
This book serves as a complement and foil to the multi-authored tome Biology of Marine Birds (Schreiber and Burger 2001). The difference in titles conveys the difference in content. In Gaston’s own words: “I distinguish natural history from science on the basis of numerical content. . . . I have tried to avoid probabilities and I make shameless use of the ‘telling anecdote’. I am not attempting to prove anything, but simply to provide an overview of seabird ecology, based on ideas that seem, if not proven, at least reasonable” (p. 29).

Despite these self-deprecating words, this is not a lightweight book. It covers with deceptive brevity the entire range of seabird natural history, and includes much good biology as well. Many of the “telling anecdotes” feature the author’s own experience with Thick-billed Murres, Ancient Murrelets and Common Diving-Petrels. Besides these, there are chapters on the nature of seabird science, types of seabirds, adaptations, plumages, biogeography, behavior, migration and movements, breeding and coloniality, life-histories and demography. The unifying theme of the book is the constraint imposed on seabirds by feeding at sea but having to return to land to breed. Gaston shows by a series of examples how this fundamental constraint has shaped the evolution of many characteristics of seabirds, including their size, structure, flight, plumage, sexual dimorphism, mating systems, mate fidelity, fecundity and lifespan, to mention only a few.

The natural history approach allows Gaston to make broad comparisons between seabirds and other groups of marine and terrestrial animals, and to frame broad questions that get lost in the rigor and detail of books such as Biology of Marine Birds. The broad comparisons lead to some interesting generalizations—e.g., that seabirds are similar in natural history to vultures and bats (pp. 23-24) and that the only “really essential” characteristic of seabirds is that they can drink salt water (p. 46). The broad questions include some that are unanswerable (e.g., why crabs don’t fly: p. 20), as well as others that provoke thoughtful analysis. For example, why are there so few small seabirds? (Hydrodynamics of surface waves: p. 45). Why do cormorants have long necks? (Because they use their feet for underwater propulsion: p. 49). Why do most other seabirds use their wings for underwater propulsion? (Flight would be more costly if they had large leg muscles as well as large wing muscles; p. 49). Why are there no penguins in the Arctic? (No, not Polar Bears: sharks: pp. 95-96). The book is full of insights, ideas and questions like this that often get overlooked as we pursue detailed research on single species.

The book has two main weaknesses. The first is that Gaston’s lifelong work on pursuit-divers in cold waters has left him with less knowledge and understanding of the natural history of tropical seabirds or of aerial species such as terns, gulls, frigatebirds and tropicbirds. The book would have been more balanced and complete if it had had co-authors who were specialists in one or more of these groups. The second is that Gaston’s avoidance of “numerical” science has led to inadequate coverage of key literature in some areas. He cites few papers published since 2000 and makes only three passing references to the reviews and compilations in Biology of Marine Birds. His conclusion that post-Pleistocene extinctions were unimportant in the zoogeography of Pacific seabirds (p. 92) is contradicted by the much more thorough analysis by Warheit (2001), which he does not cite. Similarly, his analysis of seabird demography in Chapter 10 is very weak compared to those of Weimerskirch (2001) or Hamer et al. (2001), which he does not cite. His conclusion that storm-petrels are the only seabirds that live longer than landbirds of comparable size (p. 176) is contradicted by his own data (Fig. 10.1), as well as by theirs.