



Book Review

Island Jewels: the Natural History of Western Australia's Islands

By Ian Abbott and Andrew A. Burbidge

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Western Australia (WA) has more than 3500 islands. Except for a few, such as Rottnest and Penguin Islands, off Perth, the capital of WA, and Barrow Island, off the Pilbara coast in WA's north-west, where there has been an active oil field for more than half a century, most of the others are unknown to most Western Australians, or visitors to WA. All of these islands are owned by the State of Western Australia, and most of the islands off the Kimberley coast in WA's north are under title of Aboriginal people.

Dr Ian Abbott and Dr Andrew Burbidge AO set out to make these islands better known with this well-illustrated book. Their objectives in producing the book were to:

make sure the islands' natural histories are better known, understood, conserved, and appreciated;

show how WA's islands offer a gloomy prognosis of the long-term future of many national parks and nature reserves on mainland Australia; and

demonstrate how islands offer significant protection from destructive processes currently underway on mainland Australia, that are leading to catastrophic losses of Australia's rich biota.

The book starts with a section 'Introducing the authors', with two pages devoted to their expertise on islands. There is no doubt that both Abbott and Burbidge are extremely well-qualified to write this book. Abbott's PhD was based on his research on the ecology and evolution of the avifauna of Tasmania and three large Bass Strait islands (publishing seven papers). He then did a post-doctoral fellowship on the ecology of Darwin's ground-finches of the Galapagos islands (resulting in seven papers). He followed that with another post-doctoral fellowship looking at the ecology of

silveryeyes on islands around the southwest of WA (15 papers). In productive retirement, he has been studying the ecology of WA's islands. In 'Appendix 3. Further reading', Abbott lists 21 of his publications from 1997 to 2016 relevant to WA's islands. Burbidge has had an enduring interest in WA's islands since his PhD at the University of WA in the early 1960s. In 1968, he joined WA's Department of Fisheries and Fauna, developing a database on the importance of the state's islands for nature conservation, visiting hundreds of islands, and conducting research on many of them. In 'Appendix 3. Further reading', Burbidge lists 16 publications relating to his work on islands from 1971 to 2017. He has continued this fascination with islands into his productive retirement.

Despite being known for my 50+ years of research on black cockatoos, conservation biology, and landscape ecology, I also have conducted research on island ecology. In the early 1970s, I spent 2 weeks with Leo Joseph (now Dr Leo Joseph, Director of CSIRO's Australian National Wildlife Collection) on Kangaroo Island, South Australia, surveying habitat for glossy black cockatoos. Also, in the early 1970s, I spent a week camped among the tiger snakes on Carnac Island, helping Lexie Nicholls (CSIRO Wildlife Research) census silver gulls and band nestlings in a thriving breeding colony. In the early 1980s, I was lucky enough to spend 1 week every month for 2.5 years conducting research on the avifauna of Rottnest Island. During that period, I regularly surveyed all of the lakes and swamps, and the coast, surveys which I continued opportunistically whenever I visited the island on holidays. In total, I spent the equivalent of 1 year living on the island. With Perry de Reberia, I published two editions of a book on the birds of Rottnest Island (Saunders and de Reberia 1993), and 18 scientific papers, including one on the conservation value of the island, drawing on data collected from 1905 until 2007 (Saunders and de Reberia 2009).

In addition, for 13 years until 1997, I was the Commonwealth Representative on the Royal Australian Navy's Garden Island Environmental Advisory Committee, the body responsible for overseeing the conservation management of Garden Island, an island in the same chain as Rottnest and Carnac Islands. In keeping with Abbott and Burbidge's accounts in their section 'Introducing the authors', I should note that I have visited islands off Jurien Bay, spent a week on Barrow Island at a workshop organised by Burbidge, and visited several islands off the Kimberley coast; Groote Eylandt; islands of the Great Barrier Reef; Lord Howe Island and Norfolk Island; several islands off New Zealand; Easter Island; the Galapagos; the Falklands; South Georgia; the Faroes; the inner and outer Hebrides; and several islands off the West African coast. In the light of my research and tourist interests in islands, I enthusiastically agreed to review the recently-published *Island Jewels: the Natural History of Western Australia's Islands*.

