



# THE BENEFITS OF BIRD BANDING

By Derek Matthews



Volunteers banding at VARC's Colony Farm Park Research Station

Bird banding data are useful to scientific research, management and conservation projects. Individual identification of birds makes possible studies of dispersal and migration, behaviour and social structure, life-span and survival rate, reproductive success and population growth.

## Dispersal and Migration

Every bander participates in studies of dispersal and migration by submitting their banding data to a central site, the Federal Bird Banding Office. When banded birds are captured, released alive and reported from somewhere else, we can reconstruct the individual bird's movements. From this, we have learned some extremely beneficial and exciting information. For instance, some

species go south using one pathway and return north by another.

Nesting and wintering grounds have also been located for some species, and specific nesting grounds have been connected to particular wintering areas.

We have also discovered the incredible feats birds perform, such as the Arctic Tern, which makes the longest migration flight of any living species. It makes an annual round-trip flight of 25,000 miles. The migration routes used by this species have been determined, in part, by band recoveries. We know through banding that the longevity record for this species is 34 years and that they follow the trade winds, which travel clockwise in the northern and anti-clockwise

in the southern hemispheres. The total distance travelled each year is over 70,000 km, and for this particular individual would have been the equivalent of 3 return trips to the moon!



Arctic Terns

## Behaviour and Social Structure

Many researchers use banding as one tool in their studies of bird populations and communities. The Bird Banding Office can give banders permission to use additional techniques to study birds, including markers that are more visible than the metal service bands. For example, some banders use coloured leg bands to mark individual birds and analyze their local movements and behaviours from a distance. Unique identification of birds allows numerous data points to be studied without handling the bird again. This includes territorial behaviour, mate fidelity, territory size, site fidelity, and reproductive behaviour (e.g., Which bird builds the nest or feeds the young? How often?).

To ensure the birds' safety and welfare, the Bird Banding Office strictly regulates and monitors all activities, which frequently requires additional, independent Animal Care Committee Approval.

## Determining Life Span

Banding allows the determination of the minimum length of time that an individual bird lives. Without a unique marker, there would be no way to determine if the Song Sparrow in your garden is the same bird that you saw last year or not. With a bird band, if you catch that Song Sparrow today and band it, you will know when that exact bird is caught again in the future.

We have learned, for example, that it is not uncommon for individuals of some species to live 10 to 20 years or more in the wild. Small songbirds that we may think of as short-lived may live a surprising length of time. For example, we have a record of a hummingbird living as long as 12 years! However, the average life span of most individuals is much shorter. For many songbirds that survive their first year after fledging, it is as little as 2-3 years.

## Population Studies

Banding and marking birds can also be used to estimate the numbers of birds in a population using a mark-recapture technique. Birds are marked in one period



Bluebird with specially coloured band



and then recaptured or re-sighted in a later period. The number of birds marked in the first period and the ratio of marked to unmarked birds in the population in the second period allow the total population of birds to be estimated.

### Estimating Survival and Productivity

Banding data allows for comparing typical, wild-banded birds with birds that may have had their survival altered by exposure to oil or other hazards. Survival and productivity can be studied using a constant effort banding site, such as those required by the Monitoring Avian Productivity and Survivorship (MAPS) program, a cooperative research effort of the Institute for Bird Populations and Banders throughout the continental US and Canada.

### Toxicology and Disease Research

Birds can be vectors of diseases which affect people, including encephalitis and Lyme disease. Sampling wild birds for serious diseases help determine the prevalence of

the disease in the population. In addition, banding allows birds sampled once to be avoided in the following sample or resampled, depending on the study.

Toxicology projects using banding assess the turnover time or how long birds use an area once they arrive in it. This allows the researcher to determine the potential exposure of birds to chemicals in contaminated areas.



VARC has recently become involved in scientific research into the accumulation of neonicotinoids and other insecticides in hummingbirds and honey bees. Visit the [Hummingbird Research](#) section on our website for more information.

Please visit the [Bird Banding Office](#) website for more information on the Bird Banding Program in Canada.

