Migrating Raptors of the World: Their Ecology and Conservation

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BOOK REVIEWS

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Migrating Raptors of the World: Their Ecology and Conservation.—Keith L. Bildstein. 2006. Cornell University Press, Ithaca, NY. xii + 308 pp., 16 color photographs, 40 figures including 18 black-and-white photographs, 19 tables. ISBN 978-0-8014-4179-0. $35.00 (cloth).

In 2001, I was fortunate enough to be part of the first raptor counts at El Gran Peidra in Cuba. In addition to those of us counting hawks, a few local teenagers were selling trinkets to the tourists who regularly walked to the top of the overlook for the spectacular view of the eastern end of the island and the Caribbean Sea. By the end of the first week, a tourist buying jewelry was as likely to receive information on the wonders of migrating Ospreys (*Pandion haliaetus*) as on the value of the ''precious'' stones they were buying from these local entrepreneurs. When I returned the following year, some of these same adolescents were among the first official volunteer counters, helping to track and count hawks and record data. Such is the power and draw of hawk migration, turning disinterested, or at best amused, teenagers into proselytizers. Long a subject of interest to human observers, from the early writings of Aristotle to the modern-day birdwatcher and ornithologist, the biannual movement of birds between their breeding and nonbreeding grounds has both fascinated and inspired. Diurnal raptors, because of their size, daytime migratory movements, and concentration at specific ''bottlenecks,'' have become particularly sought after by birdwatchers and other observers of wildlife. These same traits make them good subjects for monitoring and research by amateur and professional ornithologists.

The proliferation of scientific studies of raptors over the past few decades, particularly in North America and Europe, has added not only to our understanding of birds of prey, but has spawned scientific and conservation organizations focused solely on raptor study and preservation. Recently, raptor migration has received additional attention due to the availability of satellite telemetry and standardization in count methodology. As the author notes at the beginning of this book: ''except perhaps for waterfowl and shorebirds, the often convoluted migration choreographies of migrating raptors are as well known today as those of any group of birds'' (p. 3).

It should be noted, particularly for North American readers who commonly use the term raptor to refer to species belonging to both Strigiformes and Falconiformes (as well as the New World vultures in the family Cathartidae), that this book deals only with the ''diurnal raptors,'' i.e., Falconiformes and the New World vultures. This book contains 10 chapters with accompanying figures and photographs, an appendix of scientific names to accompany the common names used in the book, a glossary of terms that may not be familiar to the lay reader, and an extensive list of references.

Chapter 1 is an overview of raptor migration worldwide, with depictions of the world's principal long-distance migration pathways and continental distribution of migratory raptors. Table 1 (migration tendencies of the world's 307 raptor species) and Table 2 (characteristics of complete, partial, and irruptive or local raptor migrants) are particularly useful and well-done summaries of available data. This chapter also covers some of the ''basics'' of migrating raptors, from their use of migration bottlenecks to their refusal to cross large bodies of water.

Chapter 2 ''outlines the history of hypotheses regarding the evolution of avian migration and develops a working model that explains the origins and occurrence of the phenomenon in raptors'' (p. 16). Much of what is presented in this chapter is based on work with other avian groups, and highlights recent contributions by Peter Berthold. Chapter 3 presents a history of raptor migration studies, noting that curiosity, falconry, conservation, and high-tech tools have shaped the history of raptor migration science. Recounting how conservation, science, and bird-watching came together with the movement to prevent the slaughter of raptors along traditional flyways and led to the establishment of numerous count sites, most famously Hawk Mountain in Pennsylvania, this chapter details the history of counts at hawk watch sites worldwide. There is also a cursory overview of count methodology and analysis, trapping techniques, and a list of the 29 raptor species that have been studied (at the time of the book) by satellite telemetry. None of this will be new to those doing field research, but it does provide a good primer for the interested amateur.

Chapters 4 and 5 deal with flight strategies, orientation, and navigation. Most of what we know on this topic comes from other avian orders, as research has relied on experimental studies that have not used raptors as their subjects. Much of what is known about this topic in raptors is covered in greater detail by Kerlinger (1989). However, the author brings his own analysis and experience to chapter 4, particularly on the topic of flocking by hawks during migration, and develops a working model of raptor navigation in this chapter. His working model for raptor navigation is basically as follows: a) first-time migrants are programmed to

orient their movements in a predetermined direction for proscribed distances, b) this allows them to follow adults and take advantage of their experience (evidence relies heavily on the Broad-winged Hawk [*Buteo lineatus*] in North America), and c) experienced migrants may rely on local and regional landmarks to retrace earlier migrations. As most raptors do not migrate in family groups, this hypothesis that juveniles can still "learn" from adults and later use geographical memories provides a plausible explanation for how inexperienced birds navigate their way across long distances. Using satellite telemetry to gain insights into detailed movements of individuals over many years might be a profitable way to test and expand on these ideas.

