

## **Long-term population increase and species turnover in breeding forest birds of northeastern Connecticut**

**Robert J. Craig<sup>1</sup>**, Marlyse C. Duguid<sup>2</sup> and Mark S. Ashton<sup>2</sup>, (1)Bird Conservation Research, Inc., Pomfret, CT, (2)Forestry and Environmental Studies, Yale University, New Haven, CT

### **Abstract Text:**

#### **Background/Question/Methods**

North American birds are reported to have declined by 29% over 48 years, with declines occurring across a variety of species and biomes. However, population declines are rarely uniform across ranges and examination of continent-wide density trends often show complex patterns of increase and decrease. To examine population patterns at a regional scale, we investigated species and population shifts in a forest bird community in northeastern Connecticut in relation to its changing environments, focusing particularly on patterns consistent with the effects of climate change and habitat manipulation. In 1985, we established strip census routes primarily in and adjacent to the intensively managed, 3,213 ha Yale-Myers experimental forest, which we repeated in 2018 and 2019.

#### **Results/Conclusions**

Species richness varied little among years, although relative population density increased by 24% after 1985. Turnover in species composition exceeded 50% after 1985. Forest interior and edge/successional populations both differentially showed increases. Populations that at the continental scale were either increasing or decreasing both exhibited increases at Yale-Myers Forest. Species in the core of their range showed the strongest increases in abundances. The five most strongly declining species were all northerly distributed, forest interior inhabitants, whereas the seven most strongly increasing species were variously distributed forest interior and edge/successional-associated species. Some species experienced increases by invading new habitats, whereas at least one appeared to decline due to recent interspecific competition. Our findings demonstrate that this forest bird community is dynamic, having undergone profound changes over time in species composition and population density. Expected effects of climate change on populations were consistent with some findings, although habitat manipulation effects appeared related to a greater number of population shifts. However, much contrary data indicated that these factors were not alone in driving community change. Changes occurring often did not reflect habitat affiliation, larger continental patterns or

geographic ranges of the community's species. The Yale-Myers Forest bird community may best be thought of as representing the sum of individualistic responses to environmental and perhaps also stochastic factors.

**Topic Selection:**

New Ecological Insights

**Title:**

Long-term population increase and species turnover in breeding forest birds of northeastern Connecticut

**Submitter's Email Address:**

mail@birdconservationresearch.org

**Preferred Presentation Format:**

Poster