

## Introduction

Hérons are large, popular, and in many cases spectacular birds found in aquatic habitats worldwide, especially in nearly all temperate and tropical wetlands. In recent years many aspects of their basic biology have become increasingly well understood due to the diligent study by many, worldwide. Understanding their conservation needs has lagged substantially behind an appreciation of their biology. Some populations are very small and localised, others have decreased, some have expanded their ranges, and a few are pests to human activities.

They use a variety of habitats, including many human-altered landscapes. Most species are highly dependent on wetlands, habitats that are under increasing pressure worldwide. Such wetlands are widely acknowledged for the importance of their critical functions in the environmental landscape. Recent understanding of heron basic biology has suggested that herons may reflect the ecological condition of their wetland habitat. The local status of heron populations may reflect the success or failure of conservation action in wetlands. More subtly, aspects of heron biology may also serve as indicators (or biological markers) of the health of wetlands or the success or failure of wetland conservation action. Wetlands generally support several species of herons that coexist by individually using the available mosaic of habitats and resources in different ways. The heron community (or guild) as a whole depends on robust functioning of these wetlands, since each species requires maintenance of its specific range of hydrology, vegetation features, productivity, and the diversity of the fish, amphibian, and invertebrate populations that serve as its prey. Many heron populations are migratory and depend upon conservation of both summer and wintering wetland habitats, not atypically located on different continents. Effective conservation of these wetlands of international importance depends in large part on local and regional socio-economic factors. Herons, to the extent that they require maintenance of wetland functioning, should be an integral part of sustainable wetland conservation.

The international aspect of heron conservation can scarcely be underestimated. Most species are found on more than one continent, and many species migrate across political or continental boundaries annually. Critical feeding or nesting habitats in one country can determine the status of herons in another country at another time of year. Although heron conservation must be undertaken on a local scale, it must be understood and coordinated on the international scale.

Given the increasing understanding of basic biology, an increasing appreciation of the need for local conservation action, and the existence of a worldwide network of heron and wetland specialists, it is an opportune time to synthesise and summarise the state of knowledge of the conservation needs of herons throughout the world. The goal of such a synthesis would be to capture the present understanding of conservation needs of this group, to make suggestions to guide their conservation and management, and to thereby contribute to emerging planning for sustainable conservation.

To accomplish this task we have drawn on the experience and expertise of a multi-national network of over 200 biologists and heron conservationists, many

associated with the Heron Specialist Group sponsored by Wetlands International and IUCN. These experts have accumulated significant databases and understanding over the past decades by studying heron biology and conservation in different parts of the world. Many have gained understanding of heron conservation needs on a local scale through their investigations of individual species, specific habitats, single regions, or specific issues such as contaminants or captive breeding. Much of this information has only recently become available, especially from remote areas in less-developed countries. It is critical to synthesise this new information, now available at the local scale, into a worldwide perspective.

More than fifteen years ago, *The Herons Handbook* (Hancock and Kushlan 1984) summarised what was then known on the biology and conservation of the group. Since its publication, there has been a tremendous increase in our knowledge of heron status and conservation needs. So we take *The Herons Handbook* as our base line and attempt to capture new information. It is our purpose to compile presently-available information and understanding of heron populations and conservation needs worldwide, especially changes and increases in knowledge since Hancock and Kushlan (1984), and to synthesise this information in a way that will be of value to conservation action at local, regional and continental scales.

We take two approaches. The status and conservation needs of herons are first summarised on a regional basis, in a series of chapters set at a continental or sub-continental scale. Then we summarise several critical issues of heron conservation in a series of topical chapters. These are followed by an accounting of specific action needs for species and populations we found to be in special need. For consistency and utility we follow the nomenclature for heron species of Hancock and Kushlan (1984). As must be expected, the listing we use is not necessarily the same as other listings of heron species, for example Sibley and Monroe (1990), IUCN (1996), Rose and Scott (1997), and AOU (1998), all of which differ from each other in treatment of some taxa. Our analyses are principally at the species level and continental scale, but where appropriate, especially in Chapter 17, we also treat subspecies or unnamed populations: Table 0.1 lists the species of herons covered and their worldwide occurrence. The species abbreviations of this table are used throughout the book.

This book is a work of many. Our authors are drawn from every continent. They and we have relied on a virtual army of correspondents, colleagues and collaborators who have generously shared their experiences from around the world. Many are specifically noted in the Acknowledgements section at the end of the book. It is our great pleasure to single out two of our colleagues for special acknowledgement. We dedicate this book to Luc Hoffmann and James A. Hancock, whose interests and leadership in heron conservation span decades. Without their innovative and persistent leadership, their mentorship of several generations of heron specialists, and their dedication to wetland conservation, the army of contributors to this book would never have developed. We hope their inspiration will transmit to the next generation of heron conservationists to whom fall the tasks of further supplementing our information base and of implementing the conservation actions suggested in this book.

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**Table 0.1** Herons of the world and their distribution.

