

Island Colonization: The Origin and Development of Island Communities

Ian Thornton and Tim New (Eds), 2007
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THE theory of island biogeography revolutionized the study of island colonization and extinction. Since its inception in the 1960's, it has allowed scientists and historians alike to understand reasons for patterns of species distributions on islands, as well as assisting conservation managers to model extinction risk of species populations on isolated islands. Volcanic islands represent a "tabula rasa", or clean slate for the study of island biogeography, as invariably, resultant volcanic activity decimates almost all observable life. As such, they form the ideal study unit for examining colonization of islands. The Krakatua eruption of 1883 is such an example, with the resultant blasts scouring the Krakatua islands of almost all life, thus allowing scientists to track the colonisation and successional stages that followed. Another example is Surtsey Island, which emerged from the sea 40 km south of Iceland in 1963. It represented a unique opportunity to examine colonization of a previously non-existent and thus uninhabited island. Given that there are many influences and avenues governing the origin and colonization of life on islands, *Island Colonization: The Origin and Development of Island Communities*, edited by Tim New, represents an important book compiling information on this topic.

Island Colonization: The Origin and Development of Island Communities represents the third instalment in the Ecological Review series developed jointly by the British Ecological Society and Cambridge University Press. The book covers the expansive work that Professor Ian Thornton, a world-renowned island biogeographer, undertook throughout his lifetime, primarily on volcanic islands of the Pacific. The manuscript for this text was initially written by Ian Thornton; however, he died in 2002 before being able to complete the work. Professor Tim New, a friend and colleague of Ian Thornton at La Trobe University, followed up on Ian's express wish, that should anything happen to him, he would take on the task of finishing the book.

This book covers many aspects of island colonization, and is divided up into 16 chapters, which are themselves divided into five parts; theoretical and experimental studies, natural recolonization after devastation, the recolonization of devastated islands, assembly of biotas on new islands and colonization and assembly. While the text examines island colonization in the pure sense of the word "island", it also examines it in terms of isolated habitats (or islands) within a sea of contrasting

habitat. For example, the text examines the patterns and processes that led to the recolonization of devastated habitat surrounding Mount St Helens following its May 1980 eruption (Ch. 3 and 4), and includes colonization of "islands" of water, such as Lake Wisdom in the caldera of Long Island, north of New Guinea (Ch 9). If I was to look for one of this book's drawbacks, it would be that almost every reference to island colonization refers to that following some form of volcanic activity. It does not, for example, include any reference to the recolonization of islands ravaged by fire, nor the broad temporal-scale paleontological patterns of island colonization following sea-level changes associated with ice-age events. While I do not criticize the authors for the absence of such material in this book, I feel that a title such as "Volcanic Activity and the Origin and Development of Island Communities" or something similar incorporating the word volcanic, would have better informed the reader of the content of the text.

Given the specific nature of the content however, this book is incredible in its detail and coverage. *Island Colonization: The Origin and Development of Island Communities* covers topics as specific as the exploitation of organic fallout by pioneer predator and scavenger invertebrates following volcanic activity to the examination of successional changes in vegetation development on specific volcanic islands. While a large part of this information is gleaned from previous studies, there is a great body of material collated from Ian Thornton's work on the Krakatau Islands, as well as the many islands he visited and studied on with other colleagues. Furthermore, there are many chapters in this book that examine, in great detail, the complete colonization and development history of specific volcanic islands, compiled from studies undertaken over many decades. For example, Chapter 12 outlines the colonization and development of Surtsey Island, incorporating information since its "birth" from the North Atlantic in 1963, through its course of plant and animal colonization, with information gleaned from over 35 years of studies on the island. Chapter 13 outlines the colonization of Motmot Island; a unique island in the middle of Wisdom Lake, which itself is a water-filled caldera on Long Island in New Guinea. This chapter deals with rather unique circumstances in terms of isolation to colonizers, whereby the caldera walls on the opposite shores of Lake Wisdom within which Lake Motmot lies, create an additional physical barrier to dispersal for oceanic dispersers. This chapter includes details as specific as colonization on Motmot Island by ant fauna and the mode of dispersal and colonization by figs. Chapter 16, the final chapter, nicely compiles the information presented in the book, drawing on information compiled from large-scale natural experiments as well as lab-based experiments of colonization, culminating in a summary of the

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colonization process. The book ends by suggesting the steps that need to be undertaken to protect and encourage future research on island ecosystems.

Accompanying the abundant detail in content of the text is the incredible detail in the figures and tables. At every available opportunity, the written information is supplemented with maps, graphs and tables that outline the patterns and processes that underlie the strong scientific framework of this text. Thankfully, all maps provided are presented with a scale, allowing the reader to understand and appreciate the extent of successional change conveyed in the text. The use of 416 references in the

book is testament to the degree of detail provided throughout the chapters of the book and includes sources such as scientific papers, reports and expedition findings from as early as 1879.

This book is a valuable addition to the library of any island biogeographer, especially those studying volcanic islands. Even though the content of the text focuses primarily on island colonization following volcanic activity, the ideas presented on patterns of colonization would also be useful for those studying population dynamics and gene flow between isolated habitat islands.

Animals of Arid Australia: out on their own?

**Dickman, C., Lunney, D. and Burgin, S. (eds.) 2007, Royal Zoological Society of New South Wales, Mosman, NSW.
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COMPRISING the proceedings and plenary session of the forum 'Animals of arid Australia: out on their own?' held in Mosman, New South Wales in 2004, this publication consists of 17 papers that bring together a range of themes on the fauna and land use of Australia's arid zone. The authors encompass various disciplines and backgrounds, and a wide range of skills.

The arid zone makes up almost 70 % of Australia's land. Extreme temperatures, unpredictable rainfall and diverse landforms are characteristic of this environment. Present land use for resources and agriculture, introduced species and changing climatic conditions are threats facing the inland environment. This book showcases the research being undertaken to increase the understanding of the fauna that persists in arid regions, the ecological processes driving these inland systems, and the associated threats.

Focusing largely on examples from western Queensland and western New South Wales, the papers cover a wide array of issues and taxa, including the impact of introduced grazing stock and water point closure, perceived grazing competition between sheep and kangaroos, and the influence of human induced hydrological changes on freshwater mussels and their distribution.

The management of these arid lands and the desert-dwelling fauna is categorized by a diverse range of government and non-government players which play a part in shaping Australia's environment and its future. This book explores these players and presents a range of management issues facing the

arid environment and the underlining governing policies and priorities.

This publication succeeds in meeting its main objective — to promote public interest in arid Australia. Containing an array of full colour photographs, this book beautifully captures the diversity of arid fauna and landscapes. The papers provide an informative read for those studying conservation or with an interest in arid regions. It provides a great platform to open up public debate on the conservation and land management of arid Australia. At \$30, this colourful and interesting publication is good value.

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