

Bird-Banding Basics

Banding Provides A Wealth Of Valuable Information About Birds

Article and Photographs by BILL HILTON, JR.

Bird banding is one of the most useful tools in ornithology, and its success depends on public willingness to report banding encounters. If you have found a banded bird and reported it to the U.S. Fish and Wildlife Service, you are part of an important network of wild bird research.

In North America, birds are captured by licensed banders and fitted with numbered aluminum bands. The banders then report banding dates and locations to the federal Bird Banding Laboratory.

If a banded bird is found or seen later at a distant locale, the finder and bander can be linked to exchange information about the bird's age, how far it traveled and other interesting aspects of its life.

Encounters with banded birds are of two main types: recoveries and recaptures. A recovered bird is one that is found dead. Often the bird was killed by flying into a window or vehicle, but sometimes the family cat may have pounced on it. The vast majority of reported recoveries come from hunters who have shot waterfowl or other gamebirds that were banded on their breeding grounds.

Recaptures are live-bird encounters. Usually another bander recaptures banded birds, records relevant information about the bird and releases it back into the wild.

Data from recovered bands provide otherwise unattainable information. For more than 50 years, for example, birders watched from North Lookout at Hawk Mountain Sanctuary in Pennsylvania to count majestic raptors glide

past during their fall migration. Counting those birds tells us something about hawks, but without a banding program at Hawk Mountain, we could only speculate about where those birds have been, where they are going or how long they have lived.

By banding birds, we broaden our knowledge about the distribution and movements of many birds, their relative numbers, annual production, survivability of offspring, life spans and causes of death. Such information helps us manage and conserve birds wisely.

The Banding Program

The federal Bird Banding Laboratory issues a limited number of banding permits to institutions and individuals—mostly professional ornithologists, graduate students or wildlife biologists. Non-professionals also can be certified, but getting a permit is difficult and time-consuming.

It is best to start by assisting a licensed master bander for several years before applying for a sub-permit. This will allow you to band without supervision but requires reporting your data through the master permittee. Only after such an apprenticeship—in which you learn how to safely capture and band birds and fill out detailed, but all-important, paperwork—should you apply for your own permit.

The Bird Banding Lab provides banders with sequentially numbered series of bands in more than a dozen sizes. Standard bands, made of ultralight aluminum, are attached to the leg tarsus and have no significant effect on a

bird's ability to fly, feed or reproduce.

Small bands with an inside diameter of less than $\frac{1}{8}$ inch are used on birds such as warblers and chickadees, while large geese and eagles take bands that are an inch across. Each band bears a number and a small inscription to "Advise the Bird Banding Lab, Washington, D.C."

When a band is placed on a bird's leg, the bander records the bird's species, age and sex, as well as the band's number and the place and date of banding. Later the bander sends this information to the Bird Banding Lab where it is checked for accuracy and put into its computer database. If a banded bird is recovered or recaptured, this information is accessible through the database.

Banders may collect additional data such as wing, tail and weight measurements, plumage condition, external parasites and other information for specific research projects.

According to Danny Bystrak, a biologist for the Bird Banding Lab, between 1.1 million and 1.2 million new birds are handled each year by American banders. Approximately 70 percent of these are non-game species (including 4 to 5 percent hawks), with the remainder being ducks, geese and other gamebirds. Of all these, only about 50,000 are reported each year—down significantly from 100,000 annual reports a decade or so ago.

Some Banding Results

My own banding station at Hilton Pond, near York, South Carolina, is a perfect example of how time-consum-

ing, frustrating and rewarding the bird-banding process can be.

During mild weather, I rise at dawn several days each week and walk the trails that meander around my pond and 11-acre nature preserve. Along the way, I unfurl a dozen mist nets that measure 7 feet tall by 42 feet long. These devices look like giant hairnets stretched between poles and are essentially invisible against vegetation. Birds flying through the area blunder into

them and become ensnared in the fine mesh.

Once each hour until sunset, I retrace my steps and carefully remove each trapped bird, placing it in a lingerie bag for the trip back to my banding office. There I record data, band each captured bird and release it unharmed. During wet or cold weather when a netted bird would lose its insulation, I use automatic and pull-string traps, most of which fit on feeders that lure

the birds.

