

BOOK REVIEW

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Urban Raptors: Ecology and Conservation of Birds of Prey in Cities. Edited by Clint W. Boal and Cheryl R. Dykstra. 2018. Island Press, Washington, DC, USA. 302 pp. 45 figures, 16 color plates, 7 tables, contributor information, and index. ISBN 978-1-61091-840-4 Paperback, \$40.00.

Like most of the contributors of this volume, I and many other “has been” raptor ecologists began our early careers driven by the allure of studying birds of prey where they still persisted in remote wilderness situations, in which the logistical challenges were great but the rewards of such endeavors in terms of experiencing solitude in the remnant functioning ecosystems remaining on the planet and the gratification of scientific discovery against multiple odds were immense. Indeed, I started out studying “endangered” Red-shouldered Hawks (*Buteo lineatus*) in the remote and nearly impenetrable bottomland forests along the Mississippi River of eastern Iowa. Back then, in the late 1970s, Red-shouldered Hawks were rumored to have been extirpated from the state of Iowa!

My next raptor scientific endeavor involved searching for “the last natural” Peregrine Falcon (*Falco peregrinus*) eyries persisting in the highest, most rugged mountains, and remotest parts of northern New Mexico. I often spent days negotiating steep and rocky two-track paths through remote coniferous forest with my trusty Landcruiser to an unmarked dead end. After which I donned my backpack and bushwhacked many kilometers to the base of some remote 300–400-m vertical precipice in the middle of no-man’s-land, and was sometimes rewarded with a fleeting glimpse and “kack-kack-kack” of a peregrine heading into or departing from its eyrie ledge. I loved the challenge and the whole experience of solving the logistical labyrinth to achieve my objective, encountering a variety of rarely seen alpine wildlife, not seeing another human for days, experiencing amazing mountain waterfalls and crystal-clear star-filled skies, conquering the rigorous physical demands, and finally scoring a confirmed peregrine eyrie! In my mind, the Peregrine Falcon will always be the king of high mountain wilderness. Yes, I did read the peregrine literature before I conducted these field adventures, and I was aware of historical records of these “wilderness” birds nesting in the great cathedrals and castles of Europe as far back as the Middle Ages. Also, I marveled in fascination upon reading the nearly 20-yr history of peregrines nesting on the Sun Life Building in Montreal, Quebec (Cade and

Bird 1990). However, in the late 1970s these urban occurrences seemed to be rare anomalies of the past; the “true” domain and vital habitat for the peregrine’s future conservation surely were the great remote wilderness escarpments similar to those I monitored as a young field ecologist in the Sangre de Cristo Mountains.

Now, four decades later, the information reviewed in *Urban Raptors: Ecology and Conservation of Birds of Prey in Cities* and the many sources cited therein provide unequivocal evidence that the “dogma” of the Peregrine Falcon being a raptor of remote mountainous regions was dead wrong! The data reviewed in this volume demonstrate that peregrines may be thriving in urban environments, along with Red-shouldered Hawks, and a host of other raptor species, many of which were previously thought to be mostly denizens of wilderness. In that regard, this volume is extremely timely in publicizing and emphasizing that many birds of prey are well into the process of adapting to city life, not only turning some traditional notions about raptor ecology upside down, but also opening up an entirely new realm of inquiry into urban ecology.

The volume is based on 16 papers that were presented in 2016 at a symposium, “Urban Raptors: Perspectives and Future Directions,” in conjunction with the annual meeting of the Raptor Research Foundation in Cape May, New Jersey. According to my count, 13 papers from the symposium were included in the volume and six additional contributions were apparently invited subsequent to the Cape May conference. Interestingly, Rob Bierregaard presented a paper during the “Urban Raptors” symposium on Ospreys (*Pandion haliaetus*) in a suburban landscape, but for the book *Urban Raptors*, he authored a review paper on Barred Owls (*Strix varia*) in suburban habitats.

The resulting printed *Urban Raptors* edition includes 19 chapters divided into three sections: (1) Raptors in Urban Ecosystems (five chapters), (2) Urban Raptors (eight chapters), and (3) Conservation and Management (six chapters). The objective of this volume as stated by the coeditors is “to provide a valuable source of information for researchers, urban green space planners, wildlife management agencies, bird-watching enthusiasts, and interested citizens” (p. xiii). In that regard, I believe the editors and contributors to this volume have largely succeeded. This book provides an excellent review of prior data collection efforts and research up through about 2016. Albeit, the contributions have a strong North American bias.

