



# Report on Research

College of Agricultural, Consumer and Environmental Sciences

## Climate Change Creates Dramatic Decline in Red-Winged Black Bird Population

Global warming strikes again. A University of Illinois researcher reports that a red-winged black bird population in Ontario, Canada, has decreased by 50 percent since 1972. The decrease is related to a positive shift in the North Atlantic Oscillation, which has resulted in warmer, wetter winters in the southeastern United States.

When Patrick Weatherhead put his 25-year data about the red-winged black bird alongside climate records, he found a direct correlation with the North Atlantic Oscillation. The NAO is a dominant cause of winter climate variability in the North Atlantic region ranging from central North America to Europe and much of Northern Asia. It has been on an upward trend for the past 30 years.

Weatherhead, an ecologist who specializes in the behavior of birds and snakes, says that although some people may be in denial, global warming exists. "There are long-term records that show melting glaciers and altered ecological patterns like earlier migration and earlier nesting of birds.

"When you first start out, you don't set out to get 25 years of data on a topic," he said. "But when you're in the field long enough like I have been, that's what you wind up with -- long-term ecological data that may have unintended uses."

The data was collected in Ontario, Canada at the Queen's University Biological Station from 1975 to 2000, with some additional data in 2005.

"We also found that although the breeding season started at the same time each year, it lasted longer," said Weatherhead. "The birds appear to be interpreting the longer season as the end of the season lasting longer, when more female eggs typically hatch, so that shift has affected the population sex ratio."

Over the years, Weatherhead's team has put bands on the legs of thousands of red-winged black birds to track their nesting habits. They winter in the southeastern United States. In mid-July they switch from eating insects to eating corn and have caused millions of dollars of damage.

Red-winged black birds feed on corn borers, so that makes them well-liked by farmers, until they switch in the breeding season to eating corn. That's when the hero suddenly becomes the pest.

So is the 50 percent decline in population a good thing for the environment?

Weatherhead said that what will happen in the future isn't clear, but if the climate trends continue, there are likely to be further changes in population size.



In 2005, Weatherhead returned to the marshy region of Canada where the other decades of data had been collected. The North Atlantic Oscillation had returned to neutral values. "We found that the harem size [the number of female birds per male] had rebounded to 2.06, which is less than expected; but it did go up. We are currently measuring the length of the breeding season to see if that has changed, affecting the sex ratio as well."

The data collection was funded by the Natural Sciences and Engineering Council of Canada and the University of Illinois.