

## Book Reviews

### Wetland birds, habitat resources and conservation implications

Milton W. Weller

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Wetland birds have wide appeal, attracting the interest of scientists, conservationists, and even the non-birding public. This appeal lies in their tremendous variety in terms of their taxonomic origins, habitat use and adaptations to life in wetlands, and their tendency to form impressive aggregations. As one of the most conspicuous facets of wetlands, birds have been well studied throughout much of the world, although particularly in the developed countries of the northern hemisphere. Yet there are still many mysteries to be unravelled. Weller, a Professor Emeritus at Texas A & M University, clearly draws from an extraordinarily broad knowledge and experience of wetland birds, to put together this 17-chapter, comprehensive summary of current understanding.

After introducing the enormity of the topic, the book begins by defining and classifying wetlands. Weller adopts the American typology of wetlands, which is sufficiently broad to encompass just about all waterbirds except pelagic seabirds. Thus the book covers hundreds of waterbird species in fourteen families around the world, including divers, pelicans, ducks, herons, falcons, rails, waders, hoatzin, owls, kingfishers and passerines, and even the extinct Ivory-billed Woodpecker. These major groups of birds that use wetlands are covered in the third chapter, which describes the biogeography, species richness and adaptations of each. However, reflecting the origins of the author and much of the available literature, the remainder of the book has a decidedly American bias.

Having broadly set the stage and its players, the next eight chapters describe various aspects of the ecology and adaptations of wetland birds. This starts with a description of the way in which different wetland habitats are used for food, breeding, resting, moult and escape from predators. The author then goes on to explore food and feeding in more detail, describing the types of food available to birds in wetlands, and the complexity of factors which determine which foods are used by which birds, when and how. Diet is also discussed in relation to the influence of bird size, the vulnerability of prey and factors such as life history stage. Guilds are defined, although on the basis of where and how birds feed (for example benthic divers, flight feeders), rather than diet, and the different strategies and tactics that make foraging behaviour efficient are explored. Chapter 6 examines the mobility of birds within and between wetlands up to a global scale, and relates this to the predictability of wetlands as well as to factors such as temperature and food requirements. The following chapter examines a number of behavioural and physical adaptation, life-history traits and breeding and social systems of wetland birds.

The book then goes on to examine how spatial and structural patterns of wetlands affect bird species composition and richness. The following chapter adds a dynamic element to this, bringing in the effects of hydrological regimes and plant succession, and this theme is then further elaborated upon to discuss how these factors influence the numbers of birds in wetlands. Chapter 11 provides a brief com-

ment on how birds influence wetland development and community structure, particularly through consumption of food.

The remainder of the book addresses conservation issues. First we encounter a rather academic account (given in point form) of the conservation implications of bird biology (for example territoriality, migration), population, species and community approaches and the implication of conserving different types of wetlands, clusters of wetlands and maintaining water regimes and vegetation dynamics. The following chapter covers the assessment of the conservation value of wetlands through measures of habitat quality, species diversity and abundance. This section includes a useful discussion on the use of diversity and guild indices and other indices used in assessment such as the Habitat Evaluation Procedure and the Habitat Suitability Index. In Chapter 14 the reader is informed as to the current status of wetlands on a global scale, the losses that have occurred and the human impacts on wetlands, such as utilisation, disturbance and the invasion of exotic species. Wetland systems respond chiefly to a single driver: water. In this light, the next chapter addresses conservation and management strategies, suggesting that wetland management often involves maintaining much variation, even to extremes, rather than striving for regularity. Here the author also introduces some of the principles of conservation biology and the design of reserve systems, covering topics such as island biogeography and gap analysis, and discusses planning and impact assessment. In a discussion of population management, species-oriented management is rightfully deemed to be a dubious, often unsuccessful, approach. Finally, the author provides a comment on the state of wetlands and their conservation. Fortunately, wetlands are apparently incredibly resilient systems (at least in terms of their avifauna). Highly impacted wetlands often support huge numbers and variety of waterbirds, with sewage treatment wetlands being a prime example. Artificial wetlands such as salt pans and rice paddies are used by large numbers of wetland birds, and often extend the range of species. However, artificial open water bodies tend to replace more dynamic, shallow, richly vegetated wetlands. I could not agree more with the author in advocating the fact that we should concentrate on biological integrity, rather than just species richness, uniqueness and biodiversity 'hotspots', for example, when we devise conservation strategies.

This book covers an impressive array of topics on the diversity, ecology and conservation of wetland birds. On the whole, the author uses simple language and is at pains to define all technical terms used, in order to appeal to lay readers and students as well as professionals. Despite all of this I was disappointed by its unfinished feel, and in spite of a passion for the subject, I find some of its content laborious to digest. Awkward section headings, confusing ordering, the often disjointed or unpolished writing style and several minor errors gave the impression that the book had not gone through a final stage of preparation, and that coverage is frustratingly sketchy in places. Several chapters (for example Chapters 5 and 7), present a plethora of different facts, and lack logical flow or satisfying in-depth discussions of some of the more interesting topics covered. Nevertheless, the book contains a wealth of information useful to anyone working on wetland birds and their conservation, and each chapter is backed up by a long list of references for further reading as well as numerous references cited in the text.

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