

The effects of urbanization on migrating birds on the western shore of Lake Michigan.  
ELISABETH L. CONDON, Integrated Biosci. Prog., Univ. Minnesota, Duluth, MN, GERALD  
J. NIEMI, Nat. Resources Res. Inst., Duluth, MN, MATTHEW A. ETTERSON,  
USEPA/ORD/NHEERL/Mid-Continent Ecol. Div., Duluth, MN, and RICHARD GREEN, Dept.  
Math. & Stat., Univ. Minnesota.

Urbanization continues to transform the global landscape at an alarming rate, yet most ecological studies focus on more natural ecosystems. Many cities lie within major flyways for migrating birds, and our knowledge of how urbanization affects migrating birds is severely lacking. We studied spring migration in the Chicago region, an area of importance for migrating birds and an area of dense urbanization. We used a design based on a combination of 3 fixed effects: forest patch size (large and small), distance to the Lake Michigan coastline (near and far) and surrounding urban context (urban and suburban). We used National Land Cover Data and US Census data to categorize all potential sites and then randomly selected 31 sites that adequately met our design. During May of 2012 we completed point count surveys four times at each site during the peak of the Neotropical passerine migration in the region. We also conducted vegetation surveys at the sites. Using stepwise model selection with AICc, the main effects could not explain overall migratory bird richness or abundance. Vegetation structure variables, such as canopy and sub-canopy density, had greater explanatory power on migrating bird species richness, evenness and abundance. Analyses of 20 species revealed variable patterns of the main effects and vegetation characteristics. We found no simple relationships with landscape characteristics, vegetation, or combinations to explain spring migratory movements of birds in this region. As urbanization intensifies in Chicago and elsewhere, more studies are needed to understand the needs of migrating birds in these landscapes.