

## TRENDS IN NEOTROPICAL MIGRANT POPULATIONS: REPORT ON A SYMPOSIUM

by John C. Kricher

On August 1, 1993, I attended a symposium given at the seventy-eighth annual meeting of the Ecological Society of America at the University of Wisconsin. The symposium was titled "Linking local, regional, and continental population trends in neotropical migrant birds," and was organized by Marc-André Villard and Brian Maurer, both of Brigham Young University. The symposium was designed to examine current research on neotropical migrants on scales ranging from quite local to very broad, attempting to ascertain whether or not neotropical migrants are undergoing serious, perhaps irreversible, population declines. While it would be impossible to detail what each of the seven speakers reported, I will summarize the major points, some of which may seem surprising.

Several speakers emphasized that it is a mistake to lump neotropical migrants together as a unified ecological group. They are actually a highly diverse group. Considering warblers alone, species range from the very rare and local (Kirtland's and Golden-cheeked warblers) to the highly abundant and widespread (Yellow-rumped and Black-throated Green warblers). Some species are transoceanic migrants (Blackpoll and Cape May warblers), many are trans-Gulf migrants (Hooded and Kentucky warblers), and some never migrate over water (Hermit and Townsend's warblers). While most winter either in western Mexico or on the Antilles, Bahamas, or in Central America, some go as far as South America (Blackburnian and Cerulean warblers). Because of the broad ranges and ecologies represented among neotropical migrants, it would be incredible indeed if all showed identical population trends throughout their breeding and wintering ranges. Indeed, they do not. Birds such as the Wood Thrush are doing very poorly in some parts of their breeding range but are apparently stable in others. Birds such as the Hooded Warbler are, if anything, increasing, while other species such as Prairie and Cerulean warblers are undergoing rapid and alarming declines.

Frances C. James and her colleagues, acknowledging that the current perception is a belief that virtually all neotropical migrants are generally in decline, reported that at least 127 species may, in fact, not be declining. (There are 332 neotropical migrant species.) Dr. James began her talk using the Ovenbird illustration that appears in *Birds in Jeopardy* (Ehrlich, P.R., D.S. Dobkin, and D. Wheye, 1992, Stanford, California: Stanford University Press), stating that she can find no evidence whatsoever that this species is declining. James suggested that researchers should avoid unwarranted generalizations about neotropical migrants. Some populations, especially those in the western

and central states, may actually be increasing, while some eastern populations do appear to be in sharp decline. James and her colleagues, analyzing data from the national Breeding Bird Survey (BBS), suggested that parts of the Adirondack region, the Blue Ridge area, and Cumberland Plateau could represent "hot spots" of declining populations, perhaps due to acid rain affecting insect populations during the breeding season.

On a more local scale, Jeffrey D. Brawn presented a paper coauthored with Scott K. Robinson that examined trends among neotropical migrants breeding in fragmented forests in Illinois. Brawn reported that species nesting in moderate to large tracts of woodlot remain relatively abundant even though they experience high levels of cowbird parasitism and nest predation. Brawn and Robinson warned that local abundance may not reflect reproductive success. In other words, what appears to be a locally healthy Wood Thrush population may be reproductively unsuccessful due to parasitism and predation, but be regularly augmented by immigrants from other areas.

Margaret C. Brittingham presented a paper coauthored with Stanley A. Temple in which low rates of reproduction among neotropical migrants were also of concern. Brittingham and Temple, like most of the other authors in the symposium, based their remarks largely on an analysis of the BBS data. Brittingham warned that BBS results may sometimes overestimate population health. For instance, a singing male heard along a BBS route may be singing because he has not yet mated with a female, and thus no reproduction may be occurring for that species, even though it is recorded as a "breeding bird." In talking with Brittingham later, I pointed out that BBS data may also underestimate population size. Since breeding bird surveys are done along twenty-five miles of road, they tend to overemphasize edge rather than core areas. Forest nesters, especially neotropical migrant species, have been shown in several studies to be more densely populated in interior forest compared with edge. Thus a twenty percent regional decline of a species based on BBS data may, in fact, represent far less of a decline if there are large tracts of interior forest left unsampled by BBS routes.

In yet another statistical analysis of BBS data, Curtis H. Flather and his colleagues, John R. Sauer and Sam Droege, suggested that neotropical migrants and open-cup nesters showed higher levels of sensitivity to forest patch characteristics compared with other bird species. Permanent residents, cavity nesters, and temperate migrants were not nearly as sensitive to variations in forest patches. Sensitivity differences translate into differences in adaptability. As forests become increasingly fragmented, and cowbirds and nest predators become increasingly abundant, some neotropical migrants will continue to decline compared with other ecological groups of birds.

Thomas W. Sherry and Richard T. Holmes studied American Redstarts occupying winter habitat on Jamaica. These researchers, using several lines of

investigation, found strong evidence that redstarts compete among themselves for winter territories, and suggested that ecological conditions on the wintering grounds could serve to limit certain neotropical migrant species.

Concluding the symposium, Sidney A. Gauthreaux discussed climatic factors that influence the timing of migration. He pointed out that trans-Gulf migrants, flying at about 3000 feet, usually enjoy strong tailwinds during the times when they cross the Gulf of Mexico in the spring. In other words, the timing of migration is ideal, since these birds, with the help of strong tailwinds, can efficiently cross the six-hundred-mile span from Central to North America. Gauthreaux warned, however, that unusual meteorological events have the potential to strongly and negatively affect migrant populations. For instance, suppose a severe storm hits the Gulf of Mexico in mid-April. That event may not affect males of many species that migrate early, but it may kill significant numbers of females (which tend to migrate later than the males), thus ensuring a poor year for reproduction, even though there are plenty of singing males on territories. Gauthreaux emphasized that events occurring along the migration routes have in general been understudied and that such events may seriously affect populations.

In summary, the symposium brought into sharp focus just how difficult it is to really know what is happening to neotropical migrant populations. Most studies rely on BBS data, but these data may be hard to interpret. For instance, several researchers, using exactly the same data from BBS, came to somewhat different conclusions about trends in neotropical species. Historically, virtually all of New England and much of the rest of eastern North America were almost totally deforested during the past century. Forest bird species, including neotropical migrants, survived this episode of extreme fragmentation. However, these same species are now faced with another bout of forest loss on their breeding grounds coupled with increasing rates of nest parasitism and nest predation. Reproductive success seems to be rapidly declining, at least for some species in some areas. Add to this the increasing deforestation occurring now in the tropics, plus meteorological stresses and habitat loss along migration routes, and the combination exists for extinction, at least for some species.

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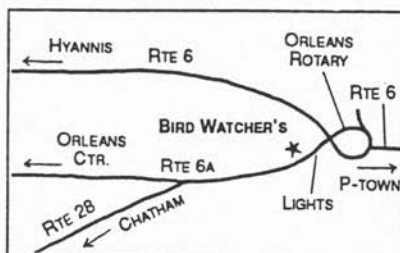
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