Names <sup>1</sup>		Regions <sup>2</sup>							
Abbr.	Scientific	English	EUR	SWA	ESEA	AFR	AUS	NAM	SAM
WH	<i>Syrigma sibilatrix</i>	Whistling Heron							X
CpH	<i>Ptilerodius pileatus</i>	Capped Heron						X	X
GcH	<i>Ardea cinerea</i>	Grey Heron	X					X	X
GBH	<i>Ardea herodias</i>	Great Blue Heron		X				X	X
CoH	<i>Ardea cocoi</i>	Cocoi Heron						X	X
WNH	<i>Ardea pacifica</i>	White-necked Heron					X		
Bhh	<i>Ardea melanocephala</i>	Black-headed Heron				X			
MH	<i>Ardea humblyoti</i>	Malagasy Heron				X			
IH	<i>Ardea imperialis</i>	Imperial Heron		X					
SuH	<i>Ardea sumatrana</i>	Sumatran Heron		X					
GoH	<i>Ardea goliath</i>	Goliath Heron		X			X		
PuH	<i>Ardea purpurea</i>	Purple Heron	X					X	X
GWE	<i>Egretta alba</i>	Great White Egret	X		X			X	X
RE	<i>Egretta rufescens</i>	Reddish Egret						X	X
PdH	<i>Egretta picata</i>	Pied Heron			X			X	
SIE	<i>Egretta vinaceigula</i>	Slaty Egret				X			
BH	<i>Egretta ardesiaca</i>	Black Heron				X			
TH	<i>Egretta tricolor</i>	Tricoloured Heron				X		X	
IE	<i>Egretta intermedia</i>	Intermediate Egret		X			X		
WFH	<i>Egretta novaehollandiae</i>	White-faced Heron				X	X		
LBH	<i>Egretta caerulea</i>	Little Blue Heron					X	X	X
Sne	<i>Egretta thula</i>	Snowy Egret						X	X
LE	<i>Egretta garzetta</i>	Little Egret	X					X	
SwE	<i>Egretta euphotes</i>	Swinhoe's Egret		X				X	
ERH	<i>Egretta sacra</i>	Eastern Reef Heron	X		X			X	
CE	<i>Bubulcus ibis</i>	Cattle Egret	X					X	
SdH	<i>Ardeola ralloides</i>	Squacco Heron	X					X	X
IPH	<i>Ardeola grayii</i>	Indian Pond Heron		X					
CPH	<i>Ardeola bacchus</i>	Chinese Pond Heron			X				
JPH	<i>Ardeola speciosa</i>	Javan Pond Heron			X				
MIPH	<i>Ardeola idae</i>	Malagasy Pond Heron				X			
RBH	<i>Ardeola rufiventris</i>	Rufous-bellied Heron				X		X	

Table 0.1 Herons of the world and their distribution. — contd

Names <sup>1</sup> Abbr.	Scientific	English	Regions <sup>2</sup>						
			EUR	SWA	ESEA	AFR	AUS	NAM	SAM
Gbh	<i>Butorides striatus</i>	Green-backed Heron		X	X	X	X	X	X
AH	<i>Agamia agami</i>	Agami Heron						X	X
YCNH	<i>Nycticorax violaceus</i>	Yellow-crowned Night Heron						X	X
BCNH	<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	X		X	X	X	X	X
NNH	<i>Nycticorax caledonicus</i>	Nankeen Night Heron			X		X		
WBNH	<i>Nycticorax leuconotus</i>	White-backed Night Heron			X		X		
WENH	<i>Gorsachius magnificus</i>	White-eared Night Heron			X		X		
JNH	<i>Gorsachius gotsagi</i>	Japanese Night Heron			X		X		
MNH	<i>Gorsachius melanolophus</i>	Malayan Night Heron		X	X		X		
BBH	<i>Cochlearius cochlearius</i>	Boat-billed Heron					X		X
BTTH	<i>Tigrisoma mexicanum</i>	Bare-throated Tiger Heron						X	X
FTH	<i>Tigrisoma fasciatum</i>	Fasciated Tiger Heron						X	X
RTH	<i>Tigrisoma lineatum</i>	Rufescent Tiger Heron						X	X
NGTH	<i>Zonerodius heliosylus</i>	New Guinea Tiger Heron			X		X		X
WcTH	<i>Tigrionis leucolophus</i>	White-crested Tiger Heron				X			
ZH	<i>Zebrius undulatus</i>	Zigzag Heron							X
StB	<i>Ixobrychus involucris</i>	Streaked Bittern							X
LSB	<i>Ixobrychus exilis</i>	Least Bittern							X
LHB	<i>Ixobrychus minutus</i>	Little Bittern	X					X	
YB	<i>Ixobrychus sinensis</i>	Yellow Bittern		X		X	X	X	
ShB	<i>Ixobrychus eurhythmus</i>	Schrenck's Bittern			X		X		
CB	<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern		X	X				
DB	<i>Ixobrychus sturnii</i>	African Dwarf Bittern				X			
BB	<i>Ixobrychus flavicollis</i>	Black Bittern			X		X		
SAB	<i>Botaurus pinnatus</i>	South American Bittern			X		X		X
AmB	<i>Botaurus lentiginosus</i>	American Bittern						X	
EB	<i>Botaurus stellaris</i>	Eurasian Bittern	X	X	X	X			
AuB	<i>Botaurus poiciloptilus</i>	Australian Bittern					X		

<sup>1</sup> Scientific and English names follow Hancock and Kushlan (1984), abbreviations listed here are used throughout the book.

<sup>2</sup> EUR = Europe including the Mediterranean, SWA = south and west Asia, ESEA = east and south-east Asia, AFR = Africa and the Malagasy Region, AUS = Australasia and Oceania, NAM = North America, Central America and the West Indies, SAM = South America.