Central West Virginia. Since 2018, our team has collected 2,866 tick samples, with the goal of analyzing species diversity and TBD pathogen prevalence. Using real-time PCR, we have tested DNA from these samples for the presence of *Borrelia burgdorferi*, the causative agent of Lyme borreliosis, and *Anaplasma phagocytophilum*, the causative agent of Anaplasmosis. In these past eight years, we have analyzed the DNA from 726 *Ixodes scapularis* and 126 *Dermacentor variabilis* ticks. Of the *I. scapularis* samples, 698 have been tested for *B. burgdorferi* with 14 (~2%) having shown a positive result. As expected, no *D. variabilis* samples indicated a positive result for *B. burgdorferi*, essentially acting as a negative control. In the case of *A. phagocytophilum*, 160 of the 538 *I. scapularis* samples tested were shown to obtain the pathogen (~30%) as well as 12 of the 30 tested *D. variabilis* samples (40%). Interestingly, the detection rate of *B. burgdorferi* has remained low, despite the significant burden that Lyme borreliosis has had on West Virginia in this time, while the detection of *A. phagocytophilum* has shown drastically larger rates despite Anaplasmosis's low case numbers. In West Virginia, Lyme borreliosis receives by far the most attention in regard to tick-borne infections, however, our work indicates that Anaplasmosis may be an additional concern.

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