

Terrestrial Vertebrate Fauna Assessments for Ecological Impact Assessment

S.A. Thompson, Thompson G.G., (2010)
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THE growing realization that humanity's wellbeing and longevity are directly related to the ecological health of our planet has led to an explosion of legislation and regulations in recent times. Ecological impact assessments (EciAs) are an important part, and becoming an intrinsic step in future developments, especially during the planning process. In *Terrestrial Vertebrate Fauna Assessments for Ecological Impact Assessment* emphasis is placed on conducting vertebrate fauna assessments to support EciAs in Western Australia. We congratulate Dr. Scott A Thompson and Dr. Graham G Thompson for writing this highly practical book. Dr. Scott Thompson is a Senior Environmental Scientist for an environmental consulting firm, with strong interest in vertebrate surveys. Dr. Graham Thompson is a member of the Centre of Ecosystem Management and a partner in Terrestrial Ecosystems. Together, they incorporate their knowledge to produce a book that effectively addresses a number of key issues associated with EciAs.

Chapters 1 to 20 address the techniques and methodology involved in conducting terrestrial vertebrate assessments to support EciAs. The intentions of the authors are clearly aimed at improving the scientific integrity of conducting EciAs, with strong emphasis on good scientific ethics and rigorous methodology. The first seven chapters in *Terrestrial Vertebrate Fauna Assessments for Ecological Impact Assessment* are generally short and lay the foundation blocks to the book. These chapters provide a brief overview of the purpose of the book, legislation, principles and ethics, objectives, geographical context and risk assessment. The layout and structure is logical, and well defined; the writing style is easily comprehensible. The use of the "Suggested appropriate practices" boxes placed at the beginning of most chapters was an excellent tool to guide the reader through the key points of that chapter. The use of an example risk assessment table in Chapter 7 (p. 34) was excellent.

Chapters 8 to 10 are well written with easily understood text placed in a progressive logical order towards chapter 11 "Survey Design". Chapter 8 covers a variety of factors that may hinder EciAs, whilst Chapter 9 follows on from Chapter 7 in further explaining the benefits of using a two stage process over a generic survey for conducting fauna

assessments. In Chapter 8 the authors state that, "When we have prior knowledge of the fauna assemblage for a particular site/area a generic fauna survey may not be required" (p. 45). However, they do not indicate how "recent" the prior work must be to still be considered relevant to the area. The authors could have emphasized caution on the time frame between surveys, especially as habitats have the potential to change drastically and information can become outdated or irrelevant. Furthermore, the authors (in Chapter 9) consider faunal sacrifice as acceptable where developments take place in non sensitive areas, though one development may be insignificant but cumulative developments have seen most of Australia's landscape highly degraded. Chapter 10 looks at special cases that need to be treated with precaution.

Chapter 11 and 12 are dedicated to designing surveys and vouchering specimens. Whilst the survey design is a very significant step in EciAs, Chapter 11 is more representative of the issues relevant in designing a fauna study. Hence, this chapter provides a "guideline" (rather than an exact, prescriptive methodology) on how to design a survey Chapter 12 is an extremely short chapter that addresses the important points of how to correctly voucher specimens.

Chapters 13 and 14 focus on different vertebrate groups — how they are surveyed and marked. Throughout both these chapters the authors make effective use of available literature, and recommend several books for more information on each group. Chapter 15 follows on nicely, and deals with the observation of significant fauna pertaining to Western Australia. However, there is a lack of detail in particular photographs of some species.

Reporting fauna assessments and surveys, the fauna databases, and the systems used to store field data are discussed in Chapters 16, 17 and 18. Chapter 16 outlines what is required in a fauna survey report, indicating what information should be presented in the results and discussion sections of a report. Although readers may find this a useful chapter, the specific requirements of what needs to be contained within a report is determined by who commissions the survey. Importantly, the authors point out that information in fauna reports needs to be more freely available, especially if other ecological impact assessments have been carried out (or are being carried out), thereby negating the need to reinvent the wheel.

Finally, Chapters 19 and 20 deal with fauna management plans and evaluating impacts respectively. This is an excellent chapter that provides real examples of management related plans ending by demonstrating the principles of adaptive management. A table here is put to good use to help illustrate what is required for a fauna management plan (e.g., the objectives, targets, key performance

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indicators, person responsible, etc.) by using an example from a mining tenements plan (pp. 188–189).

