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Neotropical Migratory Bird Workshop and Research

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A National Workshop on the Status and Management of Neotropical Migratory Birds was held in September 1992 at Estes Park, CO.

The Proceedings, recently published and available from the USFS Rocky Mountain Forest and Range Experiment Station, (Gen. Tech. Report RM-229) covers issues that are central to Neotropical migratory bird conservation:

Which avian species currently are in decline in North America?

Are there commonalities in biogeography or behavior that link, in a unique manner, species that are in decline?

Are declines most closely related to problems originating during the breeding season, the migratory passage, or on the wintering grounds?

Which monitoring protocols provide the most useful data on the status of avian populations?

What solutions can researchers and resource managers devise for preventing population declines or for augmenting threatened populations?

The workshop was organized under auspices of Partners in Flight, a cooperative agreement between governmental and non-governmental (NGO) organizations intended to facilitate the study and management of Neotropical migratory bird populations. The NPS is one of 14 federal agencies represented on the Neotropical Migratory Bird Conservation Committee, the federal government's component of the Partners in Flight program.

Populations Status:

Trends and Monitoring Methodology

The methodology for evaluating the status of breeding birds is evolving to improve the statistical validity of population estimates. Also, studies of breeding bird population dynamics are striving to gather information beyond simple abundance of birds. These procedural changes should improve significantly the usefulness of such data for conservation.

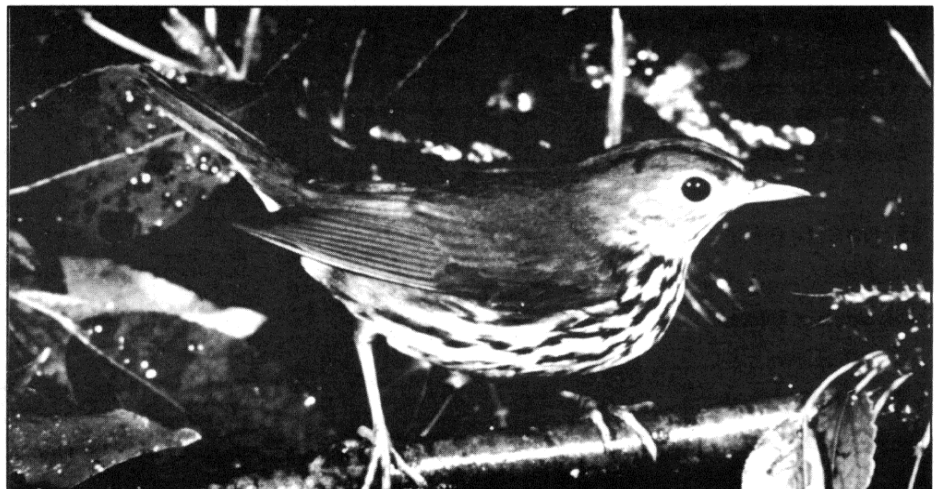
Since 1966, the primary source of information on trends in breeding bird populations in the U.S. and Canada has been the North American Breeding Bird Survey (BBS). The BBS now is coordinated by the National

Biological Survey (NBS) in the U.S. The BBS relies on roadside counts of breeding birds, conducted throughout the country. Inadequacies of this methodology were noted

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Breeding Bird Survey (BBS) data indicate that Ovenbird (below) populations increased nationwide from 1966-1977, but significantly declined thereafter. These changes are regional—Ovenbird populations in the Northeast increased during the 1980s perhaps due to forest maturation. This illustrates the complexity of population trends and the importance of multiple types of census stations. Many warbler species, such as the female Black-throated Green Warbler (above), have experienced especially large population declines according to the BBS, over the past decade. (Photos: NPS, Indiana Dunes NP)



at the conference. For example, the BBS emphasizes species readily seen or heard from roadsides and active during early morning. Also, BBS data provide limited clues to causes of documented declines. Still, BBS data do inform us of changes in relative abundance of many species over many years.

BBS data suggest that population trends from 1982-1991 for many species were different from the overall trends noted for the 1966-1991 span of currently analyzed BBS data. A statistically significant proportion of Neotropical migratory species in the U.S. (61%), exhibited declines in breeding season numbers during the 1982-1991 period. Over the entire 1966-1991 period however, there was not a statistically significant percentage of species exhibiting declines. Thus, a significantly increased rate of decline seems to have occurred in the decade from 1982-1991.

Nationwide BBS analyses show that population trends for species often are regionally and topographically specific, so that a species declining in one biogeographic province might not be declining elsewhere. Only through a large network of monitoring stations is it possible to document this type of variability and establish the true current status of a particular species.

