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Community Ecology

Authors: Niemi, Gerald J., Bednar, Josh D., Condon, Elisabeth L., Grinde, Alexis R., Harrington, Kelly A., et al.

Source: The Auk, 130(4) : 817-818

Published By: American Ornithological Society

URL: https://doi.org/10.1525/auk.2013.130.4.817

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bird banding in North America, so bird ringers and those very familiar with bird ringing, the target audience, will likely skim this section. The second section explores the relationships of ringing schemes across Europe, including a history of the development of bird ringing on that continent. The contributions of H. C. C. Mortensen as the recognized inventor of modern bird ringing are briefly described, including interesting details about how he created the first uniquely identified bird rings and thus invented a new field of ornithology. There is some minor discussion of the significance of EURING for coordinating and supporting bird ringing across Europe and the usefulness of standardizing data fields for ringing and encounter data across all schemes. This section is brief, given the magnitude of EURING, but more information could easily be located elsewhere.

The third section of the book provides a history of bird ringing in Finland, where it began as an organized activity near the same time as in many other countries, 1913. This section covers the many challenges every ringing scheme has faced over the decades in detail, highlighting advances in technology and the implications of changing technologies for the scheme. The authors explain the modern philosophical shift to, and enforcement of, using ringing solely for purposes of articulated research and conservation, versus the formerly accepted practice of ringing with no real scientific goals. Broad patterns are highlighted that have been observed over the decades for ringing and subsequent encounters. A subsection is dedicated to the increased use of field-readable auxiliary markers and a massive increase in subsequent resighting reports by the public. The most interesting portion of this section is toward the end, where encounters from foreign countries are summarized and conservation concerns across the globe are revealed. There are many photos and graphs throughout this section, illustrating the process and summarizing ringing and encounter data.

The authors dedicate the fourth section to the variety of marking methods other than the traditional bird ring. This is an exploding topic in the world of bird marking, and this section covers many of the methods and includes some remarkable figures that show results of different marking technologies.

Appropriately, the bulk of the text is dedicated to the individual species accounts, summarizing ringing and encounter data in a variety of innovative ways. The most recent data included are from 2007, so newer data have already been accumulating for six years. The species accounts are introduced with a thorough explanation of how to interpret the individual accounts, which include many maps, figures, charts, and standard statistics for each species. The symbols and colors used on the maps for each species take a bit of detailed reading and flipping back and forth to understand. Included in each account are annual ringing totals, ringing by age class, how and where birds were reencountered, ages of birds at reencounter, longevity records, and birds that migrated the longest or were reencountered the greatest distance away in the cardinal directions. Most readers will be able to access what they want to know about a species, on a broad scale, but the maps of all encounters for a species do not show where the individual birds were ringed. Data-hungry readers may want to know more about the individual records that are cause for the more interesting figures.

English readers should be prepared to miss out on some interpretation of the data or a thorough analysis of how the data were used, but the most important points were likely translated. Although this is not an identification guide, the species drawings could have been more scientifically accurate to assist readers who are not familiar with European species.

The book concludes with six pages of references, some interesting photographs, and two appendices. The first appendix includes the number of birds ringed and encountered for each species during 1913–2011, and the second includes totals of birds ringed in Finland but encountered in foreign countries, with some statistics on how the birds were encountered (found dead, killed, or found alive).

The text is thorough, remarkably well done, and accomplishes the goal outlined by the authors in the introduction. Additional volumes are anticipated that will cover the remaining Finnish species. This book would be an asset to any ornithologist's or bird bander's book shelf or any research library. Given the rapid availability of data through modern technology, banding atlases such as these quickly become out of date by many modern readers' standards. An accompanying online version of any ringing atlas could provide authors and readers with regular updates and a variety of online tools for exploring ringing and encounter data that are not possible in a printed version. The authors have already accomplished the most difficult task toward an online process, summarizing the Finnish ringing scheme's database in meaningful ways.—Jo Anna Lutmerding, *Bird Banding Laboratory, Patuxent Wildlife Research Center, 12100 Beech Forest Road, Laurel, Maryland 20708. E-mail: jlutmerding@usgs.gov*

The Auk 130(4):817–818, 2013
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Printed in USA.

Community Ecology.—Gary George Mittelbach. 2012. Sinauer Associates, Sunderland, Massachusetts. 400 pp. ISBN 9780878935093. Paper, $75.95.—Joining other textbooks on community ecology by Morin (2011, Wiley-Blackwell), Putnam (1994, Kluwer Academic), and Kikkawa and Anderson (1986, Blackwell Scientific), plus several edited books on the subject, Mittelbach's *Community Ecology* has a distinct tilt toward aquatic ecology, reflecting the author's area of expertise. Despite the importance of birds in the historical and current development of community ecology, this book has relatively few avian examples. Its 16 chapters are organized in five parts on contemporary community ecology and recent advances such as metacommunities, community phylogenetics, and the growing importance of molecular biology.

