

BOOK REVIEW

**STEEPLAND FORESTS:
A HISTORICAL PERSPECTIVE OF PROTECTION FORESTRY
IN NEW ZEALAND**

by Peter McKelvey

Canterbury University Press, Christchurch, New Zealand.
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In reviewing Michael Roche's detailed "History of Forestry in New Zealand", Professor McKelvey identified protection forestry as a facet warranting a more in-depth treatment. Rather than leaving it at that he turned his considerable energies to accounting for this special part of New Zealand's forest history. This author is well placed to do this being a key figure in the National Forest Survey undertaken in the 1950s, and having a strong background in research and management of such forests, through to holding the Foundation Chair of the School of Forestry, University of Canterbury.

Forests on the steep mountain lands of New Zealand are defined as protection forests because they are considered essential to minimise soil erosion, protect lowlands from flooding, maintain water quality, and also maintain *in situ* environmental values. This book is the most comprehensive treatment available of this aspect of New Zealand forestry. Peter McKelvey not only traces the history of protection forestry in New Zealand, but also the evolution of thought about the significance of protection forest functions. The book comes at a time in our history when comparatively little attention is paid to off-site (flood mitigation) functions of forests, and the author effectively argues the need for this to be carefully evaluated.

The first section of the book is devoted to the nature of the protection forests and begins by presenting a broad overview of the composition of indigenous protection forests and how this relates to environment and past disturbances (Chapter 1). The second chapter provides an informative summary on the history of protection forestry in Europe, North America, and finally New Zealand. Chapter 3 describes the research history of protection forestry—including the early phase of botanical exploration by Sir Joseph Banks, Thomas Kirk, and Leonard Cockayne, and later surveys of the protection forests—and ends with a brief overview of more recent detailed ecological research. This chapter begins to expose the complex nature of many issues relevant to the management of protection forests. Chapters 4 and 5 cover the hydrologic consequences of protection forests and their role in slope stability. The historical accounts strongly demonstrate a relationship between the interest in protection forests and the occurrence of devastating storm events, the most recent important event being Cyclone Bola and its impact along the east coast of North Island. Each event

exposes our lack of knowledge and the author concludes the first part of this book with some suggested avenues for further research.

In the second section of this book, Peter McKelvey addresses the question of protecting the protection forests. In Chapter 6 we see that towards the end of last century legislation protecting these forests was based on the premise that we need to protect off-site values, whereas today the Conservation Act 1987 emphasises the intrinsic values of forest ecosystems. Chapter 7 reports that large areas of protection forest susceptible to fire have been destroyed by human activity, and discusses the vulnerability of the remaining forests under certain conditions. Introduced animals present another threat to protection forests, and in the longest chapter (8) of this book the spread, impact, and control of red deer are discussed. Greatest success in controlling red deer was achieved by the development of a deer industry based on feral animals. McKelvey correctly points out that, although red deer impacts on forest understorey species have been clearly demonstrated, the assessment of their impact on canopy tree species requires a more complete understanding of forest regeneration dynamics. Chapter 9 deals with what is currently the major animal of concern in protection forests, the brushtail possum. Although earlier their effect on vegetation was debated, it is now accepted they do have important impacts and that these are more wide ranging than previously thought. Finally, Chapter 10 deals with a range of other animals including goats, chamois, and thar. It is somewhat surprising that thar which largely frequent alpine areas are considered rather than say sika deer, which tend to frequent forest. The chapters on introduced animals do not consider several species which have important impacts on protection forests, such as the stoat (*Mustela erminea*). Further, over the last 5 years it has been recognised that global change issues, such as increasing atmospheric carbon dioxide levels, are also relevant to protecting the protection forests.

The final section of the book deals with the management of protection forests. Chapter 11 begins by reviewing the development of relevant policies and legislation, indicating the strong emphasis in the past on the role of protection forests in regulating erosion and catchment water yields. The chapter concludes by describing some regional schemes such as those in the Northern Urewera catchments and the Hokitika catchments. The large financial investment, nature of the developments, and dedication of a committed staff are aptly portrayed for each of these regions. Chapter 12 covers the establishment of exotic protection forests at locations throughout the country. The work at Craigieburn Conservation Park features strongly in this chapter, from the early days of trialling a wide range of exotic and indigenous species, to recognition of the rapid growth rates achieved by some exotic species in these mountain environments. The chapter concludes by considering the spread of exotic conifers into tussock grasslands, and the importance of browsing in restricting their spread. Given the armoury currently being considered for rabbit control, there may be some interesting developments in this respect. The final short chapter concludes by considering some other uses of protection forests, including what is currently the major activity in these forests—recreation.

Professor McKelvey has produced a carefully researched text in an easy-to-read style. The book comprehensively treats most aspects of protection forestry in a detailed manner. The author's background and enthusiasm for this topic imparts a personal touch in the text describing influential characters and their role in a special part of New Zealand's history. Because the former New Zealand Forest Service had a key role in protection forestry, its

activities are a major component of the text. Photographs, including colour, are widely used to enhance the text. Although most are exceptionally good reproductions, in a few instances the quality lapses. Each chapter is comprehensively referenced and the text contains a useful bibliography.

This book should strongly appeal to a wide audience of those interested in the ecology and management of New Zealand's mountainlands. This would include readers with interests ranging from the role of science in protection forestry through to the management of this resource, including those interested in New Zealand's cultural history related to lifestyles in the "back country". Professor McKelvey should be congratulated for his account of this part of New Zealand's history and for making available information not readily obtained elsewhere.

Rob Allen