BIRD POPULATIONS

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INTRODUCTION TO THE 1999 AND 2000 ANNUAL REPORTS

Birdlife International has recently used the Red List classification scheme developed by the World Conservation Union to determine that about 12% (1,186/9,797) of the Earth's remaining bird species are vulnerable to extinction within this century (Stattersfield, A.J., and D.R. Capper, eds. 2000. *Threatened Birds of the World.* Lynx Edicions, Barcelona). Fully 185 of these species are critically endangered and face an extremely high risk of extinction in the immediate future. The vast majority of all these species have very small, often fragmented ranges, and small and often declining populations. Most inhabit tropical areas or oceanic islands and fully 99% of them are at risk because of human activities. Foremost among these activities are unsustainable agricultural and timber extraction practices that cause habitat loss and degradation, followed by the introduction of invasive species, including invasive predators and competitors and even invasive plant species, and by direct exploitation of their populations by hunting and trapping, including unsustainable fishing practices. The rate of bird extinctions already far exceeds the natural rate of loss and appears to be increasing. At least 128 species have vanished over the last 500 years; 103 of these have become extinct since 1800.

While we hope that all of these nearly 1200 species will be saved from extinction, we know that some won't. As a species' population becomes smaller and it gets closer to extinction, the probability of saving it over the long-term likely decreases dramatically. Extinction of a species is, of course, the last step in a series of events that decreased its population size and decreased and fragmented its range. These decreases were in turn caused by decreases in the species' vital rates, that is, its rates of recruitment and survival. This implies that effective avian conservation must begin by attempting to maintain the population sizes and ranges of all species. This principle, in fact, has been embraced by major avian conservation efforts around the world. An oft-stated goal, for example, of the Neotropical Migratory Bird Conservation Initiative, "Partners in Flight," is "Keeping common birds common."

The first step toward accomplishing this goal is monitoring the population trends and vital rates of bird species in the area of concern. Because of the global nature of the factors that influence bird populations, including both natural and human-caused factors, the area of concern must really be the entire range of each species, even though these ranges may cross many national borders and span entire continents. The fates of long-distance migrant species, including Nearctic species that migrate to Central and South America, Palearctic species that migrate to Africa, and Palearctic species that migrate to southeast Asia and Australia, clearly lie in the hands of the people of many nations. Let us hope that the concept of "birds without borders" can inspire real cooperation among nations regarding conservation of shared avian species, especially between the more

developed nations in the north and the developing nations in the tropics, and can serve as a model for cooperation in other critical environmental efforts.

The reports that follow highlight efforts to monitor both population trends and trends in vital rates, and are filled with examples where information on vital rates is used to increase understanding of the observed population trends. The intensity of the coverage within the areas included in these reports is remarkably high. In the case of the United Kingdom, coverage includes the entire nation. Still, the total areas covered by these monitoring programs are, for the most part, but small portions of the ranges of the species involved. Nevertheless, more than 50% of the species monitored by the constant- effort sites programs in the U.K. and Spain were monitored by both programs. This suggests that a Europe-wide network of constant-effort sites will be able to provide widespread data on a substantial number of species.

These are the kinds of data that will be needed if we are to determine how the current and impending changes in global climate will affect bird populations. Because climate change involves changes in the frequency and amplitude of the major global climate cycles -- the cycles that drive annual changes in local weather all over the Earth -- understanding how these cycles affect the vital rates of birds seems key to understanding how climate change will affect bird populations. This will entail long-term, large-scale monitoring data on the vital rates of many species; data that can only come from expansions to programs like those whose annual reports are printed (or reprinted) here. Recent work using ten years of data on reproductive indices (young per adult) from MAPS (Monitoring Avian Productivity and Survivorship) stations in the Pacific Northwest of North America, for example, showed that productivity of temperate-wintering species was correlated with the March-May North Atlantic Oscillation Index (NAOI), while productivity of Neotropical-wintering species was correlated with the March-May El Niño/Southern Oscillation Precipitation Index (ESPI), and suggested that annual variation in productivity of Neotropical migrants was driven more by weather conditions on their tropical winter ranges than by weather conditions on their temperate breeding ranges (Nott et al., 2002, *Global Ecology & Biogeography* 11:333-342). These results underscore the important effect that the winter ecology of migratory species can have on their population trends, even on their productivity, and the critical importance of large-scale, long-term monitoring of avian vital rates in helping to understand these processes.

Those who have built local or national programs aimed at monitoring population trends and vital rates know the amount of effort involved in creating and, especially, in maintaining these programs over the long term. The effort that will be required to expand these programs, even with less intense coverage, and to coordinate them across many countries is truly daunting. Nevertheless, this is what is needed to build a truly global model of avian conservation. May the remarkable success achieved by the programs whose annual reports are printed in the following pages serve to inspire the efforts needed to build such a global model of avian conservation. — David F. DeSante