Arrival dates and recapture patterns of spring migrant songbirds in northeastern Illinois

By: Chelsea Bueter, Ben Larsen, Kim Lawser, Karina Nikogosian, Caleb Gordon
Biology Department, Lake Forest College, Lake Forest Illinois

Introduction

In May of 2005, the Shaw Woods Avian Monitoring Program (SWAMP) completed its fourth season of spring migrant banding in Lake Forest, Illinois. Operated each year in Lake Forest Open Lands Association's Skokie River Nature Preserve, SWAMP is the only intensive migratory bird banding station in Chicagoland. The primary goals of SWAMP are:

- To study biological aspects of songbird migration while the birds are en route (called stopover biology)
- To monitor long-term, large-scale population trends
- To open the "ivory tower" to the public, spreading appreciation for birds and their study to the broader community.

In this article, we review the first four seasons of data from SWAMP, focusing on two issues with important implications for stopover biology: Recapture patterns and arrival date in northeastern Illinois.

Stopover biology is important for understanding how to conserve migratory forest bird species in an increasingly deforested landscape. Stopover sites are critical for many migrant songbirds, which need to rest and refuel periodically before arriving at their breeding sites (Petit 2000). In the Midwest as in the United States in general, areas designated as urban habitat are growing rapidly compared with woodland habitat (National Audubon Society 2004). The suitability of urbanized landscapes as stopover habitat for migrant birds is not currently well-known.

An American Woodcock was captured and banded at SWAMP in Lake Forest, Illinois, 1 May 2005.

One of the principal advantages of bird banding studies is the ability to identify individual birds upon subsequent capture, or recapture. Recaptures of banded birds allow ornithologists to track the movements and changes in physiological condition of individual birds through time and space, providing a unique source of information that can be used to study various aspects of birds' stopover biology. We divide recaptures into three distinct categories, each reflecting somewhat different patterns and processes.

Within-year recaptures indicate duration of stay and can shed light on the poorly known process of stopover habitat selection. Predation risks, habitat quality and the quantity of energy deposits of migrant birds are just a few factors that may affect the duration of individual stopovers, and be reflected in within-year recapture patterns (Katti and Price 1999, Lima 1986).

Between-year recaptures indicate the tendency of birds to return to particular migratory routes and sites in successive years, a tendency referred to as site fidelity. Migratory site fidelity is generally far lower than fidelity to breeding or wintering sites (Cantos and Telleria 1994, Catry et al. 2004), but is still poorly known.

Foreign recaptures, defined as captures of birds initially banded elsewhere, or as SWAMP-banded birds subsequently captured at a different banding station, allow the North American bird banding Network to function as a giant connect-the-dots system, revealing the migratory paths of individual birds.

Arrival dates give us an indication of factors that affect migration timing and speed. It is generally thought that photoperiod is the most important cue for birds to initiate premigratory behaviors such as hyperphagia (overeating) and zugunruhe (migratory restlessness) (Gill 1995). However, the choice of whether or not to fly on any given night may be affected by other factors, particularly temperature and wind speed and direction (Gill 1995). Knowing how much birds' migratory behavior can be fine-tuned to weather conditions has important implications for predicting birds' ability to respond to global change.

Materials and Methods

The study is being conducted at the Skokie River Nature Preserve (N42° 15'37.2" W87° 51'34.0") in