

The Natural History of Canterbury

Edited by

Michael Winterbourn, George Knox
Colin Burrows, Islay Marsden



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Third Edition

Edited by
MICHAEL WINTERBOURN, GEORGE KNOX
COLIN BURROWS, ISLAY MARSDEN



CANTERBURY UNIVERSITY PRESS

*In loving memory of this book's designer.
CUP Managing Editor Richard King.
1948–2008*



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Half-title page: Rock outcrop, Gebbies Pass.
Title page: Lake Lyndon, Korowai/Torlesse Tussocklands Park.

KELVIN McMILLAN

Page 11: View from Mount John.

JOHN MAILLARD

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PREFACE

The first book titled *The Natural History of Canterbury* was published in 1927 by the Philosophical Institute of Canterbury as 'a series of articles on the early history of the province and on the history of scientific investigations, as well as some of the results of this investigation'. The articles provide fascinating insights into the attitudes of early Cantabrians towards the land, flora and fauna, and show that in the early 1900s the study of the province's natural history was already in good hands. In the preface to that volume the president of the institute (botanist Robert Laing) commented that he hoped there would be an opportunity to consider the subjects discussed in the *Natural History* at greater length; however, it was 40 years before his hope was realised in the form of a new book with the same name.

The Philosophical Institute of Canterbury, subsequently the Canterbury Branch of the Royal Society, was established in 1862 and is the oldest continuously active scientific society in New Zealand. To recognise its centenary, the council of the Canterbury Branch decided to publish the new *Natural History of Canterbury* with George Knox of Canterbury College (which became the University of Canterbury in 1961) as editor. Some 32 natural scientists and colleagues contributed scholarly articles to the volume, which was published by A. H. & A. W. Reed in 1969.

Compared with the original book, it had much greater breadth and depth, and provided an authoritative and up-to-date account of the state of knowledge of Canterbury natural history. Background chapters were provided on geology, soils, climate and the effects of humans on the environment, and the 11 chapters devoted to the vegetation together constituted the most comprehensive account of regional botany published at the time. Other chapters provided accessible accounts of the ecology of terrestrial, marine and freshwater fauna, including what was then known about the extinct avifauna.

George Knox played the key role in stimulating the writing of the present book. He laid down the ground rules and approached many of the contributors, assisted by a small editorial advisory panel. It was agreed that the book would be as comprehensive as possible in dealing with the natural history of Canterbury, and would be strongly referenced to enable students, scientists and others interested in natural history ready access to an increasingly extensive literature. To add to its appeal and instructional value, a large number of plates and figures would be included. Of the authors who wrote chapters for the 1969 edition, three – George Knox, Colin Burrows and Vida Stout – have contributed to this one. They are joined by 37 others, mainly Canterbury residents and all experts in their fields.

Since 1969, knowledge of Canterbury's environments, biota and pre-history has expanded enormously and this growth is reflected in the third edition of the *Natural History*, which has much more detailed chapters on most topics including vegetation patterns, marine and fossil mammals,

amphibians and reptiles, terrestrial invertebrates, freshwater fauna and Quaternary vegetation and avifauna. Furthermore, there is frequent reference to the conservation, restoration and environmental management issues that now confront the region.

On behalf of my co-editors, I thank all the authors for their detailed contributions to the book, the council of the Canterbury Branch of the Royal Society of New Zealand for its support and sponsorship, and both the Community Trust and Environment Canterbury for financial contributions to the cost of publication.

Finally, it gives me great pleasure to acknowledge the fine work done by Richard King, managing editor of Canterbury University Press, who took responsibility for the design and pre-press production of the book, and Rachel Scott, project manager and text editor. Rachel's no-nonsense approach and ability to communicate effectively with often 'touchy' academics kept the project from foundering on innumerable occasions; I greatly enjoyed working with her.

Michael Winterbourn

PUBLISHER'S NOTE

The third edition of *The Natural History of Canterbury* has been a long time coming. It is almost 40 years since George Knox and A. H. & A. W. Reed produced the second edition. Published in 1969, it is still an essential volume on the shelves of scientists, researchers and interested laypeople up and down the country and beyond.

Work began on this edition some 15 years ago, once again driven by George Knox as general editor and this time with Canterbury University Press as publisher. Substantial progress was made, but for various reasons the project languished: some chapters written, some half written, others still a twinkle in the author's eye.

In 2004 Canterbury University Press resolved to resurrect the project. So much scientific progress had been made in so many fields of the region's natural history, it was vital that this be collated in a comprehensive and scholarly volume. All contributors were contacted and advised of this decision. Some were initially understandably sceptical, and loath to commit time to updating and revision of their initial work. However, most authors soon became committed and set about the work required. For many, this involved a substantial amount of time on top of an already hefty teaching and research workload.

In some cases authors were not in a position to re-engage with the project, and replacements had to be sought. It also became clear that, with the passage of time, scientific perspectives had changed, new areas of research needed to be tackled and additional authors sought.

It became apparent that George Knox, in his mid-eighties and heavily involved in the final stages of a second edition of his *Biology of the Southern Ocean* (CRC Press, 2006) was not in a position to complete the work alone. Rachel Scott was appointed as project manager, an exceedingly complicated role in a multi-authored book of this magnitude, and convened an editorial advisory panel, consisting of Michael Winterbourn, Islay Marsden, Colin Burrows, Dave Kelly and Andy Sturman, to steer the *Natural History* towards publication.

Three years on, the result is a substantial and comprehensive addition to the body of literature on Canterbury's natural history, which promises to become an essential reference for decades to come.

Because of the rather organic nature of the project in its initial stages, there is some individuality in such matters as chapter length, the level of detail addressed, and the method of incorporation of figures and illustrations. Some chapters are densely referenced; others rely to some extent upon Further Reading lists and fewer endnotes. In general, common names are given with their scientific equivalents at first mention, although there exists some spirited disagreement among contributors on a few aspects of nomenclature. In such instances, an individual author's preference has been preserved within his or her chapter.

Enormous thanks are due to all contributors; to George Knox for his tireless interest in the project despite declining health; to Rachel Scott for her painstaking and often inspired assembly of what was, at one stage, a seemingly impossible jigsaw; and to Michael Winterbourn, Islay Marsden and Colin Burrows, who have taken the project to their hearts and volunteered countless hours in an effort to find missing pieces of the puzzle. The third edition of *The Natural History of Canterbury* would not have seen the light of day without their combined efforts.

Advances in printing technology have allowed the use of a wide range of colour illustrations, and Canterbury University Press is grateful to the many photographers who provided specific and general images to complement the text. Some illustrations required substantial credits and, rather than clutter the page, these appear in full at the end of the relevant chapters, before the references.

Tim Nolan (with assistance from Marney Brosnan) was commissioned to prepare numerous maps and diagrams from a bewildering variety of sources. Michael Winterbourn devoted many hours to a final read of the completed chapters. Andrew Parsloc undertook the challenging task of indexing the book. Kelvin McMillan generously provided the handsome photographs that appear on the front cover, the endpapers and preliminary pages. The image opposite was provided by John Maillard.

Richard King

Managing Editor, Canterbury University Press