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Title: Increasing trends in Lyme borreliosis reported from Upshur County WV

Lyme disease, also known as Lyme borreliosis, is the most commonly contracted tick-borne disease in America. It is transmitted by hard-bodied ticks (Acari: Ixodidae) of the genus *Ixodes*, specifically *I. scapularis* in the eastern United States and *I. pacificus* in the western United States. Borreliosis is caused by the spirochaete bacteria *Borrelia burgdorferi*. In 2018, 398 confirmed or probable cases of Lyme borreliosis were reported in 40 West Virginia counties, compared to a total of 772 total confirmed/probable cases of Lyme borreliosis from 2000-2010 (annual range 17-200 cases). In order to test population dynamics of different tick species and *Borrelia* infection prevalence of *I. scapularis*, 747 individual tick samples of three different species (*I. scapularis*, *Dermacentor variabilis*, and *Rhipicephalus sanguineus*) were collected in and around Upshur County, West Virginia via flagging and dragging methods, and from veterinarians and groomers in Upshur County. After identification, the DNA was extracted from the samples. PCR and gel electrophoresis were used to test for *B. burgdorferi* presence in the ticks. 1.7% of the 147 ticks tested were positive for *B. burgdorferi* infection. 3.4% of the ticks tested displayed an unidentified positive band. Lyme borreliosis is now found in most WV counties and is considered endemic in the state. Upshur and surrounding counties, once comparatively free of Lyme borreliosis cases, are now reporting multiple cases per year. Future research will include isolating and identifying this band as well as testing for Rickettsial diseases such as Rocky Mountain Spotted Fever.

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