

Winter bird population changes during a 36-year period in an urbanizing region

by Stanley E. Hedeem and David L. Hedeem

Stanley E. Hedeem and David L. Hedeem recorded birds on a Cook County Christmas Bird Count for 38 years, with some interesting results.



Abstract

A census party repeating a Chicago (Illinois) regional Christmas Bird Count route over a 38-year period recorded alterations in the population sizes of 14 species. The demographic changes were primarily attributed to elements of urban expansion: construction of buildings on former croplands, increase in number of backyard bird feeders, and reduction in raptor shootings. Climatic warming, human-mediated introduction of a non-native species, and adoption of permanent residency by a formerly migratory species also contributed to the growth of some populations.

Introduction

Studies in the Cincinnati, Ohio, metropolitan area (Hedeem and Hedeem 1998) and other city regions have documented that urban winter bird communities are significantly different from those in adjacent rural and natural habitats. However, in their review of the impact of urbanization on birds, Marzluff et al. (1998) found that there remains a need for long-term investigations of avifaunal changes at developing urban sites. They suggested that Christmas Bird Counts might be used to assess avian population

changes in expanding metropolitan areas. Other authors, however, have expressed a variety of concerns with the quality of information collected on CBCs (Stewart 1954; Kenaga 1965; Arbib 1981). Identified problems include year-to-year inconsistencies in observer abilities, differences in party numbers and routes travelled, and variations in coverage due to weather conditions.

Detection of long-term avian demographic changes is hindered when a CBC's 24.1-km diameter census circle is moved during the count's history. An example of such a relocation occurred in 1963 when the Chicago (Illinois) CBC circle was

repositioned 14.5 km north of its original location. This shift away from Chicago's center was made in response to the count participants' growing frustration with the task of finding birds in habitats being overtaken by urban sprawl.

When Stanley Hedeem participated in the newly relocated count in 1963, he perceived that continuing metropolitan growth would eventually cover much of the new CBC circle, just as it had overtaken the original CBC area. Based on his observations during the years when he participated in the original CBC, he hypothesized that significant changes in winter bird populations would occur in the new CBC area as it became more urbanized. To assess change over time, he conducted an annual bird census for the next 38 years in the southwestern portion of the relocated CBC circle.

Methods

On the day of the Chicago/Evanston/North Shore CBC from 1964 through 2001, a party of one or two observers surveyed the same 53-km census route. The census route was located between 5 and 13 km north of Chicago O'Hare International Airport. Count days ranged from 22 to 31 December. Two years (1969 and 1976) were missed.

The census route included 11 km



The White-throated Sparrow is one species whose numbers increased over 38 years in the same Christmas Bird Count route in Cook County, Illinois. Mary Kay Rubey photographed this White-throated Sparrow near Starved Rock State Park, 30 January 2003.