

Contents

Contributors ix

Preface xiii

Acknowledgments xvii

Part 1 EVOLUTION OF MIGRATION SYSTEMS

Overview Russell Greenberg 3

1 The Paleoecology and Fossil History of Migratory Landbirds

David W. Steadman 5

2 Molecular Approaches to the Evolution and Ecology of Migration

Leo Joseph 18

3 Siberian Migratory Divides

*The Role of Seasonal Migration
in Speciation*

Darren E. Irwin and Jessica H. Irwin 27

4 Inter- and Intrapopulation Migration Patterns

Ideas, Evidence, and Research Priorities

Christopher Paul Bell 41

5 Predicting Migratory Behavior in Landbirds

Philip A. R. Hockey 53

Part 2 ADAPTATIONS FOR TWO WORLDS

Overview Douglas J. Levey 65

6 Migration Takes Guts

*Digestive Physiology of Migratory
Birds and Its Ecological Significance*

Scott R. McWilliams and William H. Karasov 67

7 To Be a Migrant

*Ecomorphological Burdens
and Chances*

Hans Winkler and Bernd Leisler 79

8 Ecology and Demography of East-West Differences in Molt Scheduling of Neotropical Migrant Passerines

Sievert Rohwer, Luke K. Butler, and
Daniel R. Froehlich 87

9 Food Limitation among Wintering Birds

A View from Adaptive Body Mass Models

Christopher M. Rogers 106

10 Behavioral and Cognitive Adaptations to Long-Distance Migration

Claudia Mettke-Hofmann
and Russell Greenberg 114

Part 3 BIOGEOGRAPHY

Overview John Faaborg 127

11 Ecological and Biogeographical Aspects of the Distribution of Migrants versus Residents in European and North American Forest Bird Communities

Mikko Mönkkönen and Jukka T. Forsman 131

12 Influence of Migrants on Temperate Bird Communities

A Macroecological Approach

Katrin Böhning-Gaese 143

13 Old World versus New World Long-Distance Migration in Accipiters, Buteos, and Falcons

*The Interplay of Migration Ability
and Global Biogeography*

Keith L. Bildstein and Jorje I. Zalles 154

14 Seasonal Distribution and Ecology of South American Austral Migrant Flycatchers

R. Terry Chesser 168

15 The Temporal and Spatial Structure of the Atmosphere and Its Influence on Bird Migration Strategies

Sidney A. Gauthreaux Jr., Jenny E. Michi,
and Carroll G. Belser 182

Part 4 CONNECTIVITY

Overview Robert C. Fleischer 197

16 The Importance of Understanding Migratory Connectivity and Seasonal Interactions

Michael S. Webster and Peter P. Marra 199

17 Migrants and Their Parasites

A Bridge between Two Worlds

Robert E. Ricklefs, Sylvia M. Fallon, Steven C. Latta,
Bethany L. Swanson, and Eldredge Bermingham 2

**18 Molecular Genetic Approaches
to Linking Breeding and
Overwintering Areas in Five
Neotropical Migrant Passerines**

Thomas B. Smith, Sonya M. Clegg,
Mari Kimura, Kristen C. Ruegg, Borja Milá,
and Irby J. Lovette 222

19 Flying Fingerprints

*Making Connections with Stable Isotopes
and Trace Elements*

Keith A. Hobson 235

Part 5 MIGRATION ITSELF

Overview Åke Lindström 249

**20 Stopover Ecology of Intercontinental
Migrants**

*En Route Problems and Consequences for
Reproductive Performance*

Frank R. Moore, Robert J. Smith,
and Roland Sandberg 251

**21 Fuel Storage Rates before
Northward Flights in Red Knots
Worldwide**

*Facing the Severest Ecological
Constraint in Tropical Intertidal
Environments?*

Theunis Piersma, Danny I. Rogers,
Patricia M. González, Leo Zwarts,
Lawrence J. Niles, Inês de Lima Serrano do
Nascimento, Clive D. T. Minton,
and Allan J. Baker 262

**22 Individual Migratory Tactics of New
World *Catharus* Thrushes**

*Current Knowledge and Future Tracking
Options from Space*

William W. Cochran and Martin Wikelski 274

**23 Hormones and Variation in Life
History Strategies of Migratory
and Nonmigratory Birds**

Rebecca L. Holberton and Alfred M. Dufty Jr. 290

**Part 6 BEHAVIORAL
ECOLOGY**

Overview Michael S. Webster 305

24 Sex Roles in Migrants

*Extra-Pair Mating Systems
and Winter Social Systems*

Bridget J. M. Stutchbury, Eugene S. Morton,
and Trevor E. Pitcher 307

**25 Spring Molt Constraints
versus Winter Territoriality**

*Is Conspicuous Winter Coloration
Maladaptive?*

Daniel R. Froehlich, Sievert Rohwer, and
Bridget J. M. Stutchbury 321

**26 Ecological Correlates of
Wintering Social Systems in
New World and Old World
Migratory Passerines**

Russell Greenberg and Volker Salewski 336

**27 Correlated Evolution of
Ecological Differences among
the Old World Leaf Warblers
in the Breeding and Nonbreeding
Seasons**

Trevor Price and Sean Gross 359

**Part 7 POPULATION
ECOLOGY**

Overview Richard T. Holmes 373

**28 Modeling Seasonal Interactions
in the Population Dynamics
of Migratory Birds**

Michael C. Runge and Peter P. Marra 375

**29 Using Remote Sensing Data to Identify
Migration and Wintering Areas and to
Analyze Effects of Environmental
Conditions on Migratory Birds**

Tibor Szép and Anders Pape Møller 390

**30 How Do Migration and
Dispersal Interact?**

David W. Winkler 401

**31 Does Winter Food Limit Populations
of Migratory Birds?**

Thomas W. Sherry, Matthew D. Johnson,
and Allan M. Strong 414

**32 Long-Term Demographic Trends,
Limiting Factors, and the
Strength of Density Dependence
in a Breeding Population of a
Migratory Songbird**

T. Scott Sillett and Richard T. Holmes 426

**33 The Renaissance of Migratory
Bird Biology**

A Synthesis

Russell Greenberg and Peter P. Marra 437

Index 445

- 30 How Do Migration and Dispersal Interact?
David W. Winkler 401
- 31 Does Winter Food Limit Populations of Migratory Birds?
Thomas W. Sherry, Matthew D. Johnson,
and Allan M. Strong 414
- 32 Long-Term Demographic Trends, Limiting Factors, and the Strength of Density Dependence in a Breeding Population of a Migratory Songbird
T. Scott Sillett and Richard T. Holmes 426
- 33 The Renaissance of Migratory Bird Biology
A Synthesis
Russell Greenberg and Peter P. Marra 437
- Index 445