## **Contents**

Preface xi

CHAPTER I. Introduction I

Ellen D. Ketterson and Jonathan W. Atwell

PART I. Opportunities and Challenges in Evolutionary and Integrative Biology Presented by the Avian Genus *Junco* 

PART I NARRATIVE PREAMBLE 9

- CHAPTER 2. The Junco: A Common Bird and a Classic Subject for Descriptive and Experimental Studies in Evolutionary and Integrative Biology 11

  Ellen D. Ketterson and Jonathan W. Atwell
- CHAPTER 3. Axes of Biogeographic Variation in the Avian Genus

  Junco: Habitat, Morphology, Migration, and Seasonal
  Timing, with Implications for Diversification under

  Heteropatry 35

  Jonathan W. Atwell, Dawn M. O'Neal,

  and Ellen D. Ketterson
- PART II. Hormones, Phenotypic Integration, and Life Histories:
  An Endocrine Approach

PART 2 NARRATIVE PREAMBLE 67

CHAPTER 4. Phenotypic Engineering: A Long-Term Study Using
Hormones to Study Life-History Trade-Offs and Sexual
Conflict 71
Nicole M. Gerlach and Ellen D. Ketterson

- CHAPTER 5. Hormonal Pleiotropy and the Evolution of Correlated
  Traits 100

  Joel W. McGlothlin and Ellen D. Ketterson
- CHAPTER 6. Individual Variation and Selection on Hormone-Mediated Phenotypes in Male and Female Dark-Eyed Juncos 120 Kristal Cain, Jodie M. Jawor, and Joel W. McGlothlin
- CHAPTER 7. Diving Deeper into Mechanism: Individual and Sex
  Differences in Testosterone Production, Sensitivity, and
  Genomic Responses 148
  Kimberly A. Rosvall, Christine M. Bergeon Burns, and
  Mark P. Peterson
- PART III. Evolutionary Diversification in the Avian Genus Junco:
  Pattern and Process

More than Meets the Eye: Lineage Diversity and

PART 3 NARRATIVE PREAMBLE 177

CHAPTER 8.

- Evolutionary History of Dark-Eyed and Yellow-Eyed Juncos 179 Borja Milá, Pau Aleixandre, Sofía Alvarez-Nordström, and John McCormack
- CHAPTER 9. The Potential Role of Parapatric and Alloparapatric Divergence in Junco Speciation 199

  Trevor D. Price and Daniel M. Hooper
- PART IV. Mechanisms of Divergence among Populations

PART 4 NARRATIVE PREAMBLE

and Ellen D. Ketterson

CHAPTER 10. Shifts in Hormonal, Morphological, and Behavioral
Traits in a Novel Environment: Comparing Recently
Diverged Junco Populations 225
Jonathan W. Atwell, Danielle J. Whittaker, Trevor D. Price,

223

CHAPTER 11. A Physiological View of Population Divergence:
Comparing Hormone Production and Response
Mechanisms 263
Christine M. Bergeon Burns and Kimberly A. Rosvall

- CHAPTER 12. Mate Choice in Dark-Eyed Juncos Using Visual, Acoustic, and Chemical Cues 281 Danielle J. Whittaker and Nicole M. Gerlach
- CHAPTER 13. Dark-Eyed Junco Song: Linking Ontogeny and
  Function with a Potential Role in Reproductive
  Isolation 310
  Gonçalo C. Cardoso and Dustin G. Reichard
- CHAPTER 14. Standing on the Shoulders: Agendas for Future
  Research Addressing Evolutionary and Integrative
  Biology in a Rapidly Evolving Songbird 338

  Ellen D. Ketterson and Jonathan W. Atwell

Glossary 357
Contributors 373

Index 377