Contents

Part I Evolutionary Patterns

1 How to Grow a Bat Wing ................................................................. 3
   Lisa Noelle Cooper and Karen E. Sears

2 Time’s Arrow in the Evolutionary Development of Bat Flight ........ 21
   Rick A. Adams and Jason B. Shaw

3 Evolution of Echolocation ........................................................ 47
   M. Brock Fenton

4 Nasal-Emission and Nose leaves ............................................. 71
   Scott C. Pedersen and Rolf Müller

5 Bat Facial and Lip Projections: Unique Integumentary
   Morphology ............................................................................. 93
   Gary G. Kwiecinski, James D. German, and J. Timothy Cannon

6 Bat Molecular Phylogenetics: Past, Present,
   and Future Directions .......................................................... 111
   Ronald A. Van Den Bussche and Justin B. Lack

7 Of Bats and Molecules: Chromosomal Characters for Judging
   Phylogenetic Relationships .................................................. 129
   Marianne Volleth

Part II Ecology and Behaviour

8 Aeroecology .............................................................................. 149
   Winifred F. Frick, Phillip B. Chilson, Nathan W. Fuller,
   Eli S. Bridge, and Thomas H. Kunz
9 Response of Bat Diversity to Forest Disturbance in Southeast Asia: Insights from Long-Term Research in Malaysia ................................................................. 169
Tigga Kingston

10 Modeling the Colonization of Hawaii by Hoary Bats (Lasiurus cinereus) ................................................................. 187
Frank J. Bonaccorso and Liam P. McGuire

11 Learning and Memory in Bats: A Case Study on Object Discrimination in Flower-Visiting Bats ................................. 207
Georgina Ross and Marc W. Holderied

12 Cooperation and Conflict in the Social Lives of Bats ......................... 225
Gerald G. Carter and Gerald S. Wilkinson

13 Decision-Making and Socioemotional Vocal Behavior in Bats .......... 243
Jagmeet S. Kanwal, Zhenzhen Zhang, and Jiang Feng

14 New Advances in the Study of Group Behavior in Bats .................. 271
Nickolay I. Hristov, Louise C. Allen, and Brad A. Chadwell

15 Recent Advances in Bat Migration Research ................................... 293
Jennifer J. Krauel and Gary F. McCracken

16 Speciation Dynamics of the Fruit-Eating Bats (Genus Artibeus): With Evidence of Ecological Divergence in Central American Populations ......................................................... 315
Peter A. Larsen, María R. Marchán-Rivadeneira, and Robert J. Baker

Part III  Conservation and Education

17 Considering Human Development, Socialization, and Enculturation in Educational Intervention Design for Wildlife Conservation: A Case for Bats ........................................... 343
Sarah M. Bexell and Rui Xi Feng

18 Threats to Bats and Educational Challenges ................................ 363
Merlin D. Tuttle

19 Virology and Immunology of Bats .................................................. 393
Tony Schountz

20 White-Nose Syndrome: A Deadly Emerging Infectious Disease of Hibernating Bats ......................................................... 413
DeeAnn M. Reeder and Marianne S. Moore

21 Impacts of Wind Energy Development on Bats: Implications for Conservation ......................................................... 435
Edward B. Arnett and Erin F. Baerwald
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Responses of Bats to Climate Change: Learning from the Past and Predicting the Future</td>
<td>457</td>
</tr>
<tr>
<td></td>
<td>Gareth Jones and Hugo Rebelo</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Challenges of Using Bioacoustics to Globally Monitor Bats</td>
<td>479</td>
</tr>
<tr>
<td></td>
<td>Charlotte L. Walters, Alanna Collen, Tim Lucas, Kim Mroz, Catherine A. Sayer, and Kate E. Jones</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>On Estimating the Economic Value of Insectivorous Bats: Prospects and Priorities for Biologists</td>
<td>501</td>
</tr>
<tr>
<td></td>
<td>Justin G. Boyles, Catherine L. Sole, Paul M. Cryan, and Gary F. McCracken</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Bat Conservation: Past, Present and Future</td>
<td>517</td>
</tr>
<tr>
<td></td>
<td>Paul A. Racey</td>
<td></td>
</tr>
</tbody>
</table>

Taxonomy Index ........................................................................................................... 533

Keyword Index ................................................................................................................. 537
Bat Evolution, Ecology, and Conservation
Adams, R.A.; Pedersen, S.C. (Eds.)
2013, XVI, 547 p. 127 illus., 70 illus. in color., Hardcover
ISBN: 978-1-4614-7396-1