

Editorial

**Increasing the Capacity of Indonesian Ornithologists:
The Atlas of Indonesian Birds**

This year (2010) is the United Nations International Year of Biodiversity. Indonesia is a mega-biodiversity country, owing to its turbulent geological past and comparatively very recent political history, which has resulted in its inclusion of two entirely different biogeographic provinces (Sundaland and Australia-New Guinea), as well as the distinctive 'Wallacean' fauna between them. This, plus its tropical position and high mountains has conferred it with more endemic bird species than any other nation on Earth. But it also has an unenviable reputation as the country with the most bird species in danger of extinction. The main threat to Indonesia's birds and other wildlife is deforestation. In the last two decades, rainforests in Sumatra and Kalimantan (in the Sundaland biodiversity hotspot) were logged and cleared at a faster rate than in any other of the World's 25 hotspots (see Holmes, D. 2000, *Kukila* 11: 1-2). Another serious threat for many bird species is their capture for the illegal, yet still thriving, domestic pet trade. This puts additional pressure on some species that are struggling to survive in the remaining areas of protected forest. Finally global warming, caused by humans, may drive many cool-adapted montane endemic species towards extinction as the area of suitable habitat shrinks upwards.

Our knowledge of Indonesia's birds lags well behind that of birds in most other parts of the world. This is largely because Indonesia is a developing nation, with a large proportion of its people still living in poverty. Although Indonesia has produced some outstanding professional ornithologists, they are few in number and there are relatively few trained amateur ornithologists. The lack of good field guides until relatively recently has also hampered amateur participation in ornithology by Indonesian nationals. The first guides to the birds of all of the Greater Sundas (Sumatra, Borneo, Java and Bali) and Wallacea (Sulawesi, NT and Maluku) were published in 1993 and 1997, respectively, but the first Bahasa Indonesia versions of these books did not arrive until 1998 and 1999.

The most fundamental information we can obtain on a plant or animal species anywhere in the world is its geographical range. Without data on where a species is found, we cannot estimate its population size or determine its habitat requirements. For many continents and countries, such distribution information has been gathered through atlas projects. The aim of bird atlases is to accurately depict the distribution of all species living in a given country or region by systematically sampling as many parts of the region as possible. To achieve this,

the country or region of concern is divided into equal-sized cells on a geographical grid, usually based on latitude and longitude.

The first national bird atlas in Australia was initiated by the Royal Australian Ornithologists Union (now Birds Australia) in 1978, and after five years, the results were published in *'The Atlas of Australian Birds'*, in which distribution maps were produced for more than 650 Australian bird species. This book was a hallmark for Australian ornithology, and the database on which the maps were based was used widely by both government agencies and private industry. Its true significance was realized 30 years later, when Birds Australia completed its second atlas (*'The New Atlas of Australian Birds'*), which highlighted how the distribution of birds had changed over the intervening period. The data were collected over four years (1998-2002) by over 7,000 amateur birdwatchers, who submitted 270,000 bird lists and nearly five million bird records.

The concept of a bird atlas in Indonesia is not new. An attempt was made almost 20 years ago (see *Kukila* 5[1]: 1-2) to initiate a national bird atlas, but with little success. However the times have changed, and the number of Indonesian birdwatchers has grown enormously since that first attempt. Indeed small-scale bird atlases have already been, or are being, conducted, such as those in Bandung, Yogyakarta, Semarang, and Baluran National Park. However these are largely of local interest, and except for the last two, i.e. www.bio.undip.ac.id/sbw and www.balurannationalpark.web.id, unpublished.

It is time for a national atlas of Indonesian birds. None of the Indonesian field guides or other regional references (e.g. *'Important Bird Areas in Asia'*, *'Saving Asia's Threatened Birds'*) includes distribution maps of individual species, which would allow an instant appreciation of their geographical ranges. The data used in selecting Important Bird Areas are strongly biased towards well known, accessible and usually productive sites, such as national parks and *Cagar Alam*, which have been visited repeatedly and for which bird lists are readily available. Thus they ignore up to 90% of the area of all islands.