I have known Burbidge since I arrived in WA to join CSIRO's Division of Wildlife Research in early 1968, and worked with him in organising and publishing the results of an influential international conference/workshop on the role of remnants of native vegetation in 1985 (Saunders *et al.* 1987) and a regional workshop on ecological theory and biological management of ecosystems in 1987 (Saunders and Burbidge 1988). I have known Abbott since he arrived in WA in 1974, but I have never worked with him. I admire both for their scientific contributions, and also for their ground-breaking work in getting Aboriginal names for flora, fauna, and geography recognised.

For a number of reasons given below, I found this review a difficult task, and a quote from Abbott and Ron Johnstone OAM in a book review (Abbott and Johnstone 1997) is apt: 'In a small scientific community it is often difficult to offer constructive criticism without it being taken personally. Therefore, at the outset we emphasise that the following critique is provided in the spirit of improving any subsequent edition.'

Island Jewels consists of 13 chapters and three appendices. In Chapter 1, the authors explain the rationale behind the structure of the book. They start by stating 'We have written this book to share our knowledge of, and enthusiasm for, the islands of Western Australia (WA).' They state further that 'we think it now appropriate to distil the essence of what we have learned and present this knowledge and understanding for those with an interest in island life. We combine this with information gathered by many other scientists and natural historians.' They conclude this chapter with a section on the structure of the book. They decided to examine WA's islands by geography, starting from the tropical north, working south, and then east around the coast. They use common names for flora and fauna in the text, try to avoid jargon, and keep referencing to a minimum. The appendices provide scientific names, technical terms, and a list of the more than 480 publications they consulted.

Chapters 2–11 cover the regions from the tropical cays in the north, to the Archipelago of the Recherche in the east. Each of these chapters has an introduction and sections on: biological characteristics; biological attributes of particular islands; and factors leading to changes in the biota. The chapters end with a list of sources of information. Sources of information are selected references provided after idiosyncratic sub-headings, such as 'Aboriginal people, past and present', 'Scientific exploration and natural history', 'Vegetation and flora', 'Vegetation', 'Flora', and 'Weeds'. Chapter 12 covers the similarities and differences between islands of the different regions. The last chapter deals with nature conservation on Western Australian islands. The book is richly supplied with good maps of each region's islands and an excellent array of photographs of islands, their biota, and selected historical artefacts, such as the remains of Webbie Hayes' fort on West Wallabi Island, and the plinth marking the site of the British third atomic weapon test on the Montebello Islands.

In many chapters there are boxes; 13 devoted to a short biography of people, and several other boxes focused on some aspect the authors highlight. I understand why some individuals have been singled out, but the reasons for others escaped me. Harry Butler AO CBE is an obvious candidate, as a result of his pioneering work on environmental management on Barrow Island to reduce the impacts of oil field activities on an amazing natural environment. Despite the box devoted to his activities, his informative paper on managing disturbance in an arid environment (Butler 1987) was not consulted by the authors, despite it being published in a book co-edited by Burbidge (Saunders *et al.* 1987). A brief description of Butler's singular approach to conservation management would have made a useful contribution to the chapter dealing with Barrow Island.

Unfortunately, the way the book is structured has resulted in it being highly repetitive, far too long, and of limited scientific value. How many times do readers need to be told that Aboriginal people in some regions had access to water transport and could access islands, while others did not and could not? Every chapter deals with factors leading to changes in the biota, and there is a boring repetition to these sections. These could have been put in one chapter covering: human impacts, including by traditional owners and, more recently, by European invaders and their impacts by mining, over-harvesting of fauna, and tourism; exotic species, including introductions and control; climate including the consequences of storm-surges and human-induced climate change; ecological restoration; and conservation management, including translocation of indigenous species. In the book, there is a lack of consistency in the presentation of these factors leading to changes in the biota. For example, in the chapter on the Kimberley Islands there is a subsection on 'non-indigenous species', followed immediately by a subsection on 'Cane Toads'. To the best of my knowledge, cane toads are a non-indigenous species. In the chapter on

Houtman Abrolhos, there is a subsection on 'Mining' followed by one on 'Human impact'.