When you look out the window at birds in your yard, it is impossible to know just how many individual robins or cardinals inhabit your property. One thing I was interested in at Hilton Pond was how many birds make use of the area for food, nesting or shelter, and I have been amazed at what I learned.

From 1982 (when the Hilton Pond banding operation started) through May 1991, I banded 17,693 birds com-



By capturing and banding birds, ornithologists learn about the movements of birds. The Northern Cardinal trapped in the mist net (left) is a recapture, and its band number will provide valuable information.

What To Do If You Find A Banded Bird

The federal Bird Banding Laboratory has these suggestions on how to report a banding recovery.

First, remove the band from the bird's leg. Straighten the band and tape it securely to a piece of heavy writing paper and print the following information on the same sheet:

- Your name and complete mailing address
- All numbers and letters on the band
- The date you found the band
- The place you found the band (mileage and direction from the nearest town, with county and state)
- How you found the band (on a bird found dead, shot or caught in some other way)
- Other information you think may be of value
- Place the information and band in an envelope marked "Hand Cancel" and send to the following address:

**Bird Banding Laboratory
U.S. Fish and Wildlife Service
Laurel, MD 20708**

Dispose of the bird in an appropriate way. Remember that it is against state and federal statutes to possess any migratory bird, living or dead, without special permits.

If you find a live banded bird—perhaps one exhausted from a migratory flight or stunned when it flew into a window—you should still report the encounter. Do not remove the band, but carefully read the number, write it down and release the bird immediately. By leaving the band, you will not injure the bird during band removal, and it may provide more information if the bird is recaptured or recovered by someone else.

After reporting an encounter, you will receive a Certificate of Appreciation from the Bird Banding Lab telling you where the bird was banded and by whom. The bander will get a computer printout of the information you sent the Bird Banding Lab, and some banders correspond with people who have found banded birds to explain details of particular research projects. Because many migrational studies depend almost entirely on band recoveries, it is very important that the public report all encounters to the Bird Banding Lab, even for common species.

— B.H.



This Pileated Woodpecker is one of the most interesting birds banded by the author.

prising 113 species, the vast majority of which were songbirds. More than half were made up of just four species: the Purple Finch (3068), House Finch (2550), American Goldfinch (2054) and Pine Siskin (1486). My fifth most common bird was the Ruby-throated Hummingbird (787 individuals), which was followed by the Northern Cardinal (695), White-throated Sparrow (676) and Yellow-rumped Warbler (661).

Handling so many birds from different species is the time-consuming but rewarding part of banding. The frustrating part is that of all the birds I have banded, only 21 have been recovered or recaptured outside my home county, with another 13 reported from nearby sites. That is a rate of only 0.19 per-

cent, well below the national average of 5 percent for all birds and 1 percent for non-game species.

Although I do not band game birds, I should still get more recoveries than I do. My only explanation for such low results is that I band in a largely rural region of the South where there are not as many people to find banded birds, and there are very few Carolina banders who might recapture one.

Despite the low recovery/recapture rate for birds banded at Hilton Pond, the reports still nicely demonstrate the kinds of information that can be derived through a banding program. For example:

- *Two Pine Siskins, banded at York a year apart in the winters of 1987 and 1988, were retrapped an hour apart in*

May 1988 at Duluth, Minnesota, by Dennis Meyer. (The approximate straight-line air distance between my banding station and Duluth is 990 miles.)

•An immature male Hooded Warbler, banded in August 1987 during migration, was netted the following May on breeding grounds near Chapel Hill, North Carolina, by a graduate student studying this species.

•A White-throated Sparrow, banded on April 15, 1990, was caught 16 days later by a cat 970 miles away at Lake a la Ligne, Quebec.

•A Purple Finch banded in York (not far from the southern edge of its winter range) was found dead 1660 miles away at Lewisporte, Newfoundland (the very northern limit for this species).

One-half of my recoveries from York have been Purple or House finches, probably because they frequent feeders where people are likely to find them. Other species I banded that have been recovered outside York County include the Blue Jay, Common Grackle and Yellow-rumped Warbler.

I have also trapped five birds that were banded by someone else, including two House Finches handled by Bill Pepper at Conshohocken, Pennsylvania. Another bird of interest was a Purple Finch I retrapped at York after it was banded in Maryland by Chandler Robbins, author of the Golden field guide, *Birds of North America*.