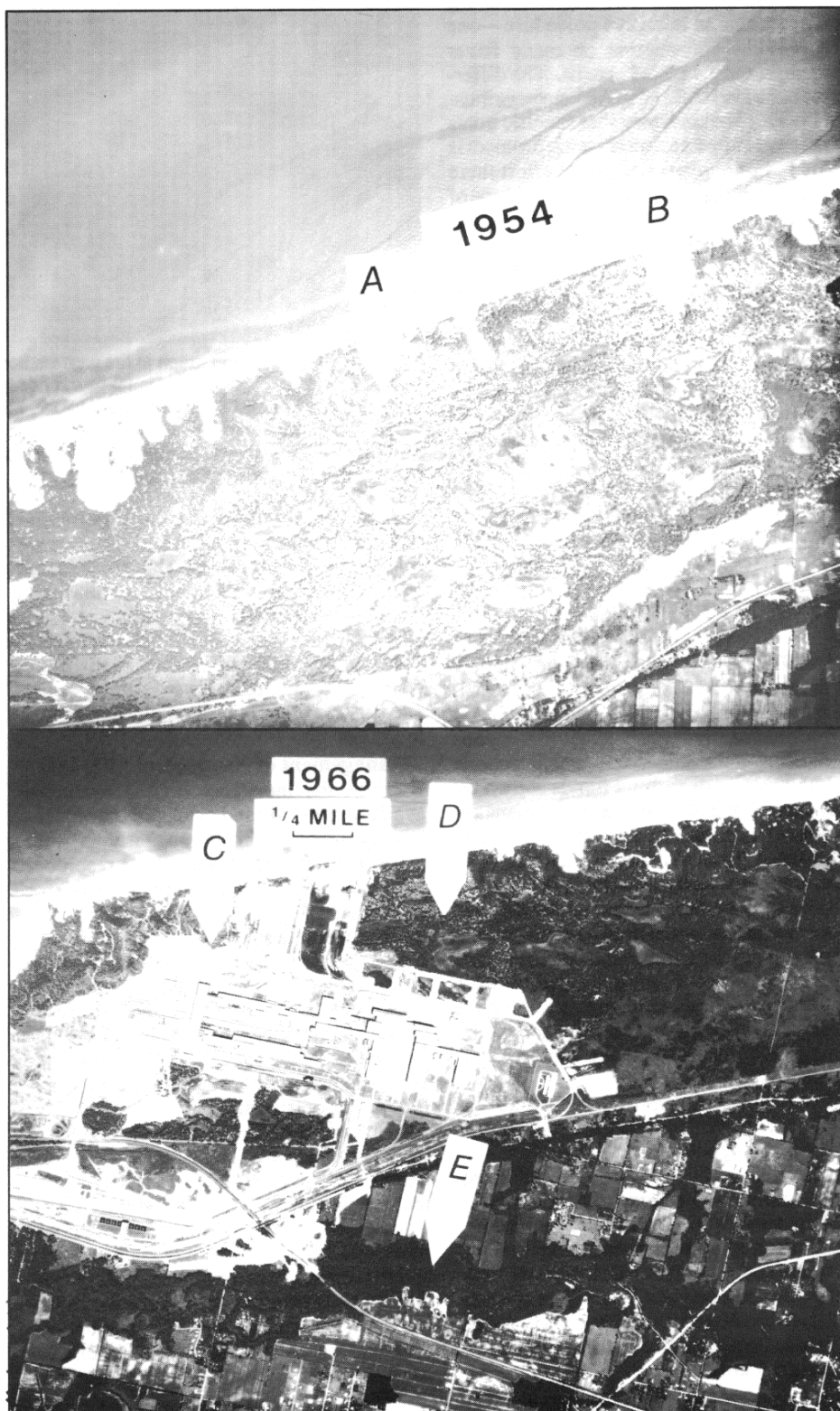
Areas that are experiencing relatively little human modification to the landscape are especially important stations within a monitoring network. This critical role is one the national parks are uniquely suited to perform. In addition, the national parks can inform the public of within-park trends in breeding bird numbers and how these trends relate to global changes in bird populations.

One frequently raised point at the meeting was the need for additional monitoring programs to collect data on avian breeding productivity. David DeSante, of The Institute for Bird Populations in Point Reyes, CA, gave an overview of the MAPS (Monitoring Avian Productivity and Survivorship) program, which is attempting to obtain such demographic data at stations throughout the country. Many of the MAPS stations are on federal lands. Programs that count the number of breeding adult birds in an area but do not document productivity, or how many new birds are hatched and fledged, can present a misleading assessment of the habitat's ability to support breeding birds.

