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Why Bird Banding Should Continue

By Bruce G. Peterjohn

Last spring, Cindy Marguilis, a volunteer with the conservation group International Bird Rescue (IBR), was watching egrets at a rookery in California and noticed a bird with a metal leg band. Her photographs of the bird revealed the band number, and from that Marguilis discovered that IBR had treated the bird for injuries then released it about a year earlier. Researchers were heartened to learn that the bird was healthy and well-adjusted—information that would have been almost impossible to gather without a bird band.

The concept of marking individual birds with numbered bands has barely changed since its inception in the late 19th century, but its application as a scientific tool has evolved considerably. Initially used mainly to track bird movements, banding has a much broader use today.

Population Ecology. Banding data help develop quantitative population ecology and analytical tools to estimate demographic trends of migratory bird populations (Nichols and Tautin 2008). Researchers also use these data to determine factors such as harvest rates and survivorship that help manage harvested bird populations (Anderson 1975, Nichols and Johnson 1996). For example, every year the U.S. Fish and Wildlife Service and the Canadian Wildlife Service survey breeding waterfowl from the north-central U.S. throughout Canada and Alaska, estimate the number and species of breeding waterfowl for that year, and use that information to establish annual duck-hunting regulations (USFWS Migratory Bird Program).

Survival Rates and Trends. Bands recovered from mist-netted passerines and songbirds help scientists estimate the productivity, survival rates, and other factors influencing the birds (DeSante *et al.* 1995). For example, banding results show that significant regional declines in wood thrush (*Hylocichla mustelina*) populations coincide with regions having low apparent survivorship (Saracco *et al.* 2010). Such information helps monitor the status and trends of migratory bird populations, especially species breeding in the boreal forest and other regions of the continent that are not routinely surveyed or need special attention (Dunn *et al.* 1997).

Scientific Studies and Research. The growth of avian ethology as a scientific discipline has influenced the evolution of bird-banding practices (McDon-

ald *et al.* 2008). Following the local movements of marked birds is important for ecotoxicological studies, especially where birds are regularly exposed to environmental contaminants (Weseloh and Hebert 2008). Scientists study marked birds to determine rates of disease infection within bird populations and to identify a bird's potential role as a vector for diseases, such as West Nile virus and Newcastle disease (McLean and Guptill 2008).

Despite the obvious benefits of bird banding, the practice has its critics. Recent studies show that most annual mortality in bird populations occurs during migration (Sillert and Holmes 2002). Some critics fear that migratory birds may be imperiled by carrying a band, which typically weighs less than 1 percent of the total body weight. Yet that claim has never been substantiated. No studies have demonstrated that banded birds are more susceptible than unbanded birds to migration mortality factors such as increased predation, unfavorable weather conditions, and reduced feeding opportunities.

In addition, it has never been verified that neotropical migrants crossing the Gulf of Mexico can barely store enough fat to complete this crossing. In fact, during most weather conditions, trans-Gulf migrants fly a considerable distance inland after crossing the Gulf before they land (Lowery 1945), indicating that fat reserves are not depleted by carrying the weight of a small aluminum band. Banding data show that migratory birds return for a number of years to their breeding location, demonstrating that banded birds can complete their annual migrations while wearing a bird band.

Reports of birds injured by bands are rare, but when they occur, scientists seek to minimize the risk. As a result, many different sizes and types of bands have evolved over the past century, and this will continue as new problems are identified. If solutions aren't available, then the birds are no longer marked with metal bands, as is the case with New World vultures.

While the risk to banded birds cannot be completely eliminated, the knowledge derived from banding far outweighs the risks. Bird banding is an integral management and conservation tool, and within the context of defined scientific studies, it is essential for maintaining avian populations in the future. ■



Credit: Kinard Boone

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