Foreword

The monsoon tropics region of northern Australia is one of the world's few remaining vast natural landscapes. Much of it is still held as Indigenous estate, with traditional landowners applying management honed by an intricate knowledge of its nature acquired over countless generations. For most other Australians, it remains a poorly known frontier. Some see that frontier and naturalness as a backwardness, and seek instead the opportunity to engineer major development that will bend the land to commercial productivity. Whatever the future brings, it is important that decisions that are being made now and in the future are grounded in robust evidence. A critical component of that evidence concerns the significance of the natural values of the region, the way those values are embedded in and dependent on broader ecological processes and the extent to which those values may be subverted or compromised by changes in the way the land and waters are managed, used or transformed.

This book is an important piece of that evidence base, and it represents a major advance in knowledge of the nature of northern Australia. Intermittently over the past 200 or so years, collectors and scientists have skimmed the surface of the biology of Australia's monsoon tropics. Over the past 40 to 50 years, more detailed studies have been done, and this research has revealed that the area is an important conservation stronghold, particularly but not only for native mammal groups that have been lost or declined extensively elsewhere in Australia. Many studies over this period have described in increasing detail the inventory and ecological fit of plants, mammals and birds in monsoonal northern Australia. Collectively, these studies show clearly that the region is distinctive ecologically and has areas of endemicity that are significant at national and international levels. Over the past decade or so, there have also been novel landmark studies of less charismatic vertebrate groups—freshwater fish, frogs and reptiles—with the results of these studies showing a richness, endemicity and evolutionary antiquity that far surpassed previous estimates. Scientists have worked their way beyond the constraints of the frontier and found much that is fascinating and important; we are beginning to understand how the country works, how much of what is in it is special and how its nature is remarkably long established. Of course, much of this knowledge, and recognition of value, has been long held by Indigenous people living in, and caring for, this country.

With, to date, two notable exceptions, invertebrates have been largely neglected in this biological journey beyond the frontier. Those exceptions are somewhat quixotic and their study has been driven by the dedication of a few specialist invertebrate biologists. Since the 1980s, a series of surveys, initially by Alan Solem and colleagues, has documented the quite extraordinary radiation, species richness and narrow endemicity of land snails in the Australian Monsoon Tropics and particularly in the Kimberley—although much of this trove remains undiscovered. The ant fauna of monsoonal northern Australia is a much more conspicuous feature of these environments and self-evidently ecologically important. Studies by Alan Andersen and colleagues have also demonstrated a remarkably high richness for ant species, with local diversity among the richest in the world. These studies

have also had major ecological underpinnings and have helped influence the environmental management of the region.

This book brings knowledge of a third major invertebrate group out of the shadows. Butterflies, and day-flying moths, would seem an obvious candidate for inventory and research. Surely, everybody loves butterflies. Most are readily observable, and their nuanced variations in colour, pattern, shape and behaviour represent a tractable but intriguing challenge for identification for many observers. But, as evident in the history of collection revealed in this book, their study in monsoonal northern Australia has long been limited and ephemeral. To aggregate these sparse fragments of previous information, and then to systematically seek to redress the deficiencies, is the quest described in this book. Michael Braby and co-authors have done a magnificent job in meeting this challenge. For the first time, the butterfly fauna (and, enmeshed with it, much of the day-flying moth fauna) is systematically catalogued, with painstaking care for precision and justification. This—the thorough and reliable documentation of what is there—is the grounding needed for any assessment of natural values.

But this book is much more than a checklist of butterfly (and diurnal moth) species. It places these species carefully within a biogeographical, ecological and conservation context. It describes, for every species, their phenology, likely movement patterns, diet and habitat relationships. It provides an atlas of known records and quantifies this distributional range. It illustrates and describes the species. It provides advice on management. It is an enticement and entrée for anyone with any passing interest in the wonderful world of butterflies in this country. For people across a broad spectrum, it will provide much knowledge on every relevant aspect, but also show that much remains to be discovered. Still, we live in a natural world with so much to discover.

The evolutionary and distributional patterns revealed here for butterflies are similar to but somewhat different from those recently revealed for other major taxonomic groups. Species richness tends to decline from higher rainfall to lower rainfall areas; some species have very extensive distributions across the broad arc of savannah woodland environments, whereas other species are far more narrowly confined, with some centres of endemism; and species vary markedly in their habitat associations. The ecological web in which butterflies live is more intimate than for many other taxonomic groups, with narrow host plant specificity (the plant species on which their larvae depend) for many butterfly species, and also remarkably intricate relationships of some butterfly species with particular ant species. Butterflies present archetypical examples of the life-giving links that connect different components of the environment. We cannot maintain butterflies in this system unless we also conserve those plants on which they depend. And, in many cases, the retention of those plants is dependent on appropriate fire regimes, the control of introduced pests and weeds, and appropriate constraints on habitat destruction or modification. This book provides a systematic and comprehensive body of evidence about values that we should respect and how these values should be managed.

The co-authors have invested decades of their lives in the research that underpins this book. Initially, those studies may have been disparate and anecdotal. However, as evident in this book, the research became orderly, directed, systematic and increasingly comprehensive. Increasingly, it had more strategic point and purpose. This book represents the culmination of that effort. It is a landmark achievement and a wonderful legacy for future generations of biologists, and indeed for anyone with an interest in nature in northern Australia and of the future of this country. Michael Braby and his co-authors know their study animals, they are passionate about them, they make that knowledge fascinating and hence this book allows its readers a remarkable opportunity and privilege to see and get a feel for this country from the perspectives of other lives.

— Professor John J. C. Z. Woinarski,
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