BIRD POPULATIONS

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REPORTS OF AVIAN MONIOTORING PROGRAMS

INTRODUCTION TO THE REPORTS

Standardized broad-scale bird-banding programs (or bird-ringing programs as they are known in Europe and elsewhere in the eastern hemisphere) are an important component of national and international integrated avian monitoring efforts. Such programs include the Monitoring Avian Productivity and Survivorship (MAPS) program in North America and the Constant Effort Sites (CES) schemes in Britain and a number of other European countries, and provide critical information on post-fledging productivity and annual apparent adult survival rates. Despite the rich spatial structure of the data provided by these programs and widespread interest in understanding spatial patterns of population processes, little attention had been paid to spatial modeling of demographic rates. Recently, however, researchers at The Institute for Bird Populations and the USGS Patuxent Wildlife Research Center implemented Bayesian hierarchical analyses of a spatial autoregressive model based on the transient Cormack-Jolly-Seber (CJS) capture-recapture model to provide spatially explicit and year-specific survival and residency probabilities for Wood Thrush (Saracco et al. 2010. Ecology 91:1885-1891) and Common Yellowthroat (Saracco et al. 2010. J. Ornithology, Online First, 10 August) from 12 years (1992-2003) of MAPS data.

Most previous studies that applied transient CJS models to capture-recapture data had largely been concerned with reducing the negative bias of transient individuals on survival estimates. Little attention had been paid to spatial or temporal modeling of residency probability itself. The clear spatial patterns in residency probability revealed by these recent studies, however, suggest that the residency parameter has important ecological relevance. Indeed, for both Wood Thrush and Common Yellowthroat, these recent spatial autoregressive models showed that spatial variation in survival and residency tended to be independent of each other. Areas where survival probability was high and residency probability was low could suggest a combination of good non-breeding season conditions and breeding habitat limitation. In contrast, areas with low survival and high residency could suggest areas where individuals experienced low survival due to poor non-breeding season conditions, with subsequent ample opportunity for new territory establishment (and thus few floaters).

Clearly, the spatial modeling of avian survival and residency probabilities, and of productivity and recruitment rates, especially in relationship to climate, weather, and habitat, can provide valuable data useful for informing conservation and management. Such data can provide insights into causes of avian population trends, can help identify areas where problems are acute and areas where they will be further exacerbated by climate change, can lead both to management strategies for reversing population declines and to adaptation strategies for climate change, and can provide a means for evaluating the effectiveness of conservation, management, and adaptation strategies. This will only happen, however, with continued spatially-extensive avian population and demographic monitoring, which, in turn, will require long-term commitments of

human and financial resources. Obtaining such commitments in these difficult times depends in no small part upon the timely production and widespread dissemination of results from these avian demographic monitoring programs.

Just as during the 1980s and 1990s, when researchers at the British Trust for Ornithology provided leadership in the development and implementation of integrated avian population monitoring, they have more recently provided leadership in disseminating the results of that monitoring. Moreover, the manner they have implemented for disseminating their results has provided land managers and stewards, including those from both public and private sectors, with information for identifying avian species and populations at risk, as well as information and direction for managing and conserving not only those at-risk populations but populations of common species as well. The heart of the BTO's effort at disseminating the results of integrated population monitoring is its annual *Breeding Birds in the Wider Countryside: Their Conservation Status* report, a web-based compendium of trends, from 1966 to the present, in numbers and breeding performance for 115 species breeding in the UK. Each species has its own "page" in this report on which is provided its conservation listing, its status summary, and, in graphical and tabular formats, its population and demographic trends, including laying date, clutch and brood sizes, egg and chick nest failure rates, fledglings per breeding attempt, and CES productivity indices and adult apparent survival rates. Links are also provided for each species to other monitoring results and resources, including the British and Irish Bird Atlases and Birdtrack and Garden BirdWatch results.

We are very pleased, therefore, to announce that, beginning with Volume 10, *Bird Populations* will be publishing links to the annual BTO *Breeding Birds in the Wider Countryside* reports. In addition, beginning with Volume 10, we will also include links to the annual reports of the British Breeding Bird Survey (BBS), Wetland Bird Survey (WeBS), and Constant Effort Sites (CES) scheme, the last as presented in the BTO's *CES News*. We believe that by providing direct access to these reports on the BTO's website, rather than by providing reprints of reports of these programs from the *BTO News*, we will allow readers of *Bird Populations* to gain better access to increasingly detailed information and results from these important monitoring programs. Volume 10 will continue to provide reprints from *BTO News* of the annual reports of the Nest Record Scheme and Garden Bird Feeding Survey, for which there are no comparable electronic reports to which we can link.

We hope that by publishing, reprinting, and providing links in *Bird Populations* to reports of major avian monitoring programs, we will draw attention in a timely manner to short-term avian population fluctuations that may ultimately prove to be geographically widespread or that may signal the beginnings of longer-term trends. We hope further that by disseminating these reports we will help provide a global informational network for addressing avian population changes, will encourage an integrative global approach to avian monitoring studies, will stimulate the establishment of additional avian monitoring programs, and ultimately will aid in the conservation of global avian diversity. – David F. DeSante.