Although I have spent thousands of hours netting and trapping at Hilton Pond and had reports on only 34 of my banded birds, the data I have collected about longevity, site fidelity and species diversity offset my low recovery rate. For example, in the winter of 1989-1990, I recaptured 26 of my previously banded Purple Finches, including two from 1984 that were at least 8 years old.

In May 1991, I netted three migrant Connecticut Warblers at York—not bad since there had been just 12 previous reports of the species for the entire state of South Carolina!

Finally, there is the female Ruby-throated Hummingbird I banded in 1987 as a recent fledgling. This tiny feathered dynamo—4 years old in 1991—has been in my traps at least

once every year since then.

It is amazing to think how many times she has winged across the Gulf of Mexico into Central America and still found her way back to my South Carolina backyard each spring! That amazing discovery alone justifies all the

hours I have spent tending nets and running traps as part of the North American bird-banding program.



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The History Of Bird Banding

People have been banding birds—or “ringing” them, as Europeans say—for centuries, and birds have been marked in other ways since ancient times. The earliest known marking effort is from the Second Punic War in about 218 B.C., when Roman foot soldiers captured swallows at headquarters and tied threads around their legs. On each day the soldiers marched, they placed one knot in the string so that when a swallow was released from the front and returned home, it would bring a message of how far the troops had traveled.

By the late 16th century, many kinds of birds were being marked. Marco Polo reported that Chinese barons outfitted hunting falcons with silver tablets each inscribed with the owner's name and province so lost birds could be returned.

The first record of a metal band attached to a bird's leg was about 1595 when one of Henry IV's banded Peregrine Falcons was lost in pursuit of a bustard in France. It showed up 24 hours later in Malta, about 1350 miles away! For that trip, the bird averaged at least 56 miles an hour!

In the 18th century, it was common for falconers to attach bands to birds stunned but not killed by hunting hawks. Duke Ferdinand, for example, placed a silver band on a Gray Heron in about 1669; the bird was recovered by his grandson about 1728, indicating the heron lived at least 60 years.

In 1710 in Germany, a falconer captured a Gray Heron bearing several bands, one of which had been attached in Turkey—more than 1200 miles to the east.

Christian Mortensen of Denmark began systematic bird banding in Europe in 1898, first on starlings and later with storks, ducks and birds of prey. He received so many interesting recoveries of banded birds that other Europeans took up the practice. The German Ornithological Society started a banding station in East Prussia in 1903, and French and British scientists began large-scale banding six years later.

John James Audubon is acknowledged as the first American bird bander. Audubon's encounters are among the first records of birds migrating from breeding grounds and returning in subsequent seasons. In 1803, while living along Perkiomen Creek near Philadelphia, Audubon wrote this about Eastern Phoebe nestlings in the mouth of a cave:

“When they were about to leave the nest, I fixed a light silver thread to the leg of each, loose enough not to hurt the part, but so fastened that no exertions of theirs could remove it. At the next year's season when the phoebe returns to Pennsylvania I had the satisfaction to observe those [birds nesting in the Perkiomen] cave and about it. Having caught several of these birds on the nest, I had the pleasure of finding two of them had the little ring on the leg.”

In 1903, a century after Audubon caught his phoebes, Dr. Paul Bartsch visited colonies of Black-crowned Night Herons near Washington, D.C., and marked 75 birds with bands inscribed “Return to Smithsonian Institution.” One night heron was found dead in Cuba two years later—the first long-distance record of a bird banded in America—and Bartsch's work was the first scientific use of numbered bands in the Western Hemisphere.

The real pioneer bander in the Americas, however, was Jack Miner, who established a waterfowl sanctuary near Kingsville, Ontario. Miner banded his first Mallard there in August 1909; that very duck was shot at Anderson, North Carolina, four months later. By 1939, the year of his death, Miner banded 20,000 Canada Geese alone, many of which carried bands returned to him by hunters from across the continent.

As more people became banders, it was obvious that a centralized system would facilitate the storage and exchange of information, so in 1911 the American Bird Banding Association was formed. By 1920, banding was so widespread that it could not be coordinated by a private group, and the U.S. Biological Survey assumed control.

Today, through treaties among the United States, Canada and Mexico, migratory birds in North America are protected from indiscriminate killing. The Canadian Wildlife Service and the U.S. Fish and Wildlife Service work closely together through the Bird Banding Laboratory to oversee the activities of dedicated banders.

—B.H.