

## Determinants of the Spatial Distribution of Reported Rabies Cases in Maryland, USA

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Surveillance of wildlife disease is often passive and opportunistic. The resulting distribution of reported cases is affected by underlying differences in host densities; by heterogeneous disease incidence; and by biases in human observation/reporting. This complicates use of field data to validate disease models. To explore factors associated with case detection, we analyzed all reported animal rabies cases from 1980 to 2004 (spanning the incursion of epidemic raccoon rabies) in one Maryland County. Locations of rabies cases were geocoded and projected with habitat, roadways and human population data. The proportion of rabid animals, of each species and overall, found in each type of habitat was compared to proportional distribution of that habitat in the county. Clusters in space and time were identified using the scan statistic. Cases occurred throughout the county, but case distribution differed between habitat types ( $P < 0.01$ ). Raccoon cases were detected more frequently in areas with higher human population, followed by forested areas. This pattern was consistent over time, although case locations and clusters varied widely between years. For skunks and bats, the case distribution was more random across the county and habitat types. Determining the characteristics of areas with higher detection of rabies cases may help adjust predictions from disease models and may also identify areas at higher risk for human and pet rabies exposures.