

ORAL PRESENTATION

Title: Effects of residential development on breeding bird communities and habitats in the Southern Blue Ridge Province.

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Abstract:

Residential development is a leading force of landscape change in Southern Appalachia. Housing construction alters the abundance and spatial distribution of habitat, and these changes will favor some species at the expense of others. Moreover, the degree of habitat alteration varies widely among sites. In 2009 and 2010, we censused breeding bird communities along gradients of elevation and housing density at 80 sites in two North Carolina counties adjacent to the Tennessee border. Seventy-five species were recorded, and the patterns of occupancy were studied for the 39 most abundant. At each site, the relative density of vegetation in four vertical strata (herbaceous, shrub, subcanopy, canopy) were quantified from the NC Phase III (2005) LiDAR dataset by calculating the percentage of LiDAR returns in each stratum. Housing density was measured from aerial photography. We used non-metric multidimensional scaling (NMDS) to identify the similarities among sites based on bird species co-occurrences. Then, vectors of elevation and the four vegetation strata were fitted to the NMDS ordination to reveal how these environmental factors varied with bird species composition. The results reveal the influence of elevation and vegetative structure these breeding bird communities. “Edge” species were more common at sites with higher shrub and herb cover and less canopy while “forest-interior” species were more abundant at sites with higher canopy densities. High-density sites (3.0 houses/ha) had bird species associated with shrub habitats, but the species composition of sites with ≤ 9.0 houses/ha depended on forest vegetation retained around the houses. Housing developments with 0.67 houses/ha can retain forest-interior species if the forest canopy is preserved.

Oral presentation: Wildlife session