

Contents

1 Introduction

PLENARY ADDRESSES

- 7 JOHN TERBORGH: Perspectives on the conservation of Neotropical migrant landbirds

- 13 GARY S. HARTSHORN: Forest loss and future options in Central America

TRENDS IN POPULATIONS

- 23 RAYMOND J. O'CONNOR: Trends in populations: Introduction

- 26 JOHN R. SAUER AND SAM DROEGE: Geographic patterns in population trends of Neotropical migrants in North America

- 43 FRANCES C. JAMES, DAVID A. WIEDENFELD, AND CHARLES E. MCCULLOCH: Trends in breeding populations of warblers: Declines in the southern highlands and increases in the lowlands

- 57 JOHN FAABORG AND WAYNE J. ARENDT: Long-term declines of winter resident warblers in a Puerto Rican dry forest: Which species are in trouble?

- 64 RAYMOND J. O'CONNOR: Population variation in relation to migrancy status in some North American birds

- 75 DAVID W. JOHNSTON AND JOHN M. HAGAN III: An analysis of long-term breeding bird censuses from eastern deciduous forests

- 85 JACK W. WITHAM AND MALCOLM L. HUNTER, JR.: Population trends of Neotropical migrant landbirds in northern coastal New England

- 96 SIDNEY A. GAUTHREAUX, JR.: The use of weather radar to monitor long-term patterns of trans-Gulf migration in spring

- 101 DAVID J.T. HUSSELL, MONICA H. MATHER, AND PAMELA H. SINCLAIR: Trends in numbers of tropical- and temperate-wintering migrant landbirds in migration at Long Point, Ontario, 1961-1988

- 115 JOHN M. HAGAN III, TREVOR L. LLOYD-EVANS, JONATHAN L. ATWOOD, AND D. SCOTT WOOD: Long-term changes in migratory landbirds in the northeastern United States: Evidence from migration capture data

- 131 HIRAM GONZÁLEZ-ALONSO, MARTIN K. MCNICHOLL, PAUL B. HAMEL, MARTÍN ACOSTA, ESTEBAN GODINEZ, JORGE HERNÁNDEZ, DAYSI RODRÍGUEZ, JEROME A. JACKSON, CARMEN MARCOS GREGO, R. DOUGLAS McRAE, AND JACQUES SIROIS: A cooperative bird-banding project in Peninsula de Zapata, Cuba, 1988-1989

- 143 WAYNE J. ARENDT WITH COLLABORATORS: Status of North American migrant landbirds in the Caribbean region: A summary

THE NONBREEDING SEASON

- 175 RUSSELL GREENBERG: The nonbreeding season: Introduction

- 178 JAMES F. LYNCH: Distribution of overwintering Nearctic migrants in the Yucatan Peninsula, II: Use of native and human-modified vegetation

- 197 ROBERT A. ASKINS, DAVID N. EWERT, AND ROBERT L. NORTON: Abundance of wintering migrants in fragmented and continuous forests in the U.S. Virgin Islands

- 207 CHANDLER S. ROBBINS, BARBARA A. DOWELL, DEANNA K. DAWSON, JOSÉ A. COLÓN, ROSAMOND ESTRADA, ANN SUTTON, ROBERT SUTTON, AND DORA WEYER: Comparison of Neotropical migrant landbird populations wintering in tropical forest, isolated fragments, and agricultural habitats

- 211 RICHARD L. HUTTO: Habitat distributions of migratory landbird species in western Mexico

- 240 JOHN C. KRICHER AND WILLIAM E. DAVIS, JR.: Patterns of avian species richness in disturbed and undisturbed habitats in Belize

- 247 DANIEL R. PETT, LISA J. PETT, AND KIMBERLY G. SMITH: Habitat associations of migratory birds