The quality of the breeding habitat should instead be assessed by asking whether the number of young birds produced is sufficient to compensate for adult mortality throughout the year; in other words does that habitat

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The habitat fragmentation that negatively affects many breeding bird populations is strikingly illustrated here. A, from 1954, and C, from 1966, point to the same location just outside the boundary of Indiana Dunes National Lakeshore; B & D are just inside the park's boundary. Intensive commercial development (c) of dune ecosystem, from 1954 to the time of the park's formation in 1966 increased insularity of the park. Insularity often negatively affects animal and plant populations. Riparian corridor section of the park (E) is separated from body of the park by farm and residential land.



produce enough birds annually to sustain population levels? Monitoring nest success directly, by nest inspections or by mist netting birds to count the fledglings produced, improves our understanding of habitat breeding suitability. This is one goal of the MAPS program.

It should be noted here that monitoring nest success is an intensive procedure—one that provides information on many fewer species than does a BBS census. The differences between BBS and MAPS surveys illustrate why it is mandatory that specific goals be delineated before a monitoring protocol is chosen. For a given amount of effort there always will be a tradeoff between the scope of the survey and the detail of the information gathered.

BBS and MAPS type surveys are parts of a comprehensive program. For example, within a park it often will be most useful to proceed from more general to more specific monitoring programs and to be cognizant of the types of conclusions that can be drawn from each program's data. Most parks will want first to produce a checklist of birds so that researchers and resource managers are aware of what species are present. Additional information on relative population trends might be established by a BBS type survey, and those trends might be better understood by undertaking a MAPS type study of several species.

Goals for Management

Sam Droege urged those considering establishment of a monitoring program to ask the specific purpose of the program. Can you define management goals that will use your monitoring data and management actions that will rectify disturbing trends shown by your data? For example, is a park's management goal to ensure that no species experiences more than a 50 percent decline over time, or that a minimum of 100 breeding pairs of a particular species is maintained? These two questions require different monitoring approaches, although both require high intensity monitoring, probably on a yearly basis. On the other hand, less accuracy might be required in evaluating more common species, which might be monitored on a five year cycle.

If no management options are available to influence a declining population, then you cannot expect good population news to follow bad monitoring news, and the usefulness of your monitoring program is undermined.

Make sure your monitoring program fits within your long-term monitoring budget, Droege urged. Try to standardize your monitoring protocols so your data will be comparable to data collected by other studies, and be sure to evaluate periodically the effectiveness of your protocols.



Wintertime aerial photograph at the western border of Yellowstone NP. Park occupies left half of the picture, Targhee National Forest occupies right Half. Clearcut areas of the National Forest clearly contrast with the National Park, illustrating the insular character of even large parks. Insularity negatively affects many bird populations. Parks can serve as control areas for evaluating the impact landscape modification has on birds. (Photo: Tim Crawford, courtesy of the Greater Yellowstone Coalition.)

A central event of the meeting was presentation of monitoring goals from both governmental organizations and NGOs. Federal agencies outlining their monitoring and management plans for Neotropical migrants were USFS, USFWS, EPA, BLM, and DOD. (This meeting was held before formation of the National Biological Survey, which today plays a key role in coordinating Neotropical migratory bird research and the BBS.)

Management of Neotropical Migrants

Given the inevitably limited resources available for study and management of Neotropical migrants, many suggestions were made as to how to allocate these resources effectively. Several schemes were given for ranking which species deserve most immediate management attention. William Hunter, David Pashley, and Michael Carter suggested that global abundance, threats on the wintering and summering grounds, size of winter and summer distribution, and population trends are the chief factors, to be considered together, in determining a species' conservation priority rating.

Ways of improving habitat were suggested by Chandler Robbins, John Sauer, and Bruce Peterjohn: For forest birds, maximizing the interior portion of forests and minimizing isolation of forest fragments from one another, encouraging diversity of native plants and the age structure of forests, and controlling exotic vegetation; for field birds, reducing mowing during breeding season, increasing the amount of grasslands that lie more than 100 meters from other habitats,

leaving some fields fallow for several years, and preventing overgrazing.

While understanding the dynamics of population numbers is central to establishing the status of Neotropical migrants, conservation and management actions require a thorough knowledge of avian life histories. Russell Greenberg noted the importance of determining what resources migratory birds defend. Such defended resources frequently are unexpected, or at least not apparent to the casual observer, yet they are key to survival of that species. For example, the conservation of trees containing essential food—such as honeydew-secreting scale insects or certain fruits—is a critical concern in the management of wintering grounds for some migrants.

Such biological facts are known in only a small percentage of cases, so basic natural history studies must not be considered as esoteric addenda to practical research but rather as critical elements in conservation management.

The workshop also addressed problems inherent in making land use decisions. Partners in Flight is a cooperative program, dealing with species that require several geographically diverse habitats for yearlong survival. There is great potential here for promoting cooperative management of many habitats, benefitting all landbirds and other biotic resources.