The first chapter describes the evolution of community ecology from Forbes, Clements, Gleason, and Elton to Lotka, Volterra, Gause, Hutchinson, and MacArthur. The debates over the importance of interspecific competition, null models, and new directions such as meta-analysis are included to introduce diversity in theory and differing schools of thought. Other than a brief comment about Forbes, community ecology before the 1900s is not mentioned. Two chapters in Part I concentrate on "the big picture" of patterns of biological diversity and ecosystem functioning.

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They include hypotheses to explain latitudinal diversity gradients, spatial scales of diversity (citing one of the few bird examples), species–area and species–abundance relationships, as well as ecosystem productivity, stability, and invasibility. Chapter 3 explores two powerful questions: Can ecologists predict the consequences of biodiversity loss, and how many species do we need to ensure that ecosystems continue to function normally? Because biodiversity loss and changing ecosystems are important and relevant issues, this is effective in assuring the reader that the book is current and significant.

Part II includes six chapters on population growth, density dependence, predator–prey interactions, selective pressures, interspecific competition, and beneficial interactions. Most readers are likely familiar with these concepts from introductory ecology textbooks. Most of the chapters in this section are heavily laden with equations and theoretical figures but lack empirical examples from actual ecological scenarios. The later chapters in this section provide some examples, though primarily for plants or aquatic ecosystems. Examples on birds are few but include optimal diet studies of Great Tits (*Parus major*), altitudinal niche shifts of birds in New Guinea, and the classic example of adaptive radiation and character displacement in Darwin's finches. This section includes witty quotations on such subjects as the paradigm shift from an equilibrium to a non-equilibrium view of ecology. These add levity and give the reader a taste of personality behind the citations. The last chapter in the section is a refreshing follow-up to the previous chapters, largely dedicated to predation and competition. It emphasizes the beneficial effects and apparent ubiquity of species interactions observed in nature.

Part III consists of two chapters focused on ecological networks, food chains, and food webs. The section provides a solid overview for readers new to these subjects, with well-illustrated figures. The examples included are primarily from aquatic ecosystems, including one example on the interaction between predator and prey sizes for birds in rocky intertidal areas.

Part IV includes two chapters on spatial ecology in which patchy environments, metapopulations, metacommunities, and neutral theory are emphasized. The chapters provide an adequate introduction to the theoretical concepts associated with community dynamics within patchy environments, but a greater emphasis on terrestrial landscapes would have provided a better balance in conjunction with the examples from laboratory and aquatic studies.

Part V concludes with three chapters on species in changing environments, emphasizing species coexistence and evolutionary community ecology. Mittelbach's final remarks on the future of community ecology include many thought-provoking avenues for advancement in community ecology through niche-based or neutral processes and the application of phylogenetics. The book concludes with a potpourri of ideas to ponder, from the integration of local and regional processes to the potential importance of understudied pathogens and parasites to the impacts of climate change on communities.

The first words of the book are "What to leave in, what to leave out?" This is certainly a challenge in any attempt to write a book on a subject as broad as community ecology that also has a reasonable length and price. Mittelbach has met the challenge of length and price; however, a broader and more balanced selection of citations would improve the book. For instance, there are 34 lead-author citations of Abrams, 22 of Tilman, 13 of Chesson, 12 of May, and 11 of Mittelbach himself. These individuals have all contributed substantially to community ecology, but many superb contributions by ornithologists have been omitted.

The broader question remains whether the book adequately represents the field of community ecology. It achieves an integration of aquatic-oriented studies into community ecology, but its usefulness to ornithologists will be limited even though studies of birds have long contributed to theoretical and applied advancements in community ecology. A better title would be *"A Community Ecology Primer, with Special Emphasis on Aquatic Communities."* The book fails to advance an understanding of the importance of biodiversity loss and its consequences to ecosystem functioning. It also fails to explain the difficulty of obtaining data to adequately test the many theoretical ideas presented. Finally, we found numerous grammatical and spelling errors, though overall the book is well written.

Mittelbach's *Community Ecology* belongs in the libraries of major universities, selected organizations with aquatic-oriented programs, and individuals who consider themselves community ecologists with an aquatic emphasis. We read and critically reviewed this book as part of a graduate seminar course on community ecology.—Gerald J. Niemi, Josh D. Bednar, Elisabeth L. Condon, Alexis R. Grinde, Kelly A. Harrington, Sarah M. Hoheisel, Michael J. Joyce, Hannah G. Panci, Juliann M. Terry, Brooke J. Vetter, and Rachel L. Ward, *Integrated Biosciences Graduate Program, University of Minnesota, Duluth, Minnesota 55811, USA. E-mail: gniemi@umn.edu.*

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