

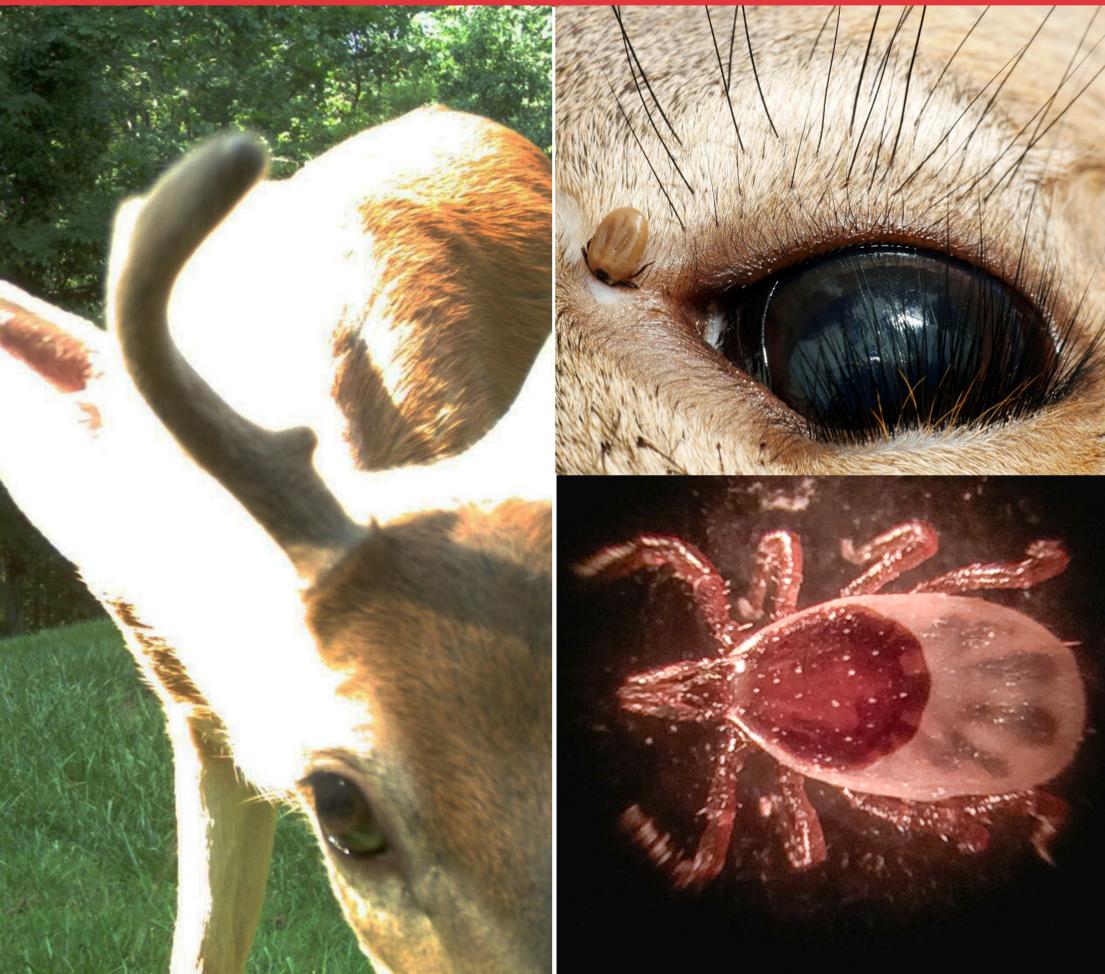


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Graduate Program

Soil and Watershed Sciences
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Urban White-tailed Deer and Ticks: Movements, Densities, and Lyme Disease

Assistant Professor Dr. Jennifer L. Murrow, is a spatial ecologist that studies animal habitat use, preferences, and movements across landscapes. She has over 10 years' experience modeling ungulate and bear movements and habitat use in the eastern United States.

Spatial Ecology of White-tailed Deer

One of Dr. Murrow's current projects is investigating the spatial ecology of white-tailed deer and tick densities in Howard County, Maryland. Like many other states, Maryland has seen a dramatic increase in the population density of white-tailed deer, especially in suburban and urban landscapes. Overabundant deer populations lead to deer-vehicle collisions, agricultural damage, forestry damage, and potentially increased incidence of Lyme disease. As the climate warms and the human population increases, many suburban and urban communities will likely continue experiencing increases in deer-human conflicts. With Columbia, Maryland as the first planned community in North America, Howard County is experiencing the same challenges. The Middle Patuxent Environmental Area and other open spaces in suburban Howard County provide ideal habitat for white-tailed deer. Dr. Murrow is cooperating with USDA-ARS and Howard County to investigate deer use and tick densities of natural areas and county parks compared to adjacent subdivisions in Howard County.

Community-driven Goals

The ultimate goal of the project is to strengthen ongoing efforts to manage deer and blacklegged tick populations in order to mitigate the risk of tick bite and transmission of Lyme disease to residents in the Howard County and elsewhere in Maryland. Specifically, these data would allow county managers to better quantify the impact of hunting on reducing deer-human conflicts in adjacent subdivisions. Spatial and temporal dynamics of habitat use, home range, and movements will provide a better understanding of how deer use developed and undeveloped areas in a suburban landscape. This understanding will better the ability of the Department of Recreation and Parks to managed deer populations in and around these parks, and identify areas where management, of both deer and tick populations, can be improved most effectively.

Research Objectives

The objectives of this research project include the following:

- to determine white-tailed deer movement patterns and those pattern's correlation to and effects on the distribution and abundance of blacklegged ticks in suburban landscape surrounding natural areas/parks;
- to identify most suitable locations and timing for host-targeted and other tick control measures in order to suppress tick populations;
- to determine if placement of the '4-poster' deer bait (self-treatment) stations alters deer movement patterns;
- to determine the impact of potentially improved '4-poster' placement on the tick densities documented on resident white-tailed deer; and
- to assess the reproductive rate of white-tailed deer in this prime suburban landscape.

