

## **Ecology and Behavior of Chickadees and Titmice: An Integrated Approach**

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**Ecology and Behavior of Chickadees and Titmice: An Integrated Approach.**—edited by Ken A. Otter. 2007. Oxford University Press, Oxford, UK. xxiv + 319 pp., 79 figures, 23 tables. ISBN 978-0-19-856999-2. \$110.00 (hardcover).

Whenever a nonornithologist asks me what I do and I tell them that I study birds, they often do not give much of a response. However, when I say that I study chickadees they usually tell me about the chickadees at their feeders or ask me how they survive winter. Chickadees and titmice are very recognizable birds and are interesting to ornithologists and nonornithologists alike. This book contains a vast amount of information on chickadee and titmouse behavior and ecology garnered from studies in North America and Europe. Chickadees have long been recognized as good subjects for research. As nicely stated by Odum (1941:314), “Because of a year-round availability and comparative tameness the chickadee is an excellent subject with which to combine field and laboratory techniques in the study of behavior and ecology.”

This book comprises 18 chapters from 33 contributing authors. The book is divided into an introductory chapter, followed by four sections containing 16 chapters, and concludes with a chapter on what may drive the differences found between North American and Eurasian parids. In addition, each of the four sections contains a short introduction (1–2 pages) and a synopsis (3–6 pages). The book focuses primarily on North American parids—the chickadees in the *Poecile* and the titmice in the *Baeolophus* genera. The preface includes a very nice section on parid nomenclature and worldwide distribution. In addition, the preface clearly states that the book is meant not only to document what is known about chickadees and titmice, but also that chapters focus on “... identifying knowledge gaps that arise from both understudied aspects of North American parids compared to Eurasian parids, and whether studies on

Black-capped (*Poecile atricapillus*) or Carolina (*P. carolinensis*) chickadee transfer to other chickadees or the titmice species" (p. xi). I believe it is a strength of the book that within each chapter one can find areas of needed research for further studies on parids. About one-half of the chapters have a clear concluding section titled "future research" or something very similar. These chapter authors very clearly and purposefully identify fruitful areas for further parid studies. To make the chapters more uniform it would have been nice if all the chapters had had clear ending sections suggesting future research.

Several chapters in the last two sections contain information boxes that take up one-half to one page and give expanded definitions or discussions of a particular term or topic relevant to the chapter. Some examples include "what is the song of the Black-capped Chickadee," "repertoire sizes," and "ptilochronology; feather time and avian biology." These information boxes are very clear and informative and will help readers better understand topics within the chapter.

Section I focuses on proximate mechanisms in behavior and evolution. This section includes four chapters on neurobiology of spatial behavior, spatial memory and the hippocampus, photoperiodism and the annual cycle, and variation in reproductive timing. Any biologist interested in food caching in birds, the role of the hippocampus in spatial memory, and the role of corticosterone in food caching and spatial memory will find section I very informative. For example, V. V. Pravosudov (University of Nevada Reno) in chapter 3 very nicely describes how enhanced memory is related to larger hippocampal volume in birds living at high latitudes, but for birds at lower latitudes, elevated corticosterone rather than hippocampal volume enhances spatial memory.

Section II deals with reproductive ecology, evolution, and behavior and includes four chapters. The influence of social interactions within and between species is a strong focus of Section II. Examples include phylogeography of Chestnut-backed Chickadees (*Poecile rufescens*), chickadee hybridization, and social dominance in Black-capped Chickadees. Noticeably absent in this section was research on North American titmice. As clearly noted in the preface, work on North American parids has focused mostly on chickadees, especially the Black-capped Chickadee.

Section III examines vocal communication and comprises five chapters. The section on vocal communication is extremely well organized and thorough. In addition, the suggestions for future research are really quite explicit. For example, for a more comparative understanding of parid communication, more work needs to be done not only with titmice, since the majority of studies to date have focused on chickadees, but also with penduline tits (Remizidae). In addition, most work on whistled songs and gargles used by chickadees have focused on males, even though females also produce these vocalizations. The function of these vocalizations in females is largely understudied and not well understood.

Section IV has three chapters that focus on landscape ecology, behavior, and conservation. The chapters in section IV are based on more disparate topics than other sections but tie the information together by focusing on habitat use and habitat quality. The chapters discuss landscape effects on parid distribution and movements, winter physiology of chickadees and titmice with information on habitat fragmentation, and habitat quality and reproductive behavior.

The book concludes with a chapter on what factors may be important in shaping the differences between North American and Eurasian studies on parids. Chapter 18 by A. A. Dhondt (Cornell University) begins with a nice comparison of features such as breeding territory, winter ecology, nesting, etc. between ancestral (Great Tit [*Parus major*] and Blue Tit [*Cyanistes caeruleus*]) and more derived clades of parids. Table 18.1 is such a nice summary of these differences that it should almost be read after the introductory chapter, as it puts much of the book into a nice comparative context.

This book is an excellent resource for researchers studying chickadees and titmice and also for anyone studying various aspects of behavioral ecology, neurobiology of spatial memory, and even landscape ecology. The section on vocal communication should be useful for any ornithologist studying avian communication. The suggestions for future research may be especially beneficial for graduate students or other professionals initiating research projects on parids. This book will be useful for many professional biologists and should be included in university libraries as a valuable reference on the ecology and behavior of North American parids.—SHELDON J. COOPER, Department of Biology, University of Wisconsin Oshkosh, Oshkosh, WI 54901. E-mail: cooper@uwosh.edu

#### LITERATURE CITED

- ODUM, E. P. 1941. Annual cycle of the Black-capped Chickadee—1. *Auk* 58:314–333.