The book is well researched with almost 500 references including many highly regarded experts in the field of ecology, zoology and so forth. A minor blemish in the formatting on page 155 and a

grammatical error on page 195 are the only true errors found in this book. Thompson and Thompson's *Terrestrial Vertebrate Fauna Assessments for Ecological Impact Assessment* makes a valuable contribution toward establishing the missing links between vertebrate fauna surveys and EcIAs.

At the End of the River: The Coorong and Lower Lakes

Paton, David Cleland (2010)
ATF Press and Australian Theological Forum,
Hindmarsh, SA
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THIS is a marvelous text (29 cm × 23 cm, 247 pp) on the Coorong and other waters at the mouth of the Murray River in South Australia, their social and environmental values, and the problems which beset them. The Coorong itself is an unusual 110 kilometre long but narrow lagoon, running southeast along the coast from the Murray mouth. Authored principally by Associate Professor David Paton of the University of Adelaide, the text also contains vignettes by 22 other contributors. Its ten chapters are illustrated by 150 colour photographs (no less than 35 photographers contributed) and 35 or so delightful sketches. Almost 300 references are included, plus 50 tables and diagrams.

Paton packs a lot into his introductory chapter — An Ecologist's Perspective — explaining the Coorong's woes, and how over-allocation of Murray River water to human use has increased salinities within the system, but importantly not beyond the point of redemption if environmental flows can be provided. He states his aims in writing the text are to introduce readers to the ecology of the area, to make current knowledge more accessible, to illustrate the interaction between scientific knowledge and management actions, and generally create more interest in the system. "Ultimately, the book is about growing the awareness that there are significant impacts of failing to live sustainably. If environmental flows are not re-instated, one of the casualties could be the Coorong and Lower Lakes".

The subsequent text then moves inland from the sea, beginning with the ocean beach (wave action, sand movement, vehicle impact, birds, cockles, fishing). The dune area separating the Coorong from the sea is the Younghusband Peninsula, and it is the subject of Chapter 3 (formation, historical accounts, early settlers, concerns for the vegetation — all nicely illustrated) and Chapter 4 (plant ecology, surviving mammals, and much on birds).

The Coorong Lagoons are next and are given four chapters. Much detail is given on hydrology, salinity, structure of the Murray mouth and its current-day dredging, local drainage schemes, fish/fishing, aquatic vegetation and invertebrates, with by far the largest chapter going to waterbirds and their use of the Coorong, which received Ramsar listing on 1 November 1985 after being earlier "ranked amongst the top ten sites in Australia for six migratory waders and five Australian waders". Australian shorebirds also abounded. Detailed bird numbers are given for recent years, showing declines in some species, but reaffirming that the Coorong still meets "the waterbird criteria for listing as a Wetland of International Importance under the Ramsar Convention". This leads to a comment that recent suggestions that the Coorong is dead or dying are misleading, but that nevertheless the areas of highest salinity are in need of remediation.

The penultimate chapter concerns the Lower Lakes, the impact of the barrages built across their lower extremities in 1940, the impact of carp since 1970, and of water level decreases in recent years due to diminished flows within the Murray River system. The topical issues of opening the barrages to allow sea water into the Lower Lakes, and of acid sulfate soil amelioration, are both addressed.

The final chapter, on the future of the Coorong and Lower Lakes, comprises some 7,500 words and begins "The future of the Coorong is in our hands". While the author does not know the amount of water required to properly sustain the environment of the area, current volumes are assessed as grossly inadequate. Engineering solutions are detailed, both historical and present-day, and the impacts of climate change discussed. The final section of the chapter is again "The future of the Coorong is in our hands", with a plea by the author for a water allocation to the Coorong which would, as a matter of hydrological course, also secure the environmental amenity of the Lower Lakes.

This is a must-read book for anyone interested in the aquatic systems of the Murray River, in conflicts involving competing uses of water, and in conservation in general.

One potential criticism concerns the lack of detailed information and stories relating to the Ngarrindjeri people, the traditional owners of the

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