serves as an engrossing guide to both what is and is not yet known.

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Bird Coloration. *Volume I: Mechanisms and Measurements.*

Edited by Geoffrey E Hill and Kevin J McGraw. Cambridge (Massachusetts): Harvard University Press. $95.00. ix + 589 p + 32 pl; ill.; species and subject indexes. ISBN: 0–674–01893–1. 2006.

This volume is the first in a series on bird coloration. It provides an in-depth and up-to-date review of the theories on the mechanisms underlying the extraordinary variation in bird coloration. Additionally, this book outlines in great detail the methods most commonly used to describe and quantify this variation. The authors generously share their years of experience in their respective fields of expertise, as well as provide useful and practical advice on how to acquire bird color data. Based on hands-on experience, they aid researchers in choosing the most appropriate equipment and techniques for the required task. In Chapter 3, Robert Montgomerie provides some very valuable suggestions on how to organize the overwhelming amounts of data files that result from the use of reflectance spectrometry, and how to analyze and interpret the data. As such, this volume serves well as an introduction for researchers or students with little or no experience in the field of bird coloration.

The 12 chapters are separated into three well-organized sections. The first deals with human and avian perception of color, measurements and analysis of colors, and how the environment itself influences color communication. The second section describes in great detail the mechanisms of the diverse categories of plumage and bare part coloration. Kevin McGraw, a leading researcher in the field and coeditor of the book, contributes three excellent chapters that deal with the two major categories of pigment colors, carotenoid- and melanin-based colors, as well as some other less well-known yet important forms of pigments. Although interesting and educational, I found the chapter on structural coloration (written by Richard O Prum) somewhat overly technical and hard to comprehend. The third and final section deals with the genetic and hormonal control of color expression and how the genotype interacts with the environmental conditions in shaping a bird's phenotypic color expression. I highly recommend this book to all researchers with an interest in animal coloration and bird coloration in particular.

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Ecology and Evolution of Cooperative Breeding in Birds.

Edited by Walter D Koenig and Janis L Dickinson. Cambridge and New York: Cambridge University Press. $150.00 (hardcover); $65.00 (paper). ix + 293 p; ill.; taxonomic and subject indexes. ISBN: 0–521–82271–8 (hc); 0–521–53099–7 (pb). 2004.

About 10 years ago, a colleague (who shall remain nameless) boldly asserted that all the important questions about cooperative breeding had been already answered. As this new volume can attest, this declaration could not have been further from the truth: the study of cooperative breeding continues to be exciting, innovative, and despite (or because of) considerable research, there are still many questions to be answered.

Cooperatively breeding species are those in which more than a single pair of individuals works together to raise young. Sixteen years ago, *Cooperative Breeding in Birds* (P B Stacey and W D Koenig. Cambridge: Cambridge University Press) was published, which summarized research on 18 species of cooperative breeders. In this new volume, Koenig and Dickinson have taken a synthetic approach by presenting (in 13 chapters) a conceptually based review of cooperative breeding. Two early chapters cover questions that have always been strongly linked with cooperative breeding (why helpers stay on their natal territories and why they forego individual reproduction); both succeed in offering fresh perspectives on these topics. The importance of direct benefits to cooperative breeding is addressed, and chapters on incest avoidance, reproductive skew in both sexes, and sex allocation should have broad appeal, as they suggest that study of cooperatively breeding species may further more general theory. Other chapters cover the bewildering diversity of mating systems of cooperative breeders, the evolution of cooperative breeding in birds, and the more applied question of the conservation of cooperative breeders. Two slim chapters on physiological ecology and endocrinology (oddly placed in the midst of chapters on ultimate questions) highlight how little research has been conducted on proximate aspects of cooperative breeding. The penultimate chapter breaks the taxon barrier by discussing cooperative breeding in mammals, covering many of the topics raised in earlier chapters and comparing findings in mammals with those in birds. The final chapter highlights fundamental questions about cooperative breeding that remain to be untangled.

This is an excellent book that will appeal to senior undergraduates, graduate students, and specialists in the field of cooperative breeding. It is laudable for offering both excellent reviews of cur-