

The greying of urban squirrel populations in the Chicago Region

Steven M. SULLIVAN^{1,2} and Amy T. SULLIVAN¹

¹Department of Biological Sciences, University of Illinois at Chicago, Chicago, Illinois (amysullivan@gmail.com) ²The Chicago Academy of Sciences, Chicago, Illinois (ssullivan@naturemuseum.org)

Project Squirrel is a citizen science project where people of all ages can submit their observations of gray and fox squirrels (*Sciurus carolinensis* and *S. niger*, respectively) throughout the United States. To date, Project Squirrel has received more than 4500 observations, clustered mostly around 1999 (979 observations) and 2009 (3800 observations) when the project was actively managed.

Data were analyzed from 98 ZIP-codes in the Chicago metropolitan region from both 1999 and 2009 to determine how squirrel distributions have changed. These ZIP-codes represent a cross-section of habitat from city center to agricultural land. After 10 years, the number of squirrels reported per observation was similar. 46% of localities showed no change in the proportion of grey to fox squirrel. However, the proportion of grey squirrels increased in 38% of the localities while only 16% of ZIP-codes showed an increase in the proportion of fox squirrels. In general, the proportion of grey squirrels in 2009 was positively correlated with the proportion of gray squirrels in 1999 ($r^2=.47$, $p<0.001$).

Observations from 2009 were used to examine the impact of land use, supplemental food sources, tree species, and predator presence on squirrel populations. Land use and supplemental food sources affect squirrel distributions while there is little correlation of predator presence or tree species. Fox squirrels tend to be associated with campuses and commercial areas while grey squirrels tend to be positively associated with apartment buildings. The two species coexist most often in park areas or where birdseed is available. However, in the city proper, grey squirrels dominate in all circumstances. Fox squirrels are absent in places where squirrels were observed feeding on garbage, whereas gray squirrels were reported more commonly in these areas.

These results show a greying trend in squirrel populations, particularly in urban areas. Additionally, they show that region-wide, fine scale data can be efficiently collected by citizen scientists.