



Seabird Breeding Atlas of the Lesser Antilles

Author: Schaffner, Fred C.

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be useful to those students. The second chapter, “Population Dynamics without Regulation: A New Equation,” reviews work from Murray’s 1979 book and shows many results generated by a single, versatile equation that goes beyond the predictions of S-shaped population growth. The premise of Chapter 3, “Life-history Tables and Life-history Theories,” is that “life-history tables provide a foundational structure for testing life-history hypotheses” (p. 71), and from this came the study of clutch size in Prairie Warblers (*Setophaga discolor*; Murray and Nolan 1989) with its handy equation that uses other demographic parameters to predict clutch size. This equation, number 9, came out of Bert’s “third law of evolution”:

Selection favors those females that lay as few eggs or bear as few young as are consistent with replacement because they have the highest probability of surviving to breed again, their young have the highest probability of surviving or both. (p. 99)

For me this law rings familiar because my own “compensation hypothesis” (2008, *Journal of Evolutionary Biology* doi:10.1111/j.1420-9101.2008.01559.x) says that females facultatively increase clutch sizes at an energy cost whenever their offspring are likely to suffer lower viability than other females’ offspring. No, I didn’t know about Bert’s work. Like most readers, I was not familiar with his third law of evolution when I crafted my hypothesis. Nevertheless, the similarities make it easy for me to understand why Bert had pushback about his law claiming that females are going for replacement rather than maxed-out reproductive success. For some readers it is a counterintuitive idea. But both our ideas are testable using methods of experimental evolution in tractable model animals like *Drosophila* or even in birds, as he did with a population of Prairie Warblers. I believe Bert would be happy to know that a test of the predictions of his idea and an alternative is possible. Chapter 4 predicts the “Demography and Population Biology of Ivory-Billed Woodpeckers,” rejected from *The Auk* in 2006 and first published in this book. I cannot imagine why anyone would not be interested in a theoretical treatment of the life history of a potentially near-extinct species, for therein resides a “bold conjecture,” otherwise known as an “educated guess,” about the likelihood of their survival, and the news was not all bad. Chapter 5, “Clutch Size and the Length of the Breeding Season,” explains how his analytical solution to the problem of clutch size comes to predict what we frequently observe, namely that clutch sizes of passerine birds are smaller in the Southern Hemisphere than in the Northern Hemisphere. Chapter 6 takes up the math of the Mayfield method and Bert’s responses to his critics. I have been interested for a long time in the lack of care and collegiality of reviewers in the face of “outside the box” authors. Here lies fodder for the historians of ornithology. Chapter 7 is a further discussion of the logic of scientific discovery. Henceforth, I will ask my graduate students to be familiar with it. Chapter 8 is about weighty issues of “mass” and “weight,” and this too our graduate students should read, and act accordingly.

With this review I invite you to read Bert’s last book. All of us who take his advice and read him seriously will stand on Bert’s scientific shoulders, and we will see farther than before.—PATRICIA ADAIR GOWATY, *Ecology and Evolutionary*

Biology and Institute of Environment and Sustainability, University of California, Los Angeles, California 90095, USA. E-mail: gowaty@eeb.ucla.edu.

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Seabird Breeding Atlas of the Lesser Antilles.—Katharine Lowrie, David Lowrie, and Natalia Collier. 2012. CreateSpace/EPIC, Charleston, North Carolina. 221 pp., 78 tables, 48 text figures, and four appendices. ISBN 1466204379. Paperback, \$48.00.—It would be difficult to write a better review of this book than the exuberant and well-deserved words of BirdLife International’s David Wege in the foreword (p. xi). This atlas is an excellent supplement to the previous work by Bradley and Norton (2009), reviewed previously in *The Auk* (Schaffner 2010), and the prior descriptions of the seabird populations of the Caribbean (van Halewijn and Norton 1984, Schreiber and Lee 2000). This work, however, has a very specific focus on the Lesser Antilles, beyond the Puerto Rico Bank (excluding the U.S. and British Virgin Islands), in the region we often call “down island,” from Anguilla in the north, southward to Grenada.

