

The Path to Eliminating Raccoon Rabies in the Eastern US-Obstacles and Opportunities in Urban-Suburban Landscapes

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ABSTRACT: Rabies in terrestrial wildlife poses a significant public and animal health threat. Oral rabies vaccination (ORV) targeting specific vector species has proven effective in eliminating certain rabies variants in Europe and Canada. The goal of eliminating the raccoon rabies variant (RRV) in the US is achievable through an integrated ORV program at the landscape scale. Current wildlife rabies management in the US includes extensive air and ground ORV programs in 16 eastern states coordinated by Wildlife Services (WS)' National Rabies Management Program. More than 10 million vaccine-baits are distributed annually targeting raccoons (*Procyon lotor*) and striped skunks (*Mephitis mephitis*) with the long-term goal of eliminating RRV. Achieving vaccine-induced herd immunity in target species in developed landscapes has proven challenging due to abundant anthropogenic food sources, higher wildlife densities, decreased home ranges, habitat fragmentation, and non-target bait competition. Effectively managing RRV in the urban-suburban landscape requires greater understanding of meso-carnivore ecology in these landscapes and critical analyses of current baiting strategies. Preliminary results from urban-suburban studies demonstrate fewer potential ORV bait encounters for target species than expected, lower seroconversion rates compared to rural habitats and patchy bait distribution patterns. New technologies including the use of Point of Interest GPS units to document ground bait distribution in combination with research conducted by WS including ORV field trials, urban density studies, and raccoon, skunk, and opossum (*Didelphis virginiana*) ecology have provided valuable insight to overcome the obstacles of urban rabies management and make eliminating RRV a reality.

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