

## Book review

### WHERE SONG BEGAN: AUSTRALIA'S BIRDS AND HOW THEY CHANGED THE WORLD

By Tim Low

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A great revolution in our understanding of bird evolution has taken place in recent years. New genetic analyses have turned long-standing assumptions about the relationships and origins of birds on their heads. One of the greatest surprises to the ornithological community, which assumed that the northern hemisphere was the cradle of oscine (songbird) evolution, was that the oscines evolved in Australasia, making Australia quite literally the land 'where song began'. Songbirds evolved, diversified and sang their songs on this continent alone for several million years, before eventually dispersing out of Australia and radiating throughout the globe. This discovery cast a whole new light on the Australian songbird assemblage, which had previously been regarded as remote and somewhat odd, but by no means central to songbird evolution.

In his award-winning bestseller *Where Song Began*, Tim Low provides a fresh perspective on the evolution and ecology of Australia's birds and their impact on the avifauna of the rest of the world. He argues that 'What singles Australia out is the large proportion of birds of special evolutionary or ecological interest' (p. 280), and explores the origins of our birds, how they have shaped our ecosystems, what makes them unique and why they have come to be that way.

In the first chapter ('Food worth defending'), Low highlights how unusual Australia is in having so many bird-pollinated plants. These plants, which are treasure troves of nectar, are defended ferociously by large, noisy honeyeaters. The interactions between these plants and pollinators have produced both 'the world's biggest flower-feeding birds and the world's tallest flowering plants' (p. 30). These plants not only provide nectar but are also a rich source of manna, lerp and honeydew (Chapter 2, 'Forests that exude energy'), providing a highly valuable and defensible resource that favours the despotic lifestyle of honeyeaters. Weaving together fascinating evidence from soil ecology, biochemistry and flower and beak morphology, Low develops a convincing explanation for why our honeyeaters are quite so large, noisy and irascible.

In Chapter 3 ('The first song'), Low describes the scientific breakthroughs that have allowed us to discover the true origins of songbirds, which make up more than half of the world's birds. With the discovery that songbirds evolved in Australia and New Guinea (Chapter 4, 'New Guinea: Australia's northern province'), many questions about the evolution of avian song, intelligence and breeding systems are turned upside-down. For instance, instead of marvelling at the diversity of breeding systems in Australia as a strange anomaly, we can now ask why some breeding systems (or the species that employ them) dispersed more successfully to the rest of the world than others. A surprising omission in the discussion of Australian birdsong is

the prevalence of female song in Australia. Like so many traits of Australian birds, female song has long been assumed to be anomalous and song has been assumed to be the prerogative of males; however, an Australian perspective has led to the discovery that song production by both sexes is widespread and ancestral in songbirds.

Two iconic bird groups are the focus of Chapters 5 ('Land of parrots') and 6 ('The last of the forest giants'). In Chapter 5, Low explores the ecology, intelligence and vocal learning of parrots, another group that has its origins in Australia. He highlights the recently discovered close phylogenetic relationship between parrots and songbirds, the two most intelligent groups of birds, and suggests that intelligence may have evolved in their mutual ancestor, facilitating the independent evolution of vocal learning in the two groups. In Chapter 6, Low discusses the evolution of giant birds and asks why Australia/New Guinea is the only region in the world to have giant forest birds. He explores the unusual relationship between cassowaries and humans, and discusses why the cassowary is the most critically important bird species to Australian ecosystems.

The scientific history and evidence leading to the discovery of the Australasian origins of many bird groups are the focus of Chapter 7 ('Australia as a centre of origin'). Low explores which bird groups have an Australasian origin, how convincing the evidence of an Australasian origin actually is, and why a few groups diversified extensively in Australia while many others show 'conservatism' over time.

The plants of Australia's northern forests are a mixture of old Australian endemics and species that have 'invaded' from Asia, and in Chapter 8 ('The forest makers'), Low investigates how birds have contributed to this unusual composition. He discusses the role of pigeons, cuckoos and metallic starlings, which carry fruit seeds across the continent and between islands, and waders, which may carry sticky seeds for thousands of kilometres, bringing plants from as far away as Scandinavia. Australian vegetation has in turn shaped our bird communities. Half of Australia's vegetation is grass-dominated, favouring seed-eating birds (Chapter 9, 'Of grass and fire'). Low argues that while parrots and pigeons dominated Australian grasslands, songbirds did not embrace seed until they dispersed out of Australia and escaped competition with parrots and pigeons. Some of these northern songbirds subsequently returned to Australia and flourished, particularly the finches of northern Australia.

Chapter 10 (Life in a liquid landscape) explores the challenges to birds of living at sea. Low addresses questions such as how birds at sea survive the extremes of weather and the lack of 'landmarks' to guide them to food sources, how their superb adaptations to life at sea constrain their adaptability on land, and why there is a global peak in seabird diversity near Australia.

In Chapter 11 ('A continent compared'), Low compares our avifauna to that of other continents and discusses what makes our birds unique. He argues that the most revealing feature of Australian birds is the aggression between species, which is in part a product of the abundant nectar in Australian ecosystems. He also notes the paucity of mammals in many ecological niches, including large predators, granivores and frugivores, opening the way for birds to diversify into a wide range of niches. It might

have been interesting to clarify whether these niches lacked mammals in our evolutionary past, given the unprecedented rate of mammalian extinctions in Australia.

In the final chapter ('People and birds'), Low contrasts the long history of exploitation of Australia's birds by hunters, farmers, the pet trade and ornithologists with the modern concern for bird welfare in the form of conservation efforts, birdwatching and controversial bird feeding.

This book is remarkable on many levels. First, Low proves to be a master at translating new scientific breakthroughs into a compelling and eminently enjoyable read that will bring a new perspective on Australian birds to readers irrespective of their ornithological background. Second, the diversity of sources drawn upon by Low make for a lively read, with the discussion skipping seamlessly between personal anecdotes, historical accounts, quotes from Shakespeare, the fossil record,

Indigenous folklore, and scientific facts and figures. Third, the astonishing depth and breadth of the research that has gone into this book guarantee that there is much that's new to learn about Australia's birds for even the most avid ornithologist. More than anything, I enjoyed and admired Low's 'big picture' approach, which although sometimes speculative, is bold and thought-provoking, and has much in common with the breadth of scope in Jared Diamond's books on human evolution. No book could be more appropriate for the readership of *Emu Austral Ornithology*!

Naomi Langmore  
Research School of Biology  
Australian National University  
Canberra, ACT  
Australia