This book is a contribution of EPIC (Environmental Protection in the Caribbean; www.epicislands.org/home), and the field studies were led by Katherine and David Lowrie based from their sailboat, the *Lista Light* (www.listalight.co.uk), which itself is operated as a nongovernmental organization. Natalia Collier collaborated in all aspects of the planning and field protocols, and in data analysis and final writing of the manuscript.

Land- and water-based surveys for all breeding seabirds and invasive predators were conducted in areas where there were gaps in the recent literature. Surveys were conducted for over two years, with one survey in winter and one in spring–summer for each site to account for varied breeding seasons. Local media, technical training, and presentations were used to raise awareness of seabird and marine conservation issues, and volunteers were incorporated in the field work. Local partnerships were an essential component to the success of this effort, and the results were provided to participating island governments and nonprofit agencies as well as regional bodies. All islands were surveyed directly, except for the French-speaking islands, in which case the authors relied on government information and the literature. The authors surveyed more than 200 islands and cays and actually landed on at least 150 of them.

By systematically documenting the breeding seabirds of the rapidly developing Lesser Antilles, the authors created the first comprehensive regional perspective on seabird populations using a consistent methodology during a discrete period. The authors used the “K-values” and the “peak time multiplier” concepts of Chardine (2002) to standardize their results for some situations, particularly in cliff-nesting Red-billed Tropicbirds (*Phaethon aethereus*

mesonauta; table 7), and established a basis for comparison with future “rapid” survey techniques that include consideration of season, times of daily peak activity, and the ratio between the numbers of active nests and of flying birds. The authors discovered previously unknown nesting colonies of Audubon’s Shearwater (*Puffinus lherminieri lherminieri*), and they describe significant conservation issues such as the continuing culture of eggging and seabird hunting in St. Vincent and the Grenadines, and “egg farming” of Sooty Terns (*Onychoprion fuscatus fuscatus*) on Canouan (St. Vincent).

This atlas provides a unique view of the region and a framework for integration of future studies and may be essential for any effective regional preservation program like the Caribbean Waterbirds Conservation Plan of the Society for the Conservation and Study of Caribbean Birds (SCSCB) and BirdLife International’s Important Bird Areas (IBAs) program, and to address conservation issues identified for priority sites. The next project for the Lowries and the Lista Light will be an ambitious survey of the Caribbean coast and islands of South America.

The book is self-published and has a few format or structural peculiarities. For example, pages are numbered “i” through “xxxiv,” then “35” through “220,” and to reach the book’s nominal 224 pages, one must include blank pages and the front and back covers. For readers not familiar with each island of the archipelago, the unlabeled colony location maps can be very confusing, but this is easily remedied by photocopying page “xxv,” which contains a well-labeled map (fig. 2), folding it length-wise down the middle, and using it as a bookmark.

Overall, I found the book and the project highly inspiring. It provides new, surprisingly detailed baseline data for a region that has been previously very poorly documented, will be useful to anyone interested in research and conservation of Caribbean seabirds, and should be part of every university and museum library. It can be purchased through CreateSpace as well as through Amazon

and Kindle. Purchases through CreateSpace (www.createspace.com/3565696) and Kindle return a greater percentage of royalties back to EPIC to help cover costs incurred during field work and publication. The Atlas data (but not the story) also are available online at regional and global databases: OBIS SEAMAP (seamap.env.duke.edu/dataset/418), WICBIRDS (www.wicbirds.net/), and BirdLife’s Data Zone (www.birdlife.org/datazone/home).

This book is a “must buy” for anyone, scientist or amateur, interested in the conservation of seabirds in the Caribbean or interested in seabirds in general, and for anyone interested in general conservation and environmental issues in the Caribbean, and especially “down island” in the Lesser Antilles.—FRED C. SCHAFFNER, *School of Science and Technology, Universidad del Turabo, P.O. Box 3030, Gurabo, Puerto Rico 00778, USA. E-mail: fschaffner@suagm.edu.*

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