

HABITAT AND LANDSCAPE CHARACTERISTICS THAT INFLUENCE  
POPULATION DENSITY AND BEHAVIOR OF GRAY SQUIRRELS IN  
URBAN AREAS

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ABSTRACT

Recent trends in ecological studies have displayed increases in the studying of urban systems and wildlife. Investigations on various urbanized taxa have often described similar behavioral (reduced fear of humans, altered activity patterns, and increased intraspecific aggression) and population dynamics (higher densities and reduced dispersal) modifications. In addition to the presence of these changes in urbanized wildlife, little is known regarding the habitat and landscape features associated with these changes. The objective of my study was to identify habitat and landscape characteristics correlated with behavioral and life history adaptations of urban wildlife.

In the summer and fall of 2003 and 2004, I sampled gray squirrels (*Sciurus carolinensis*) at six urban parks for density, wariness, intraspecific aggression, and activity patterns. I then used combinations of each parks ecological characteristics (size, canopy cover, tree basal area, and number of trees) and the characteristics of the adjacent landscapes (tree cover, number of trees, building cover, and number of buildings) to develop models to predict gray squirrel wariness (fear of humans), intraspecific aggression, activity patterns, and density. Akaike's Information Criterion (AIC) was used to evaluate candidate models and determine the best approximating models. Density and canopy cover were the most efficient predictors for wariness (AIC = 48.42,  $W_i = 0.500$ ); density, patch tree basal area, and matrix tree cover for aggression (AIC = 39.54,  $W_i = 0.567$ ); patch size, canopy cover, and number of matrix trees for density (AIC = 57.40,  $W_i = 0.237$ ), and density for activity (AIC = 34.02,  $W_i = 0.253$ ).