

Candidate: Katherine Busch

Program: MS, Environmental Science and Policy

Defense Date: Thursday, April 25, 2013

Title: An Investigation into the Impact of the National Wildlife Federation's Certified Wildlife Habitat Program on Mammalian Species Richness in Urbanized Residential Properties

Committee Chair: Dr. Larry Rockwood

Committee Members: Dr. J. Kolowski, Dr. C. Parsons

ABSTRACT:

The National Wildlife Federation's Certified Wildlife Habitat (CWH) program was originally formed to encourage people to plant native vegetation and connect to the outdoors. However, in reestablishing native flora, it is possible this program has increased the number of animals in these habitats. To explore this idea, mammalian species richness in urbanized residential properties was surveyed. Large, medium, and small mammal species were observed via camera and Sherman traps in 40 backyard habitats. Paired testing was carried out with 20 residences in the CWH program and 20 backyard habitats within 0.5 km of the CWH properties, but not in the program. In order to assess the impact of the CWH program the habitat usage frequency by species and the average species richness were compared between CWH and non-CWH habitats. The average capture rate per species was compared between the two study groups to examine habitat use intensity, as was the species richness between actively maintained CWH properties and those that had allowed the program requirements to lapse. Accumulation curves were created for both mammal size groups. Significant differences were discovered in the higher CWH capture success results for Northern short-tailed shrews, White-tailed deer, Virginia

opossum, and Domestic cat. Higher Red fox capture success numbers in CWH habitats were marginally significant, but no significant difference was observed between the certified and non-certified habitats' species richness using Shannon's Diversity Index t-testing. After pooling data from all 40 properties for accumulation curves, it was determined that the trapping effort for medium and large mammals is 12 nights, while the small mammal trapping effort is unknown, due to insufficient sampling time. With a heightened concern about animals in urbanized areas and their ecological interaction, the results of this study are relevant to many. Zoonotic illnesses such as Lyme disease are linked to host mammals including deermice, chipmunks, Northern short-tailed shrews, masked shrews, and white-tailed deer. Due to this human-mammal interaction point, medical and political personnel are now interested in the ecological interaction of native flora, small mammals, and their predators. Potential impacts of this study include the clarification of how creating wildlife-friendly urban habitats affect the use of the areas by mammals, which could affect how communities, homeowners' associations, and politicians set up their property management regulations.