2 The value of long-term research and how to design effective ecological research and monitoring

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The first section of this chapter is a modified version of a scientific article published in 2012 in *Austral Ecology*: Lindenmayer *et al.* (2012) The value of long-term ecological studies. *Austral Ecology* **37**, 745–757. The content remains largely the same as the paper, therefore the appropriate source for citation is the original article. However, edits and additions have been made to ensure the text is sufficiently contextualised within the book.

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INTRODUCTION

This chapter comprises two sections. The first sets the case for why long-term ecological studies, including those based on networks of long-term plots, are critically important in ecology, environmental management and policy making for the ecologically sustainable management of natural resources. This first section is largely a reproduction of a scientific article in the journal *Austral Ecology* (Lindenmayer *et al.* 2012a). This reproduction is presented with the permission of Wiley-Blackwell – the publishers of *Austral Ecology*.

The second section of this chapter focuses on the factors that underpin an effective long-term ecological study. These include (among others): having an appropriate and sound study design (often assisted by an expert statistical scientist); framing pertinent and evolving scientific questions; securing access to ongoing funding; and having dedicated and enduring leadership (including succession planning).

THE VALUE OF LONG-TERM ECOLOGICAL RESEARCH

Effective ecosystem management requires a robust understanding of the long-term dynamics of