Chapter 6 focuses on one of the two areas noted in the book's subtitle, the ecology of migratory raptors. Discussing and summarizing what is known about this topic does as much to highlight what we do not know as what we do know about raptor migration ecology. Little research, for example, is available on the extent of premigratory fat reserves in raptors, and what information is available is likely biased by trapping techniques. Feeding during migration, while well-documented in Ospreys and Peregrine Falcons (*Falco peregrinus*), is still an open question for many other species. Even something as basic as the timing of migration is still poorly understood with regard to age and sex differences, with inconsistent strategies across species and the lack of a cohesive hypothesis for explaining these differences. I agree with the author that one of our biggest information gaps is the winter ecology of migrants. This topic has been relatively little studied because raptors are not "attached" to a nest in this season and because they winter in the tropics where there are fewer ornithologists and the focus is primarily on local species. This lack of knowledge may have serious consequences for our efforts to conserve these birds.

Chapter 7 is a review of the basic principles and processes that determine the routes, directions, and distances traveled by migrating raptors, and describes the characteristics of the world's five principal migration flyways and the migrants that use them. Geographic patterns of migration including leapfrog (high latitude breeders migrate farther than lower latitude breeders), chain (low latitude breeders moving in advance of higher altitude breeders), and elliptical (migrants follow different routes south and north) are covered. Almost 10 pages are devoted to the five major raptor migration flyways: Trans-American, Western European-West African, Eurasian-East African, East-Asian Continental, and East-Asian Oceanic.

Chapters 8 (Migration Life Histories) and 9 (Great Hawk Watches) are detailed and revealing looks at eight species (Turkey Vulture [*Cathartes aura*], Osprey, Bald Eagle [*Haliaeetus leucocephalus*], Western Honey Buzzard [*Pernis apivorus*], Northern Harrier [*Circus cyaneus*], Grey-faced Buzzard [*Butastur indicus*], Steppe Buzzard [*Buteo buteo*], and Amur Falcon [*Falco amurensis*]) and 12 sites from around the world (Hawk Mountain, Pennsylvania; Cape May, New Jersey; Hawk Ridge, Minnesota; Corpus Christi, Texas; Grass Key, Florida; Golden Gate, California; Kekoldi Indigenous Reserve, Costa Rica; Veracruz River-of-Raptors, Mexico; Falsterbo Bird Observatory, Sweden; Organbidexka Col Libre, France; Strait of Gibraltar, Spain; and Elat, Israel), respectively.

Chapter 10 provides the book's only focus on conservation and categorizes three areas of human threats: habitat degradation and loss, environmental contaminants, and direct assault, noting that these threats usually work additively. Little here is unique to migratory raptors, but serves as a good reminder that migrants can be particularly vulnerable.

While this book is not a presentation of new ideas, it is an excellent summary and compilation of the vast information available on the subject worldwide. In fact, one of the strengths of this book is its global approach. The author's experience at sites around the globe pays off in a unique accounting of raptor ecology worldwide. An example of this is the highlighting of La Gran Peidra in Cuba and the Kekoldi Indigenous Reserve in Costa Rica, both only recently "discovered" as important migratory count sites and aided greatly by the author and his home institution. Examples used throughout the book regularly include species from various parts of the globe.

The need for this book, and its appeal, is the pulling together of what is known about raptor migration into a comprehensible and compelling format. If it only provided a source of information to the counters, volunteers, and observers at the 400 hawk watch sites in 89 countries (at least among those that can read English), it would find a willing audience. This book should, however, be valuable to anyone interested in migration or raptors and deserves a space on their bookshelves.—MARK MARTELL, Director of Bird Conservation, Audubon Minnesota, 2357 Ventura Drive #106, St. Paul, MN 55125. E-mail: MMARTELL@audubon.org

LITERATURE CITED

KERLINGER, P. 1989. Flight strategies of migrating hawks. University of Chicago Press, Chicago.