Brief Contents

PART I **Vertebrate Diversity, Function, and Evolution 1**

1 The Diversity, Classification, and Evolution of Vertebrates 2
2 Vertebrate Relationships and Basic Structure 19
3 Early Vertebrates: Jawless Vertebrates and the Origin of Jawed Vertebrates 47

PART II **Non-Amniotic Vertebrates: Fishes and Amphibians 71**

4 Living in Water 72
5 Radiation of the Chondrichthyes 99
6 Dominating Life in Water: The Major Radiation of Fishes 122
7 Geography and Ecology of the Paleozoic Era 158
8 Living on Land 167
9 Origin and Radiation of Tetrapods 189
10 Salamanders, Anurans, and Caecilians 211

PART III **Sauropsida: Turtles, Lepidosaurs, and Archosaurs 253**

11 Synapsids and Sauropsids: Two Approaches to Terrestrial Life 254
12 Turtles 287
13 The Lepidosaurs: Tuatara, Lizards, and Snakes 310
14 Ectothermy: A Low-Cost Approach to Life 349
15 Geography and Ecology of the Mesozoic Era 364
16 Mesozoic Diapsids: Dinosaurs, Crocodilians, Birds, and Others 371
17 Avian Specializations 407

PART IV **Synapsida: The Mammals 447**

18 The Synapsida and the Evolution of Mammals 448
19 Geography and Ecology of the Cenozoic Era 471
20 Mammalian Diversity and Characteristics 480
21 Mammalian Specializations 513
22 Endothermy: A High-Energy Approach to Life 537
23 Body Size, Ecology, and Sociality of Mammals 559
24 Primate Evolution and the Emergence of Humans 581
25 The Impact of Humans on Other Species of Vertebrates 614

Appendix A-1
Glossary G-1
Credits C-1
Index I-1