

**Handbook of the Birds of the World. Volume 16: 2011. Tanagers to New World Blackbirds. del Hoyo, J., Elliot, A. and Christie, D.A. (eds). Lynx Edicions, Barcelona. ISBN-978-84-96553-78-1. 893 pages, including 81 colour plates, 499 photos and 766 distribution maps.**

Volume 16 covers the last four families of the series, including two of the largest of all, the tanagers (283 species) and the buntings and New World sparrows (326 species), as well as the cardinals and the New World blackbirds, the latter including such spectacular birds as the orioles and oropendolas. Hence the great majority of the species covered are from the New World. Neither resident Indonesian birds, nor regular migrants are included in this volume. Indeed, the only species in HBW16 likely to occur are vagrant buntings such as Little Bunting *Emberiza pusilla*. As well as marking the end of the series, HBW16 is the last of nine volumes on Passerines, and is accompanied by a plastic-coated reference card which serves as an index to all the families in the last nine volumes.

HBW16 starts with a Foreword on 'Climate Change and Birds', by an expert in the field, Anders Pape Møller. As emphasized by Møller, climate change is probably the most important issue for birds, affecting them on a global scale and in an unprecedented way. The immensity of the predicted effects of climate change is on a scale that defies imagination, yet there are still many people, especially in the USA, who do not believe that climate change is man-made, or prefer to ignore the facts because they impinge on economic forecasts and profit-margins. Unfortunately this is largely the result of a tiny minority of vociferous climate skeptics with little or no standing in the scientific community at large. The fact is that more than 98% of scientists with the largest scientific impact agree that current changes in climate are a result of man-made changes to the atmosphere due to greenhouse gas emissions. The sooner that everyone understands this, the sooner the planet can try to deal with the problem. If we don't deal with it, not only is there the possibility that many species may become extinct, but there will be dramatic implications for hundreds of millions of people, especially those living in coastal areas.

The effects of a changing climate on birds is still poorly understood at the individual species level, mainly because research on this topic is relatively new and until very recently few studies had focused on the subject. What is clear is that climate change impacts on many aspects of bird behaviour and that the responses between closely-related species in the same habitat, or even between separate populations of the same species, may be very different. Behavioural factors affected by climate change include the date of the first day of singing, nest building and egg-laying, clutch size, duration of incubation and nesting periods, the number of clutches, reproductive success, dispersal and the time and duration of spring migration and even inter-specific competition. Such a complicated and diverse array of effects makes the subject horrendously difficult to study, and results are often hard to interpret.

Despite the difficulties of the subject, Møller provides the reader with a detailed overview of our current understanding of what we already know about the effects of our changing climate on birds. But having said this, I have to admit that I came away feeling that we are still a very long way from understanding or really

predicting what impacts climate change will have on bird populations – the Foreword raises as many questions as it answers. Although not written in a particularly user-friendly way, being rather scientific and technical throughout, this Foreword is nevertheless one of the most important to have appeared in the HBW series, and deserves more than a brief perusal.

Little is known about the effects of climate change on birds in Indonesia, although Noske (2010) has reviewed the relevant data from studies in Australia and its implications for Indonesian birds. Of greatest relevance is the finding that the geographical ranges of several high-altitude cool-adapted specialists in the Wet Tropics region of northeast Australia are contracting due to increasing temperatures. Bioclimatic and population modeling studies predict that many such species will likely become seriously threatened, if not extinct, with only a 1°C increase in average temperature. This has serious consequences for Indonesian birds, as most of the endemic species of Sumatra and Kalimantan, and a large number of species in West Papua, are montane specialists, which will be forced to shift their ranges upwards into increasingly smaller areas of suitable habitat. Long-distance migrants, in particular shorebirds and Palearctic migrants that over-winter in the Greater Sundas, may also be detrimentally affected, but the data required to determine trends are lacking for all but a few raptor species (see Noske 2010).

Avian systematics is presently undergoing profound changes and revision within families. In particular, the constituent parts of three families included in HBW16, Thraupidae (tanagers), Cardinalidae (cardinals) and especially Emberizidae (buntings and New World sparrows) are the focus of much debate, revision and ongoing molecular analysis. Numerous recent studies have shown that the traditional classifications so well-known to us have included a significant number of species that have been assigned to the wrong genera or even families. Since many of these revelations have occurred during the lifespan of the HBW series many of the required adjustments were impossible to include. Hence the systematics followed in HBW16 should be treated as provisional – the taxonomy followed is a traditional one. Nevertheless, the family accounts include considerable discussion of recent molecular analysis and an indication of which genera and species are in fact likely to be placed in different families from those in which they are included here. This makes for particularly interesting reading.

As with all recent volumes of HBW, the standard of all aspects of the book is very high. I was particularly taken by the introductory chapter on the tanagers, which is accompanied by a set of outstanding photographs. Looking at the distribution maps for the 283 species included here in the Thraupidae, I find it remarkable just how many of these have incredibly restricted ranges. The text on the remarkable diversity of breeding habits shown by the New World Blackbirds is also a fascinating part of this volume. The maps, as usual, seem comprehensive throughout although no doubt some minor errors have crept in – the map and text for the Greater Yellow-finch *Sicalis auriventris*, for instance, overlooks an isolated population that occurs in Sierra de la Ventana, southern Buenos Aires.

In conclusion HBW16 is yet another outstanding book from Lynx Editions which provides a fitting end to this wonderful series. In fact, it is not quite the end: in October 2012 Lynx will publish the last volume of the HBW series, Special

Volume: New Species and Global Index. Apart from an indispensable index covering the entire series, there will be several chapters on changes in macrosystematics and new species described after the publication of their respective HBW volumes, all of which will be illustrated with graphics and photographs. Furthermore, there are plans for the online continuation of the HBW series, as HBW Alive, which will provide the entire contents of HBW at the user's fingertips for a small subscription fee. HBW Alive will have all of the HBW texts, which will be continuously updated by a team of ornithologists, and all of the HBW artwork, which will be possible to see in several formats. The site will not, however, include photographs, videos or voice recordings. For these you will have to consult other sources, including the Internet Bird Collection (IBC, <http://ibc.lynxeds.com>), or, for sounds, Xeno-canto <http://www.xeno-canto.org> or the Avian Vocalizations Center <http://avocet.zoology.msu.edu>.

## Reference

Noske, R. A. 2010. Potential Impacts of Climate change on the Birds of Indonesia pp. 23-37 in Slowik, J. Pangau, M and Barua K. (eds) Impact of Climate Change on Biodiversity: Does Nature Conservation Need New Strategies? Proceedings of the International German Alumni Summer School, Manado, Indonesia. Cuvillier Verlag, Göttingen, Germany.

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