

Counting the continent's waterbirds

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In 2008, we surveyed waterbirds across all major wetlands in Australia — the largest field survey of wildlife attempted in Australia. It took 2 months and three aircraft to collect the data, an undertaking not achieved on any other continent. The project was funded primarily by the National Water Commission and supported by the Commonwealth and state governments. We surveyed most of the major sites for waterbirds in Australia, providing data to inform national water-resource assessments and water-management planning as well as conservation of waterbirds and wetlands.

The first aim of the survey was to identify all major wetlands of importance for waterbirds, including those listed under the Ramsar Convention, in the *Directory of Important Wetlands in Australia* and additional wetlands that waterbird experts identified as important. Not all of these wetlands held water in 2008, so we used a combination of local knowledge and satellite imagery to determine which wetlands had water and should thus be surveyed. The aerial survey was timed to coincide with the end of the dry season in northern Australia, when wetlands had contracted and most waterbirds were concentrated in relatively small areas. In addition to the pre-selected wetlands, we randomly sampled a further 2,000 wetlands to provide more comprehensive information on waterbird numbers and distribution.

Overall, we surveyed a total of 4,858 wetlands across Australia in October–November 2008. We estimated that 4.6 million waterbirds of more than 100 species occurred across these wetlands, which represent a significant portion of all wetlands. Of the wetlands surveyed, few supported large numbers (>10,000) of waterbirds, with most supporting fewer than 1,000. The top 20 wetlands — 0.4 per cent of all the wetlands surveyed — held about 40 per cent of all the waterbirds estimated during the survey, and about half of all the waterbirds estimated occurred on only 41 wetlands.

Wetlands that supported high or extremely high concentrations of waterbirds (25,001–300,000) were mainly in northern Australia, Western Australia, central Queensland and western NSW. These included Eighty Mile Beach, Roebuck Bay and Lakes Gregory, Argyle and MacLeod in Western Australia; the Coorong, Lower Lakes and Murray Mouth in South Australia; and Nanjbagu Billabong in Kakadu National Park in the Northern Territory. There were also important complexes of wetlands which included some of these highly ranked sites. We could not survey all of the small wetlands that may have supported a few birds, but cumulatively they could contribute significantly to Australia's waterbirds. The wetlands we surveyed primarily provided habitat outside the breeding season, and there should



be another effort making sure breeding areas and many small wetlands are also included.

As well as identifying key wetlands for waterbirds, the survey was able to rank the more numerous waterbirds. The Magpie Goose *Anseranas semipalmata* was the most abundant species, accounting for 19.5 per cent of all waterbirds. The top ten ranked species or groups of species (Magpie Goose, small waders, Plumed Whistling-Duck *Dendrocygna eytoni*, Grey Teal *Anas gracilis*, large waders, egrets, Banded Stilt *Cladorhynchus leucocephalus*, Wandering Whistling-Duck *Dendrocygna arcuata*, Pink-eared Duck *Malacorhynchus membranaceus* and terns) accounted for more than 72 per cent of total waterbird abundance.

There are some clear implications for long-term conservation of waterbirds in Australia. We need to ensure that wetlands which provide habitat for waterbirds are protected from threatening processes. Many of them are already within the protected area network but their flow regimes are not always adequately protected (e.g. the Coorong and Lower Lakes). There are also likely to be a few wetlands of critical importance for waterbirds that must be managed either primarily for conservation or in a way that is sympathetic with waterbird use. Finally, although the distribution of waterbirds may change as the climate fluctuates, the habitats in northern Australia are very important for waterbirds and should be a focus for understanding and management.

This national waterbird survey showed that such a survey was achievable and could potentially be implemented regularly. Under the National Biodiversity Strategy, Australia is committed to long-term surveys of biodiversity and a regular national survey of waterbirds would provide valuable information on international, national and state responsibilities for aquatic biodiversity. Importantly, separating waterbirds into different functional groups (e.g. fish-eating, herbivores, invertebrate feeders) can provide valuable information on the effects of changes to rivers on entire ecosystems. There is community-wide understanding and appreciation that the status of waterbird communities on wetlands are indicative of their condition and sustainability of natural resource management.

Further reading

Kingsford, R.T., Porter, J.L. & Halse, S.A. 2012. *National Waterbird Assessment*. Waterlines Report Series No. 74, National Water Commission, Canberra. http://www.nwc.gov.au/_data/assets/pdf_file/0012/21720/Waterlines-74-National-waterbird-assessment.pdf

Above: Grey Teal, Chestnut Teal and Hardhead are some of the many duck species counted during the 2008 aerial survey of Australia's major wetlands—the largest survey of wildlife attempted in this country. Photo by Andrew Silcocks