Perhaps worthwhile noting here is that the recent *Urban Raptors: Ecology and Conservation of Birds of Prey in Cities* builds upon the compendium of papers published more than 20 yr ago as *Raptors in Human Landscapes: Adaptations to Built and Cultivated Environments* (Academic Press, 1996) and

coedited by David Bird, Daniel Varland, and Juan Negro. Besides raptors exploiting urban situations, this earlier volume included treatments of raptors using cultivated and industrial landscapes, as well as discussions of birds of prey adapting to human structures (e.g., transmission lines, human-made reservoirs). The contributors to *Urban Raptors* generously cite papers from the "Urban Landscapes" section of *Raptors in Human Landscapes* as some of the foundational works addressing the biology and adaptations of raptors exploiting urban environments.

Each chapter begins with one or more paragraphs written as a "hook" designed to appeal to bird watchers or nonscientists with interests in wildlife or raptors. These attention grabbers especially feature some of the more gee-whiz attributes of the topic or species addressed within each chapter. These sensational narratives certainly could help grab the interest of amateur bird enthusiasts, but they add little to the scientific value of each contribution.

I felt that the greatest strength of this volume is the thorough review of the topics addressed in each chapter. Most of the contributors worked hard to document summary statistics, anecdotes, and points made in each respective chapter with an appropriate and a comprehensive list of citations. Undoubtedly, the thoroughness of each review chapter was driven by the careful oversight of the coeditors.

Also, I found that the entire volume was extremely well edited for consistency, grammar, spelling, and format. Within the entire 302 pages, I only spotted a few very minor slip-ups. I found a couple gaffs in which the authors slipped in an English measurement instead of a metric measurement and one subtle misleading oxymoron issue. Specifically, in Chapter 18 the authors describe Burrowing Owls (*Athene cunicularia*) as breeding in "climax shortgrass prairies, including a variety of **disturbed** grasslands" (emphasis mine). Maybe this was a typo and should have been "disclimax" shortgrass prairies, including a variety of disturbed grasslands? Most importantly, I believe the volume was extremely well edited and with few errors. This is important to me as a reader because if I find a lot of simple errors including grammar, spelling, and inconsistent format, not only do I find it distracting, but I wonder about the accuracy of the scientific content.

The book begins with a short preface by the coeditors describing the purpose of and justifying the need for this contribution as well as highlighting major acknowledgements. This is followed by the first section, "Raptors in Urban Ecosystems" including five overview chapters mostly describing how raptors function in urban systems. In Chapter 1, Keith Bildstein and Jean-Francois Therrien provide a selective review of raptors coexisting in urban situations starting with the Middle Ages, focusing mostly on peregrines and vultures, and emphasizing that populations of urban raptors are increasing globally. These authors emphasize that as long as urban areas provide "safe bedrooms" for nesting and "well-stocked kitchens" (I prefer the term "pantry"), raptors will continue to exploit

and expand within urban environments, a theme echoed by other contributors to this book. Chapter 2 by Cheryl Dykstra is chock-full of summary statistics related to habitats, nest-site selection, nests used, diet, and some miscellaneous behaviors of populations of urban raptors from around the world.

In Chapter 3, Clint Boal presents an intriguing analysis of the presence or absence of 31 raptor species in 14 selected state capitols in the lower 48 United States based on eBird data. As far as I can determine, this paper represents the only original science contribution included in *Urban Raptors*. Otherwise, all the other chapters are mostly reviews of data and results reported in the primary literature or catalogs of anecdotes. Boal's analysis provides a nice example of what could be done with eBird data to sleuth out informative patterns that could easily lead to testable hypotheses. One weakness in this contribution is that Boal never explains his criteria for selecting the 14 cities included in the analysis. Two key factors seem to fall out of Boal's analysis: (1) raptors with wide dietary breadths are more likely to occupy urban environments and (2) woodland and open-woodland raptors are also more likely to be successful in the city.

William Mannan and Robert Steidl present a reasonable conceptual model of potential demographic responses of raptors to a gradient from natural habitats to increasingly urban environments in Chapter 4. One shortcoming of this paper, and for that matter the entire volume, is that none of the contributors really define the terms "rural," "exurban," "suburban," or "urban." I guess the justification was that these terms are confoundingly defined in the existing body of urban ecology literature. Some authors tend to summarize data comparing "rural versus urban" situations and other authors favor discussing comparisons between "exurban and urban" landscapes. Whether exurban is synonymous with suburban (I do not think it is) or refers to something different is never clarified. I would have preferred the editors to have come up with some explicitly stated and reasonable definitions for these terms and enforced standard usage by all contributors. Chapter 5, the last chapter in this section, is a brief review of recent analytical, modeling, and genetic techniques that have been or could be applied to urban populations of raptors.

