

## SPECIAL REPORT

# Atlas Burung Indonesia: a national bird atlas project for the world's largest archipelago

IMAM TAUFIQURRAHMAN, NURDIN SETIO BUDI, RUDYANTO, KARYADI BASKORO, MUHAMMAD IQBAL & ADE RAHMAT

## Introduction

Indonesia, the world's largest archipelago comprising 17,504 islands with nearly 240 million inhabitants in 2010 (Biro Pusat Statistik 2016), is about 1,900,000 km<sup>2</sup> in area and extends over 5,150 km from west to east. In this country of great biodiversity about 15% of the world's avian species can be found, and the number of species listed is still growing as the science of taxonomy continues to develop, new species are discovered and new first records are accepted. But concurrently, Indonesia's avifauna faces major threats: ongoing deforestation, habitat degradation and widespread toxic pollution from uncontrolled concessions granted to foreign investors, together with hunting for food and massive illegal capture for the cage-bird trade (van Balen 1999, Harris *et al.* 2016). Effective political leadership is needed to reinforce existing wildlife protection laws, to adopt more environmentally friendly strategies and to raise public awareness of conservation priorities.

## Early initiatives

In the face of the challenge presented by this vast geographical 'obstacle', how can scientific and human resources be best utilised to produce a national bird atlas? It has been a difficult question to answer; the first unsuccessful national bird atlas project, led by the late Derek Holmes, the

first editor of *Kukila*, started over 25 years ago (Holmes 1990) with a plan to publish checklists based on seven 'bio-regions', compiled from observers' contributions. Sadly the project faltered due to Derek's untimely death, with only three completed: Sulawesi (Andrew & Holmes 1990), Sumatra (Holmes 1996) and Kalimantan (Holmes 1997). A follow-up plan proposed by Noske (2009) unfortunately did not progress. On a small scale, a local initiative was more successful: in 1999, Johan Iskandar, Universitas Padjadjaran, Bandung, Java, organised a student project to map the distribution of birds in Bandung—27 species were recorded from nine city parks.

Then for almost a decade, no work was carried out and the only information on distribution were the maps provided with species accounts in the various field guides produced in that period; inevitably these maps are very generalised (and often inaccurate). Local initiatives in the form of the Java Bird Atlas were resumed in 2007 after Pertemuan Pengamat Burung Indonesia I (the first meeting of Indonesian birdwatchers held in Java); three areas were mapped, but apart from Semarang bird web covering Semarang and the surrounding area in Central Java (Baskoro 2009) which can be accessed online, the outputs were not widely available or were not published. However, information from these areas is still being collected. The third meeting of Indonesian birdwatchers, held at Cangar, Malang, East Java, in 2013, sparked the initiative to produce a national atlas. Nine local coordinators (*simpul*) and a national coordinator were appointed. In 2014 a working plan was developed and a new management committee formed, with a national board, cartographic team and new local coordinators.

**Plate 1.** Sample species map: Javan Hawk Eagle *Nisaetus bartelsi*. Red squares represent historical data (pre-2000) and blue squares recent data (post-2000).



## The Atlas Burung Indonesia project

As originally defined by Holmes (1990), the main objective of Atlas Burung Indonesia (ABI) is to map the distribution of all the bird species recorded in Indonesia, using a grid approach. There are 14,072 grid cells in ABI which match the national standard map published by the Indonesia National Geospatial Agency (Badan Informasi Geospasial <http://www.bakosurtanal.go.id/atlas-nasional-indonesia/>).

A standard form has been devised for data collection. Species names follow Sukmantoro *et al.* (2007), with updates following IOC (Gill & Donsker 2016) and other published information until the Indonesian checklist is updated. Local coordinators work on specific areas, compiling and checking data contributed by participants before sending it to the national committee; they also encourage local birdwatchers to participate. In order to achieve the best possible coverage, (historical) data from published reports, grey literature and birdwatchers' unpublished observations are also collected. All data are approved by the national board before a species map is released. Contributions from all visiting birdwatchers, irrespective of the species observed, are most welcome. Data may be submitted either by completing the form and sending it to the local coordinator or online at <http://atlasburung.web.id/>. Progress can be followed on Facebook (<https://www.facebook.com/atlasburungindonesia>). Further information can be obtained from [atlasburung@gmail.com](mailto:atlasburung@gmail.com).