Why should Indonesia embark on a national bird atlas? There are two main reasons. Firstly we need accurate and comprehensive distributional data to determine areas of conservation value for birds and other wildlife. There is always a bias to survey the species-rich primary lowland rainforests, yet ironically areas containing this habitat are among the best surveyed. Yet studies of the biota in cities gave birth to a whole field of biology called urban ecology (e.g. Bonier *et al.* 2007, *Biology Letters* 3[6]: 670-673). Similarly, recent studies have shown that rehabilitated logged forests have a surprising number of birds, and hence, considerable conservation value (Edwards *et al.* 2009, *Conservation Biology* 23: 1628-1633).

How can we find enough birdwatchers to cover the vast area of Indonesia? This leads directly to the second, arguable equally, important reason for conducting a national Atlas. Indonesian ornithology has to date been dominated by westerners. The AIB will mobilise Indonesian birdwatchers. The Australian

atlases provide a good example. The RAOU probably had less than a thousand members before it instigated the first Australian bird atlas, but by the end of its five-year run, over 3,000 people were involved. By the end of the second atlas, this number had grown to over 7,000. The atlases gave birdwatchers an incentive to find out what birds lived around their home, and subsequently, a reason to visit places further and further afield. For many it developed into a regular recreation activity, with teams of people competing to find as many species as possible in their local cells.

The AIB should appeal to a broad cross-section of Indonesian people, from professional biologists and amateur birdwatchers to keen aviculturalists, photographers and hikers. The number of participants will grow as experienced ornithologists and birdwatchers train others with little or no bird-watching skills or knowledge. Apart from Burung Indonesia and IdOU there are probably 30 or more local bird clubs in Indonesia. The AIB will enhance the potential for such clubs to attract new members as it provides an incentive for birdwatching and a unified framework for collecting and collating data. It will also encourage networking between local clubs, fostering stronger partnerships and enhancing regional knowledge through information sharing.

How will it work? Like the Australian atlases, the AIB would be implemented in several stages, over at least 6 years. A pilot program could be initiated in the latter half of 2010 in Central Java to test field and administration procedures. The ability to cover all of the cells in a grid is determined by their size and accessibility. Using a 1-degree latlong cell, Java encompasses no fewer than 23 cells, while all but the extreme southwestern tip of Lombok fits within a single cell. Thus, Lombok could be surveyed at a finer scale (e.g. 10' x 10' cells). Of course, Java is densely populated, allowing access to most parts of the island. Kalimantan, Borneo and Papua, on the other hand, are not, so clearly some islands will be surveyed more comprehensively than others. Although some cells will be accessible by road, coverage of remote mountain ranges or islands will require expeditions by boat or even helicopter, the costs of which might be borne partly by funding agents and partly by participants.

The AIB would also provide an important role for the recently established Indonesian Bird Banding Scheme (IBBS), as banding programs invariably find many cryptic species that are not detected by standard bird surveys. Bird banding is the primary method for studies of bird populations, providing valuable information on the movements, lifespan and biology of recaptured individuals. Banding studies often generate a large amount of biological data on aspects such as morphometrics, ageing and sexing criteria, moult, breeding condition and health of birds, which provide the basis for many publications.

The Atlas represents a watershed project, with the potential to significantly increase public awareness of the uniqueness of Indonesia's birds and their dire future without greater protection. It will also greatly enhance the capacity of young Indonesian ornithologists to participate in international research, as more and more information is gathered about each bird species. With an increased

number of contributions from Indonesian ornithologists, *Kukila* should become an annual journal. With additional funding from increased subscriptions and other sources, *Kukila* should also become entirely bilingual, making it more accessible to Indonesian ornithologists and birdwatchers who have difficulty in reading English.

Surveying birds over the myriad islands of the Indonesian archipelago sounds daunting. The AIB represents an enormous challenge, but one that can be overcome with sufficient enthusiastic people and financial support over the next 6 or so years.

Finally, I sincerely apologise to all contributors to this volume of *Kukila* for the delay in publication, and thank them for their infinite patience and understanding.

Richard Noske
Chief Editor
