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## BOOK REVIEWS

### Temperate Woodland Conservation and Management

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AS excellent as this book is, its title is something of a misnomer. Because the book contains 40 short chapters summarising the key findings and recommendations of many of Australia's leading woodland researchers and managers, the words 'Principles of . . .' should precede the existing title. While the book provides readers with a very good understanding of the major issues to be addressed in conserving and managing woodland habitat, as well as in producing effective and much-needed government policy, further reading is required from each chapter's extensive list of references to obtain the detail of how to conserve and manage woodlands.

The biodiversity value of woodlands in southern Australia is significant, particularly for bird and bat conservation. Because woodland soils were suitable for agriculture, between 80 and 90% have been cleared (Thackway, Chapter 31). The remainder is subject to many serious threats including grazing, weeds, fertilizer drift, fragmentation effects and altered fire regimes. This book is a timely summary of relevant research, much of which has been carried out in the last 10 to 15 years.

The book was funded by a grant from Land and Water Australia, whose federal funding has now ceased. The decision to close this organisation highlights the often short-sighted nature of government decisions, while the book (with many of its chapters based upon research funded by Land and Water Australia) highlights the sometimes unexpected beneficial outcomes from funding.

Although the editors state that their initial concern about 'substantial overlap and redundancy between

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chapters' was unfounded, it is the repetition of key conservation and management issues from several different authors which make this book so valuable: one author concluding that Noisy Miner numbers must be reduced could be dismissed as a personal view or an aberrant research finding; several authors coming to the same conclusion demands that the issue be fully addressed when managing a woodland remnant in eastern Australia, for example.

As the owner of a 103 hectare woodland/sandplain heath remnant in Western Australia, I found virtually all of the chapters to contain scientifically rigorous and practical (but not 'how to') findings, conclusions and insights into woodland conservation and management. The book's additional strength is that it allows a reader to delve as deeply as necessary into an issue of particular relevance to their patch of woodland via the extensive reference lists at the end of each chapter.

The book is not without its flaws. The few mistakes are minor: Streatfield *et al.* (Chapter 4) refer to bright and paler green colours in a black and white photo, for example. The use of the word 'restore' instead of revegetation, rehabilitation or repair as it applies to degraded environments is unfortunate, since it wrongly implies that woodland can be returned to its exact pre-disturbance quality within a reasonable timeframe.

More importantly, the book does contain some significant deficiencies, with three important issues only lightly addressed. The first is the use of artificial nest boxes. Many chapters emphasize the value of retaining old trees, including isolated paddock trees, because of nesting and roosting hollows that occur only in trees of reasonable age. Many other chapters reiterate the crucial need to revegetate degraded landscapes and woodland patches. However, no authors combine these two important issues together by stating that artificial nesting hollows can provide roosting and nesting sites during the 50 to 100 years that tree seedlings take to grow large enough to develop usable hollows. Van der Ree (Chapter 18) refers to artificial hollows as a short-term solution and Lumsden and Bennett (Chapter 16) mention the need to retain dead hollow-bearing trees, but further consideration of this important issue was absent.

The second omission is a chapter on fire and its role in creating and maintaining woodlands in a healthy and diverse condition. Historian Sylvia Hallam (1979) researched reports and diaries of pre-European settlement explorers and early settlers to show that Aboriginal people used fire extensively to manage those parts of the landscape which provided them with useful resources or services. Only Gilfedder (Chapter 37) makes more than a passing reference to fire and she pleads for 'woodlands that are regularly burned, never burned, burned in all seasons, hot fires, cool burns, and so on'.

Thirdly, if woodlands grow on soils deemed valuable to post-European settlement farmers, then surely they must have been valuable to Aboriginal people as well. Unfortunately, no information is provided on indigenous Australians' use of woodlands over tens of thousands of year; a pity, since current woodland managers could have gained many valuable insights from an understanding of such long-term practices.

Several authors refer to the serious problems posed by nutrients such as nitrogen and phosphorous entering woodland remnants from agricultural land and allowing weeds to dominate the understorey. The findings of wetland researchers are relevant here, since they have found that naturally occurring bacteria supplied with carbon will denitrify nitrogen and return it to the atmosphere. Conversely, phosphorous needs to be physically adsorbed by materials rich in iron or aluminium oxides, otherwise it will remain biologically available as organically bound P (such as the organic matter produced by weeds) which is seasonally recycled.

Gibbons (Chapter 3) believes that high quality or relatively unmodified woodlands should not receive the highest priority for conservation actions, with the focus instead being on moderate to poor quality remnants which are under greater threat. However, the best quality remnants also have the highest biodiversity and other values to lose if they are not adequately conserved and managed.

Overall, there is much to commend this publication. Owners and managers of woodlands, together with state and federal policy makers, will find it to be a source of many valuable and thought-provoking facts, conclusions and recommendations relevant to long-term woodland conservation and management. In particular, the emphasis placed on working with the private owners of woodlands should not be underestimated, since much of Australia's remaining woodlands exist off-reserve on private properties.

For two reasons, therefore, it is unfortunate that the various calls by several authors (e.g., McIntyre — Chapter 27) to return large areas of cleared farm land to woodlands rely so heavily on non-existent or poorly developed economic incentives such as carbon farming as discussed by Freudenberg (Chapter 34). Not only will such an outcome enhance the current rural depopulation caused by mechanisation and technological improvements to agriculture, but, if the fate of Australia's woodlands rests on a political decision to favour conservation over economic and social returns, then history suggests that the future of woodlands is bleak. Fortunately, in south west WA at least, many landowners are not waiting for government action, so the challenge for researchers and bushland managers is to actively and cooperatively work with private landowners to achieve mutual benefits.

For those doubting that woodlands can be repaired, several authors express their excitement at the presence of a huge area of high quality woodland in southern Western Australia known as the Great Western Woodland. In fact, this woodland provided some 30 million tonnes of timber to the early gold mining industry around Kalgoorlie around 100 years ago. The natural regeneration of large areas of this extensively clear-felled woodland suggests that, through research and commitment, major gains in conserving and managing Australia's remaining woodlands can be readily achievable.

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