Part II, "Urban Raptors," includes eight chapters reviewing the urban demography and ecology of selected species of raptors, specifically Mississippi Kites (*Ictinia mississippiensis*), Cooper's Hawks (*Accipiter cooperii*), Red-shouldered Hawks, Harris's Hawks (*Parabuteo unicinctus*), Barred Owls, Powerful Owls (*Ninox strenua*), Burrowing Owls, and Peregrine Falcons. Note that only one of these species, the Powerful Owl, is native only to a continent outside of North America, accentuating the strong North American bias of the entire volume. I enjoyed reading most of these chapters and found them to represent thorough reviews of the urban biology of these species, often with presentation of mean or summary statistics supporting the various points made by the authors. One key emphasis of

most of these treatises is an effort to compare the biology and ecology of urban populations to non-urban populations. Generally, authors underscore the lack of suitable data on raptor populations in both urban versus non-urban settings in which to make such comparisons. A related and equally important issue debated in many of these chapters is the question of whether urban raptor populations are “sources” (produce more recruits to the breeding cohort than mortality losses) or “sinks” (recruitment is less than mortality rate). I really found no unequivocal evidence supporting either answer to this question, and many of the authors imply or state that more data, adequate comparison data with non-urban populations, and longer monitoring of demography are needed. Based on my reading of these chapters and other sections of the book, at least in some situations, some populations of Mississippi Kites, Peregrine Falcons, and Cooper’s Hawks are likely source populations. The jury seems to be out on the source/sink question for populations of other species reviewed. I felt the weakest chapters of this section were the reviews on Powerful Owls and Burrowing Owls, which make general conclusion statements, rarely providing summary statistics, and the Peregrine Falcon chapter, which mostly provides a series of anecdotes. All the chapters in this section have extensive lists of citations; thus, readers interested in the actual supporting data would have to follow up by accessing and reviewing the original papers.

The final segment of the book, entitled “Conservation and Management,” consists of six chapters that are a bit of a mixed bag, including some review papers, a series of case studies, and two final overview chapters. In Chapter 14, James Dwyer and coauthors do a nice job documenting the primary causes of raptor mortality in urban landscapes: in order of severity, (1) collisions, (2) electrocutions, (3) poisoning, (4) disease, and (5) other causes. In Chapter 15, Brian Washburn provides an interesting perspective on conflicts between raptors and human interests, although this chapter consists mostly of anecdotes. I found Chapter 16 on raptors as victims and ambassadors, by Lori Arent and others, very informative and intriguing, full of interesting ideas and proposals on how data from rehabilitation facilities could be standardized and assembled to address a variety of research questions and policy issues related to urban raptors. This chapter and the previous chapter emphasize that a key value of urban raptors, including the process of resolving conflict situations with human interests, is connecting urbanites with nature, and gaining support for protection of global ecosystems. In Chapter 17, John Davis describes a series of case studies based on the experiences of urban wildlife biologists in Texas that started out as conflict situations, but were resolved through common-sense education and solutions that turned complaints into support for urban raptor conservation. These examples could provide a model for programs elsewhere and emphasize the need for

agencies and organizations to become involved in urban wildlife education and conservation. In Chapter 18, David Bird and coauthors describe three case studies to illustrate some general management options that may be implemented to support the viability of urban populations while minimizing conflicts with human interests. The final chapter by Stephen DeStefano and Clint Boal reemphasizes some of the themes and unanswered questions addressed in earlier contributions. He concludes that urban raptors, if managed correctly and employed as nature’s ambassadors, could provide the vital connection between people and nature.

My overall takeaway from this volume is highly positive. But there are some weaknesses. The contributions include very little original data—perhaps not necessary, assuming that the primary objective of this work is to provide review of and guidance to the data available by listing extensive literature citations. Almost all the figures are photographs, providing very little data for an inquisitive scientist to review and evaluate. In total, this volume of 19 review chapters, 302 pages, includes six tables that provide some summary or qualitative data, four maps that present some data, and one conceptual model. Finally, I was mildly disappointed that almost no effort was made to address vultures, given their common presence in and near urban centers, their vital role in ecosystem services, and their precarious global conservation status.

In summary, I recommend this contribution for scientists, raptor/nature enthusiasts, urban wildlife biologists and planners working for agencies, and nonprofit organizations interested in or working in the fields of urban wildlife education and management. Further, I feel that raptor and wildlife rehabilitators and organizations would greatly benefit by having this volume on hand and available for their many volunteers. Finally, some of the case studies discussed in this book provide an ideal resource and could be used to develop formal programs on how to employ raptors effectively as ambassadors to connect the public with nature and to improve the public’s understanding of the importance of protecting all functioning ecosystems.—**James C. Bednarz, (email address: james.bednarz@unt.edu), Department of Biological Sciences, University of North Texas, Denton, TX 76203 USA.**

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Book Review Editor: Allen M. Fish