

roles of frogs in Nepal, Korea, Vietnam, Australia, and New Zealand. For the most part, Parsons has skillfully skimmed the highlights of anuran biology, weaving his own experiences into the text, adding a personal touch to the many topics. Equally important, his passion for frogs and his concern for their survival is evident throughout the text. It's hard to

imagine anyone reading this book and not coming away smitten with frogs.

DAVID SEBURN

Seburn Ecological Services, 920 Mussell Road, RR 1, Oxford Mills, Ontario K0G 1S0 Canada

Gatherings of Angels: Migrating Birds and their Ecology

Edited by Kenneth P. Able. 1999. Cornell University Press, Ithaca, New York. 193 pp., illus. U.S.\$29.95.

Perhaps once every five years I read a book that presents scientific facts in such a rivetting way that one wonders why other writers fall so far short. Able offers such a winning formula. His book provides insight into the complexities of bird migration, one of the most "extraordinary of natural spectacles."

Ken Able, a biology professor at the State University of New York, Albany, has devoted his life to the study of bird migration. He has contributed two introductory chapters and one concluding chapter, together with a short essay to introduce each of the other chapters: two on trans-gulf migration and six about migrations of eight bird species, the Rufous Hummingbird, Blackpoll Warbler, Broad-winged Hawk, Sandhill Crane, White-rumped and Baird's Sandpipers, Dunlin and Western Sandpiper.

Readers cannot help but be impressed by the "immensity, elegance and inherent risk that attend the great migrations" described by Able and his eight collaborators. For some species, challenges to a species' survival may be greater during migration than on either the breeding or wintering grounds. To understand the complex, multi-factorial, interacting pressures that weigh on the survival of each individual migrating bird it is "critical to keep a clear view of what we know, ... the degree of certainty with which we know it, and the inferences that can confidently be made." Nor should we, Able suggests, "rely too heavily on strictly economic arguments," for this dooms us to "the bean counter's dilemma — knowing the cost of everything but the value of nothing."

Radar studies have helped to confirm that Blackpoll Warblers, after building up body fat in Massachusetts, wait for a cold front and then fly over ocean for about 85 hours, passing over Bermuda, and not landing until they reach Northern South America; the hazardous but largely predator-free trans-oceanic route is 1500 miles shorter than the land route via Florida. Flocks of Broad-winged Hawks time their migrations to take advantage of topography and sunny

days to soar, with low energy consumption, 80% of the way to Colombia. Near the Platte River in Nebraska about 500 000 Sandhill Cranes during each spring migration benefit from the 6 to 8% of corn kernels left in fields after harvest; they gain sufficient fat there to aid their reproduction when they reach their breeding grounds farther north. After putting on fat at Cheyenne Bottoms, Kansas, and a non-stop flight of 2000 miles from there to the arctic breeding ground, White-rumped Sandpipers lay four eggs equal to 90% of the female's body weight. Two species arrive in the Cooper River Delta of Alaska with their energy reserves depleted: the long beak of the Dunlin gives it access to tiny clams deep in the mud, with which it can satisfy its energy needs in a few hours; the smaller Western Sandpiper, in contrast, must feed almost continuously to satisfy itself. In terms of body lengths (almost 49 million), the Rufous Hummingbird makes what is relatively the longest migration of any bird, in spring up the Pacific coast from central Mexico as far as Alaska, and in fall down the alpine meadows of the Coast Range or the Rocky Mountains; nectar from flowers may increase their body mass from 2.7 g to 5.7 g, but to get it they must hover, the most energy-intensive form of flight.

Each chapter is illustrated with appropriate photos and each migration is illustrated by a superb map. It is a treat to read a book that is coherent, understandable, and almost free from mathematical formulae, with each chapter written by a single author. Complicated scientific hypotheses are distilled into understandable English, reminiscent of the prose of men like P. A. Taverner and A. C. Bent in the first half of the 20th century. What a striking contrast to the typical heavy, overwhelmingly scientific ("technospeak") papers in some ornithology journals today! I recommend this book to *everyone* with an interest in birds.

C. STUART HOUSTON

863 University Drive, Saskatoon, Saskatchewan S7N 0J8 Canada



Houston, C Stuart. 2001. "Gatherings of Angels: Migrating Birds and their Ecology, ed. Kenneth P. Able [Review]." *The Canadian field-naturalist* 115(3), 523–523. <https://doi.org/10.5962/p.363843>.

View This Item Online: <https://www.biodiversitylibrary.org/item/108859>

DOI: <https://doi.org/10.5962/p.363843>

Permalink: <https://www.biodiversitylibrary.org/partpdf/363843>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Biodiversity Heritage Library

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.