Cooperative land management involves great biological and management complexity. The conference talk that was voted best-

titled on the topic of integrating land management practices for multiple animal species was Ronald Escano's: "You cannot manage for every species on every acre." Marcia Patton-Mallory urged review of research plans by resource managers early in the research planning process. Such early review increases likelihood that the information gathered can be used to make land management decisions. Land management actions are essentially experiments-in-progress, she noted, but they rarely are documented, and the information they yield is not disseminated.

The concluding workshop talks noted the dilemma land managers face in making land use decisions based on scant data, and the tradeoffs that arise in managing for single species versus the multiple species that actually inhabit any plot of land. The use of indicator species, or a guild management approach, have not solved these problems. Large geographic scale approaches to management were stressed, recognizing for instance that a Neotropical migrant might be endangered in lowland portions of its range but not in upland portions, or recognizing that one forest opening can provide feeding opportunities for brown-headed cowbirds, which can then parasitize passerine nests for miles around.

The 1992 workshop represented the third large gathering in the past 15 years of researchers in the field of Neotropical migrant conservation. Since the late 1970s, our understanding of the importance of wintering grounds in maintaining populations has grown greatly. The pendulum has swung to and fro in scientific circles as to the relative roles of changes in wintering, migration, and breeding grounds in avian declines. The participants of this workshop mainly were responsible for researching and managing species outside of wintering grounds, hence the workshop emphasized breeding season effects and effects during migration.

Conceptual advances are being made that improve the data gathered from monitoring. We now recognize that monitoring avian productivity is essential to more effective management. Methods for gathering these data in a statistically valid way are improving. We recognize that more complete natural histories of birds are essential conservation tools. We know that early and continued communication between researchers and resource managers increases the likelihood that research will contribute to more informed management decisions. We recognize too that our ability to understand the often conflicting requirements of co-occurring species is extremely limited. Prioritizing conservation and land management efforts, given that limitation, is one of the leading challenges facing the Partners in Flight coalition.

Table 1. On-going Neotropical migratory bird research and monitoring on NPS lands. This table presents results of an informal survey and of summaries from Investigators Annual Reports. If you know of other such projects being carried out in the national parks, please notify the authors, who are preparing a report on migrant bird research in the parks for the *Partners in Flight* newsletter.

Park	Activity
Acadia	Breeding bird surveys
Apostle Islands	Migration monitoring Breeding bird surveys
Arches	Pinyon/juniper breeding bird research
Bering Land Bridge	Gyrfalcon research
Big Bend	Peregrine Falcon monitoring Black-capped Vireo monitoring Christmas bird counts
Cape Cod	Breeding bird surveys
Channel Islands	Terrestrial bird census
Chiricahua	Resident and migrant bird survey
Craters of the Moon	Breeding bird surveys
Devil's Tower	Breeding bird monitoring
Denali	MAPS station (5)
Everglades	Breeding bird surveys
Fire Island	Pinelands bird community research Migration monitoring
Gateway	Migration monitoring
Glen Canyon	Willow Flycatcher survey
Grand Canyon	Willow Flycatcher survey
Grand Teton	MAPS station (1)
Great Smoky Mountains	Cove hardwood breeding bird community research Wood Thrush population dynamics research Breeding bird surveys
Gulf Islands	Trans-Gulf migrant stopover ecology research Trans-Gulf migrant habitat research
Indiana Dunes	Breeding bird survey, rail survey, nightjar survey, heron survey
Isle Royale	Raptor monitoring
Kubuk Valley	Breeding bird surveys
Lava Beds	Breeding bird surveys
Mount Rainier	Breeding bird surveys
North Cascades	Breeding bird surveys
Ozark Riverways	Swainson's warbler research
Padre Island	Breeding bird surveys Peregrine Falcon monitoring
Point Reyes	MAPS station (1)
Rocky Mountain	Peregrine Falcon monitoring
Santa Monica Mountains	Corridor bird survey Urban/wildland interface bird survey
Sequoia/Kings Canyon	MAPS station (2)
Shenandoah	MAPS station (6)
Wrangell-St. Elias	Breeding bird surveys
Yosemite	MAPS station (5) Peregrine Falcon monitoring
Yukon Charley	Peregrine Falcon monitoring
Zion	Breeding bird monitoring

The Role of National Parks

A variety of activities taking place in National Parks is contributing to the Partners in Flight program (Table 1). These activities can be as simple as Christmas bird counts or as complex as long-term research and monitoring programs. National Parks are ideal control sites for long-term population monitoring. Monitoring trends on protected habitats in parks can help determine whether changes in Neotropical migrant populations result from changes in habitat conditions on the breeding grounds in North America or from changes to tropical wintering habitats.

The newly formed NBS will be initiating regional scale research and monitoring programs to contribute to the Partners in Flight program. Data from control sites on NPS lands will make a valuable contribution to those efforts.

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