By January 2016, the number of local coordinators had grown from nine to 25, and 8,293 records covering 668 species had been collated; about 37% of the records were pre-2000 (classified as 'historical'); post-2000 records comprise 5,191 entries (63%); 78% of the total are published records, with 22% direct contributions. On 11 February 2016, ABI launched the first species map, that of the national bird, Javan Hawk Eagle *Nisaetus bartelsi* (Plate 1), and a month later the second map, Spotted Harrier *Circus assimilis*, was released.

Many studies have pointed out the important role of collaborative work involving many participants to gather data (Lepczyk 2005, McCaffrey 2005). We hope that the ABI project will become a very useful tool not only to monitor bird distribution and abundance, but also be a way to increase citizen involvement and conservation awareness and to produce a baseline for better government policies (Donald & Fuller 1998, Gibbons *et al.* 2007, Dunn & Weston 2008). ABI has more than 1,600 species maps to produce and release; more local coordinators are required to cover the whole country, manage the raw data, develop tools that are easy to access and user-friendly (e.g. apps for smartphone) in order to attract more contributors, and develop a wider collaborative effort with government and non-government agencies. It is a big challenge but ABI is on track and progressing.

## Acknowledgements

Our thanks go to all participants, volunteers and coordinators for their tremendous efforts and support in the spirit of *memetakan burung, menyatukan Nusantara* (mapping the birds, uniting the nation).

## References

- Andrew, P. & Holmes, D. (1990) Sulawesi bird report. *Kukila* 5: 4–26.
- van Balen, B. (1999) *Birds on fragmented islands*. Wageningen: Wageningen University and Research Centre.
- Baskoro, K. (2009) Semarang bird web. Semarang: Semarang Bird Community. Available at <http://bio.undip.ac.id/sbw/>.
- Biro Pusat Statistik (2016) <https://www.bps.go.id/>. Accessed on 09/04/2016.
- Donald, P. F. & Fuller, R. J. (1998) Ornithological atlas data: a review of uses and limitations. *Bird Study* 45: 129–145.
- Dunn, A. M. & Weston, M. A. (2008) A review of terrestrial bird atlases of the world and their application. *Emu* 108: 42–67.
- Gibbons, D. W., Donald, P. F., Bauer, H.-G., Fornasari, L. & Dawson, I. K. (2007) Mapping avian distributions: the evolution of bird atlases. *Bird Study* 54: 324–334.
- Gill, F. & Donsker, D. (2016) IOC World Bird List (v 6.2). doi : 10.14344/IOC.ML.6.2.
- Harris, J. B. C., Tingley, M. W., Hua F., Yong D. L., Adeney, J. M., Lee T. M., Marthy, W., Prawiradilaga, D. M., Sekercioglu, C. H., Suyadi, Winarni, N. & Wilcove, D. S. (2016) Measuring the impact of the pet trade on Indonesian birds. *Conserv. Biol.* doi: 10.1111/cobi.12729.
- Holmes, D. A. (1990) Editorial and announcements. *Kukila* 5: 1–3.
- Holmes, D. A. (1996) Sumatra bird report. *Kukila* 8: 9–56.
- Holmes, D. A. (1997) Kalimantan bird report 2. *Kukila* 9: 141–169.
- Lepczyk, C. A. (2005) Integrating published data and citizen science to describe bird diversity across a landscape. *J. Applied Ecol.* 42: 672–677.
- McCaffrey, R. E. (2005) Using citizen science in urban bird studies. *Urban Habitats* 3: 70–86.
- Noske, R. (2009) Editorial: increasing the capacity of Indonesian ornithologists: the atlas of Indonesian birds. *Kukila* 14: i–iv.
- Sukmantoro, W., Irham, M., Novarino, W., Hasudungan, F., Kemp, N. & Muchtar, M. (2007) *Daftar burung Indonesia no. 2*. Bogor: Indonesian Ornithologists' Union.

**Imam TAUFIQURRAHMAN**

*Atlas Burung Indonesia National Coordinator*  
Email: [atlasburung@gmail.com](mailto:atlasburung@gmail.com)

**Nurdin Setio BUDI**

*Atlas Burung Indonesia Cartography Coordinator*

**RUDYANTO, Karyadi BASKORO & Muhammad IQBAL**  
*Atlas Burung Indonesia National Board*

**Ade RAHMAT**

*Atlas Burung Indonesia Data Management Coordinator*