As mentioned earlier, I spent the equivalent of 1 year of my life either conducting research, or holidaying, on Rottnest Island between July 1986 and November 2012. During that period, I made 59 visits to the island, during all seasons, conducted 37 surveys of the salt lakes and swamps, 33 surveys of the coast, plus two circum-navigations of the coast by foot. On every visit, I noted all species of bird encountered. I have detailed knowledge of the ecology of Rottnest Island, and to a lesser extent of Garden Island. To illustrate my disappointment of this book, I use my comments on 'Chapter 9: Perth region' as an example to highlight the problems with the book as a useful compendium on WA's islands. Because the authors decided not to cite references for any of the information, one has to go to the end of the chapter to find out where they obtained their information. This is a problem throughout the book. They provide much more detail on studies of islands in other regions than they do of the better studied islands of Perth. For example, in several chapters they discuss species turnover, a subject of interest to Abbott. While they briefly discuss species turnover on Rottnest Island, there is no listing of the most detailed study of turnover of breeding birds on the island (Saunders and de Rebeira 1985). They discuss shorebirds and waterbirds, and base their discussion on bi-annual surveys from 1999 to 2020, but make no mention of the most detailed analyses of shorebirds and waders published in Saunders and de Rebeira (1986, 2009). They state "Two species (red-necked stint, sanderling) ostensibly increased, nine species (bar-tailed godwit, grey-tailed tattler, curlew sandpiper, ruddy turnstone, greater and lesser sandpiper, grey plover, common sandpiper, terek sandpiper) decreased, and three species (whimbrel, red-necked phalarope, common greenshank) varied little." Unfortunately, they are mostly wrong. Between 1983 and 2007, red-necked stints had not increased (1839 birds in February 1983 compared with 1207 in February 2007; nor had sanderlings (84 to 62). Bar-tailed godwits, grey-tailed tattlers, greater and lesser sandpipers, common sandpipers, and terek sandpipers are either vagrants on the island or visit in too few numbers to comment on any change. Curlew sandpipers (322 to 13) and ruddy turnstone (442 to 129) had decreased. As whimbrel are only ever present in ones and twos, rarely more than five, and red-necked phalarope and common greenshank are vagrants on the island, their assessment is correct.

During my research on Rottnest Island, with Perry de Rebeira and John Ingram, my technical officers, we banded many birds, with silvereyes and singing honeyeaters the most commonly caught. The Australian Bird and Bat Banding Scheme (ABBBS) provided the leg bands we used, and specified a size 3 band for singing honeyeaters. When we tried size 3 bands on the honeyeaters, we found that they were too tight and used size 4 bands, which moved

freely up and down the leg. We caught several honeyeaters that had been banded by university researchers, following ABBBS guidelines. To our horror, the size 3 bands were so tight birds had the blood supply to their feet cut off. As a result, the feet were rotting, and some had lost most of the leg as a result. With Dr Ron Wooller at Murdoch University, we established singing honeyeaters on Rottnest Island were 20% larger than the birds on the adjacent mainland, and this differential applied all the way up the coast, including between Barrow Island and the adjacent mainland (Wooller *et al.* 1985). As a result of our work, ABBBS specified singing honeyeaters on islands need to be examined closely and size 4 bands applied. Singing honeyeaters are mentioned in other chapters of *Island Jewels*, but the authors cite their own authority (Abbott and Wills 2016) for the size difference on Rottnest Island and make no mention of a nice example of Bergmann's Rule (Wooller *et al.* 1985).

