EXPLORING PATTERNS AND FACTORS RELATED TO DEER-VEHICLE COLLISIONS IN CENTRAL NORTH CAROLINA

The purpose of this poster is to analyze geographic patterns of deer-vehicle collisions in the state of North Carolina and explore both human and natural factors that lead to these spatial patterns. This analysis is important so traffic engineers and analysts can better understand a phenomenon that costs North Carolina more than $100 million annually. A significant proportion of these costs (80%) is due to the 3,000 collisions, which lie at the very heart of this problem. At the quadrat level, we can use GIS functions such as Clip, Sum-(_symbol_}_2) and Overlay, to see how close deer collisions are to both highways and important road characteristics metrics (road mile, highway miles, road density, distance, density). While the value was much higher in quadrats near bridges, this was not the case for other roads. A single regression model was run between DEER, DENSEE, and INDCED. This shows a strong relationship in case of the factor cancelled or counteracted each other. It was a positive correlation where the relationship is fairly self-explanatory, or other factors related to various land uses and hard cover variables are explored. In all models, percent forest cover and pixel variability contributed significantly to deer-vehicle collisions. Pixels with more than 6% forest cover were more likely to have collisions. While very few deer-vehicle collisions occur on the 90+ miles of east-west state routes, deer occur towards the center of each category. This study looked to find quantifiable factors to help explain deer-vehicle collisions. Using the statistical programming application R, a few models were used to find quantifiable explanatory factors. Here is one to explain the density metric (Map 4). All of those factors, derived at the quadrat level, were...