- overwintering in Belize, Central America
- 257 JOHN G. BLAKE AND BETTE A. LOISELLE: Habitat use by Neotropical migrants at La Selva Biological Station and Braulio Carrillo National Park, Costa Rica
- 273 RUSSELL GREENBERG: Forest migrants in non-forest habitats on the Yucatan Peninsula
- 287 GEORGE V. N. POWELL, JOHN H. RAPPOLE, AND STEVEN A. SADER: Neotropical migrant landbird use of lowland Atlantic habitats in Costa Rica: A test of remote sensing for identification of habitat
- 299 JOSEPH M. WUNDERLE, JR.: Sexual habitat segregation in wintering Black-throated Blue Warblers in Puerto Rico
- 308 CYNTHIA A. STAICER: Social behavior of the Northern Parula, Cape May Warbler, and Prairie Warbler wintering in second-growth forest in southwestern Puerto Rico
- 321 DAVID A. WIEDENFELD: Foraging in temperate- and tropical-breeding and wintering Yellow Warblers
- 329 SARAH E. MABEY AND EUGENE S. MORTON: Demography and territorial behavior of wintering Kentucky Warblers in Panama
- 337 JOHN H. RAPPOLE, EUGENE S. MORTON, AND MARIO A. RAMOS: Density, philopatry, and population estimates for songbird migrants wintering in Veracruz
- 345 FRANK R. MOORE AND TED R. SIMONS: Habitat suitability and stopover ecology of Neotropical landbird migrants
- 356 FRANZ BAIRLEIN: Morphology-habitat relationships in migrating songbirds
- 370 ROSA MARÍA VIDAL-RODRIGUEZ: Abundance and seasonal distribution of Neotropical migrants during autumn in a Mexican cloud forest
- 377 JONATHAN L. ATWOOD: Inferred destinations of spring migrant Common Yellowthroats based on plumage and morphology
- 384 KEVIN WINKER, DWAIN W. WARNER, AND A.R. WEISBROD: The Northern Waterthrush and Swainson's Thrush as transients at a temperate inland stopover site
- THE BREEDING SEASON
- 405 SCOTT K. ROBINSON: The breeding season: Introduction
- 408 SCOTT K. ROBINSON: Population dynamics of breeding Neotropical migrants in a fragmented Illinois landscape
- 419 JOHN G. BLAKE, GERALD J. NIEMI, AND JOANN M. HANOWSKI: Drought and annual variation in bird populations
- 431 THOMAS W. SHERRY AND RICHARD T. HOLMES: Population fluctuations in a long-distance Neotropical migrant: Demographic evidence for the importance of breeding season events in the American Redstart
- 443 KATHRYN FREEMARK AND BRIAN COLLINS: Landscape ecology of birds breeding in temperate forest fragments
- 455 THOMAS E. MARTIN: Breeding productivity considerations: What are the appropriate habitat features for management?
- 474 MARC-ANDRÉ VILLARD, KATHRYN FREEMARK, AND GRAY MERRIAM: Metapopulation theory and Neotropical migrant birds in temperate forests: An empirical investigation
- 483 THOMAS S. LITWIN AND CHARLES R. SMITH: Factors influencing the decline of Neotropical migrants in a northeastern forest fragment: Isolation, fragmentation, or mosaic effects?
- 497 ERIC K. BOLLINGER AND THOMAS A. GAVIN: Eastern Bobolink populations: Ecology and conservation in an agricultural landscape
- HEMISPHERIC PERSPECTIVES
- 509 CHANDLER S. ROBBINS: Hemispheric perspectives: Introduction
- 511 MALCOLM L. HUNTER, JR.: Paleoecology, landscape ecology, and conservation of Neotropical migrant passerines in boreal forests
- 524 J. MICHAEL REED: A system for ranking conservation priorities for Neotropical migrant birds based on relative susceptibility to extinction
- 537 ROBERT E. RICKLEFS: The megapopulation: A

model of demographic coupling between migrant and resident landbird populations

549 CHANDLER S. ROBBINS, JOHN W. FITZPATRICK, AND PAUL B. HAMEL: A warbler in trouble: *Dendroica cerulea*

563 RICHARD T. HOLMES AND THOMAS W. SHERRY: Site fidelity of migratory warblers in temperate breeding and Neotropical wintering areas: implications for population dynamics, habitat selection, and conservation

CONCLUDING REMARKS

579 EUGENE S. MORTON: What do we know about the future of migrant landbirds?

590 LUIS G. NARANJO, JORGE CORREA-SANDOVAL, JESÚS GARCÍA-BARRON, HIRAM GONZÁLEZ-ALONSO, DANIEL HERNÁNDEZ, BELKYS JIMÉNEZ, JORGE E. MORALES, ADOLFO NAVARRO, ROSA MARÍA VIDAL-RODRIGUEZ, LAURA VILLASEÑOR, FERNANDO VILLASEÑOR, AND JOSÉ A. COLÓN: Some suggestions for future cooperative work in Latin America

597 Symposium resolutions

599 Symposium program

607 Symposium attendees

609 Author index



To forestall or possibly reverse these patterns of land-trap, studies are now being conducted that the changes are having the presumed detrimental effects on animal populations. Only with this information can we expect to convince political leaders to alter the priorities of human affairs. This book represents an effort toward that goal.

Are Neotropical migrant birds declining in number? Are effects of forest fragmentation on their reproductive success diminishing populations everywhere? Can forest fragmentation be stopped or controlled? Is the rapid loss of tropical wintering habitat leading to the demise of these species? What is the potential for sustainable development of tropical forests, and the survival of organisms that depend on them? These questions, and others, prompted more than 100 scientists to converge on Woods Hole, Massachusetts, for a symposium hosted by Mammal Bird Observatory in December 1987. A major symposium devoted to Neotropical migrant landbirds had not taken place since 1977, when at Front Royal, Virginia, about 40 scientists gathered to discuss migrant bird ecology in the Neotropics. In the 12 intervening years, the leading questions to be answered about these species changed dramatically, a fact that can be verified by comparing the Table of Contents for the two proceedings volumes. The 1970s had been an exciting time of pioneering the still largely unexplored discipline of neotropical migrant ecology.

That excitement, however, gave way to concern. What changed in such a short time? The primary cause for redirection came from a plethora of sobering public-