Two surprising omissions in the chapter Perth region are any discussion of disease in animals on islands and elaboration of the impact of the incarceration of Aboriginal men on Rottnest Island. John Iveson and Dr Ray Hart conducted pioneering work on the impact of *Salmonella* infections in quokkas and other animals, including snakes, lizards, and birds, on Rottnest Island. They isolated over 40 sero-types of *Salmonella* and *Campylobacter* on the island. Some quokkas were carrying several sero-types at once, including the highly virulent *S. javiana*. This is a classic case of *Salmonella* as an indicator of environmental stress. *Salmonella* was rife on the island, but was absent from tammars and other animals on nearby Garden Island. This is a fascinating ecological story and I was disappointed that it was not mentioned, yet is clearly relevant. There are excellent publications on the subject (Iveson and Hart 1983; Iveson *et al.* 2007) available to the authors. In fact, Iveson and Hart (1983) was one of 12 papers in a special edition of the *Journal of the Royal Society of Western Australia* (Bradshaw 1983) devoted to research on Rottnest Island. Given their statement that they consulted reviews, as these provide many relevant references, it interesting that Bradshaw's edited volume was not listed, however, one paper in the collection was cited by Abbott and Burbidge, indicating they were aware of the special edition.

Rottnest Island was used as prison for male Aborigines, who came from as far afield as the Kimberley. It was a harsh and cruel period of WA's colonial history. Many men died and were buried in unmarked graves at the edge of the settlement at Thomson Bay. The prisoners were allowed to hunt on Sundays, a point noted in the brief reference to this period in the book. The impact of the men on the island's ecology must have been profound with their burning and hunting. This should have been discussed in Chapter 9, and again in the final chapter, as it demonstrates the need for sensitivity in managing for conservation on an island with high cultural significance because of the graves and the associated history, as well as a major destination for tourists.

In Chapters 3 and 11, there are classic graphs of island area and number of mammals (Chapter 3) and reptiles (Chapter 11). These graphs are beloved of supporters of the theory of island biogeography and are very informative. I gathered from these two graphs and comments scattered throughout the book, that there are ample data to have made comparisons of island area and reptiles, birds, and non-flying mammals, for many of the regions, and used these to highlight differences between regions. I found it strange this had not been done.

I could go on pointing out the errors, and the authors' failure to interpret data freely available, but I think the point is well-made. I note that the authors only list two of my publications in the nearly 500 they consulted. One was the second edition of my book with de Rebeira (Saunders and de Rebeira 1993), and the other related to my research in the wheatbelt of WA (Saunders 1989). They use this in Chapter 12 in a brief section on comparing remnants of native vegetation on the mainland with islands. This may sound like sour grapes, but it is not. I have long retired, and do not have to rely on further publications or citations for advancing my career. I am using their failure to consult research directly relevant to their book as an example of where a second edition of the book could be improved.

The book would have benefitted from a thorough editing. There are a number of inconsistencies. For example, Burbidge, Andrew is listed on 11 pages in the Index, however, this is not correct. On pages 49 and 100, he is not given as Andrew Burbidge, but as AAB. In the reference list is Edmiston, RJ & White, BJ 1974. But in the sources of information for Chapter 9, it is given as Edmonton and White 1974 as a reference for ecological restoration. There is no consistency in the order references are cited in chapter sources of information. Strictly speaking, references in the text should be listed chronologically, with the earliest first, acknowledging how knowledge is built up over time. But Abbott and Burbidge list some alphabetically, but not always. Trivial mistakes, but symptomatic of poor attention to editing detail.

I know nothing of the publisher, but when I went to the website *Book Reality Digital and Paperback Publishing Assistance* and clicked on 'Buy Now', I was directed to Amazon. I think the book is printed on demand; order and it will be printed and delivered. The quality of the colour plates is poor; a publication problem, not a fault of the authors who took most of the many photographs.

The first objective of the authors in publishing this book was to make sure Western Australian islands' natural histories are better known, understood, conserved, and

appreciated. The way to achieve this objective is for the book to be sought after and widely read. At over \$60 for this edition of *Island Jewels* and the failure to consult so many important references to WA's islands means the authors have not achieved that objective.

Denis A. Saunders
Weetangera, ACT 2614, Australia.
Email: carnabys@hotmail.com

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