



Undergraduate Program

Ecological Technology Design
Ecosystem Health
Soil and Watershed Science
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Graduate Program

Soil and Watershed Sciences
Ecological Technology Design
Wetland Science
Ecosystem Health & Natural Resource Management



Wildlife Communities and Lyme Disease in Suburban and Urban Environments

Dr. Jennifer M. Mullinax is a wildlife ecologist that studies animal habitat use, preferences, and movements across landscapes. She has over 15 years of experience modeling different species' movements and habitat use, including such projects as black bear habitat across the Southeast, Box turtle movements in D.C., waterfowl movements as they relate to Avian Influenza, and White-tailed deer and mouse ecology as they relate to tick-borne zoonotic diseases.

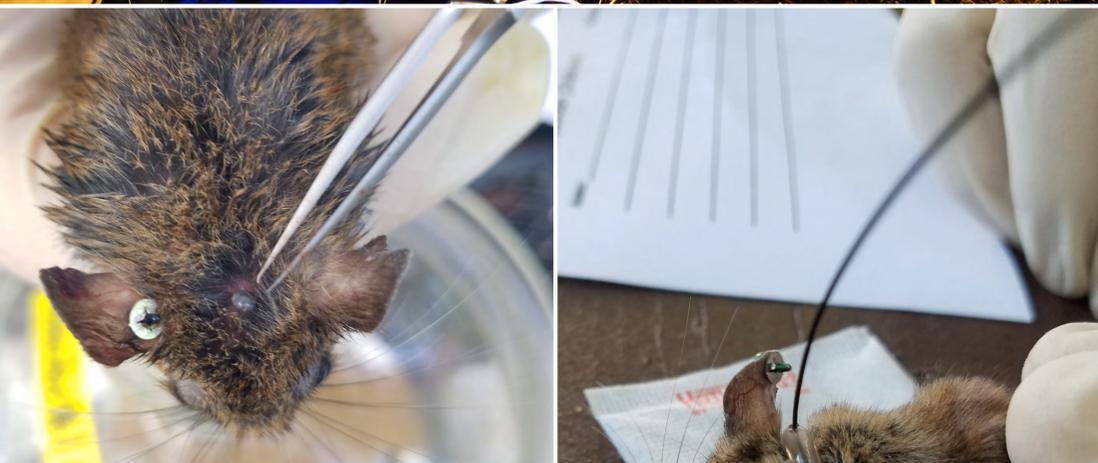
Spatial Ecology of White-tailed Deer, White-Footed Mice, and Other Mammals

Dr. Mullinax has on-going projects investigating the urban spatial ecology of white-footed mice, white-tailed deer, other small mammals, and tick densities in Maryland. Like many other states, Maryland has seen a dramatic increase in the urban and suburban populations 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 and well as tick-borne disease issues. Currently, Dr. Mullinax is cooperating with USDA-ARS, Howard County, and Montgomery County to investigate the relationships between wildlife communities and tick densities of natural areas and county parks in several Maryland locations.



Community-Driven Goals

The ultimate goal of these projects is to guide and strengthen ongoing efforts to manage wildlife and tick populations to mitigate the risk of tick bites and transmission of Lyme disease to residents of Maryland. Spatial and temporal dynamics of wildlife habitat use, home ranges, and movements will provide a better understanding of how small mammals and deer use developed areas in the suburban and urban landscape. This understanding guide managers on how to identify characteristics of County parks with higher prevalence of Lyme disease, how to best employ integrated pest management strategies, and how to improve the efficiency of management of deer and tick populations.



Research Objectives

The objectives of this research project include the following:

- To determine small mammal and white-tailed deer movement patterns' and densities' correlation to and effects on the distribution and abundance of ticks
- To determine the suburban landscape surrounding natural areas/parks correlation to and effects on the distribution and abundance of ticks
- To determine the impact of potential integrated pest management techniques and their most effective placement on urban and suburban tick densities

