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Publisher: Peter Vine
Production Director: Paula Vine
Typesetting, design and illustration: Jane Stark (Trident Press)

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British Library Cataloguing in Publication Data: A CIP catalogue record for
this book is available from the British Library.

Front cover photographs:
Back cover photographs:
ISBN: 1-900724-74-X

THE EMIRATES A NATURAL HISTORY





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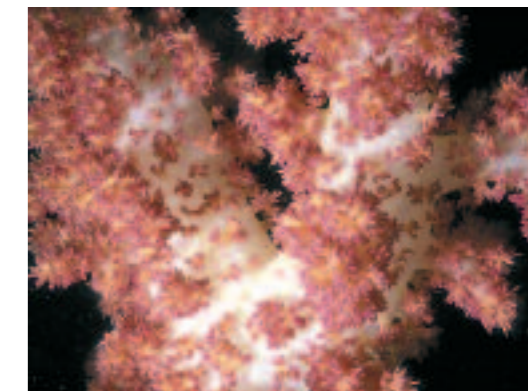
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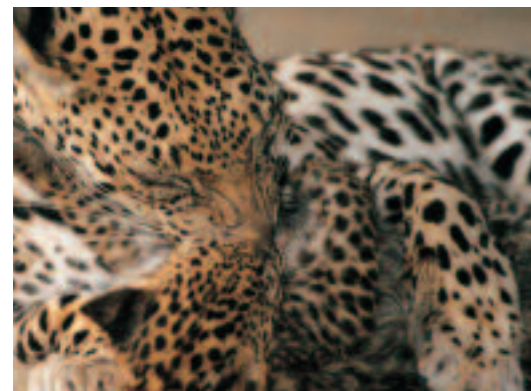
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FOREWORD



THE UNITED ARAB EMIRATES IS A RELATIVELY SMALL COUNTRY and, to the outsider at least, appears to be little more than a collection of barren deserts and mountains, bordered by shallow seas. Yet its territory, both terrestrial and marine, is of enormous scientific interest.

Its geology, best known for extensive reserves of sub-surface hydrocarbons, has much to tell us about the way in which the Arabian Peninsula was formed and contains fossils from several periods, in some cases representing the best exposures of such fossils to be found anywhere in the world.

Its terrestrial flora and fauna display remarkable adaptations that permit them to survive amid the harsh and forbidding landscape, while offshore, both in the Arabian Gulf and in the Gulf of Oman, there is a variety of marine life that has much to offer the dedicated researcher.

Lying at the junction of three biogeographical zones, the biodiversity of the UAE is not only considerable but is also of international importance, although it lacks the abundance of species to be found in regions where climate is less harsh.

The first recorded scientific observations of the geology, flora and fauna of the UAE go back over a century and a half. Over the course of the nearly three and a half decades since the UAE was established, the pace of scientific research has grown dramatically – in line with the country's progress in other fields. Many species new to science have been found, and knowledge has been gained that is of global significance.

This book provides an overview of the knowledge that has so far been amassed on the country's geology, palaeontology, natural history and environment. It represents, at the same time, a celebration of the dedication shown by the professional scientists and others, who have devoted so much effort to its collection and interpretation. It will, I hope, provide an absorbing and illuminating insight into the country.

Through bodies such as the Environment Agency – Abu Dhabi (EA-AD), formerly the Environmental Research and Wildlife Development Agency (ERWDA), the Government of the UAE is demonstrating its commitment to the study and conservation of the country's environment and its biodiversity.

The UAE's former President, His Highness Sheikh Zayed bin Sultan Al Nahyan, was quoted as stating that: 'A people that knows not its past has neither present nor future.' If we are to fully understand our past, we must understand the nature of the land and seas in which our ancestors lived, and if we are to fulfil properly our responsibility to provide for future generations, we must hand on to them the environment, flora and fauna of which we are today merely the custodians.

This book will, I believe, make an important contribution to that process and will, at the same time, help to introduce to others something about the country of which we are so proud.

Hamdan bin Zayed Al Nahyan

INTRODUCTION



THE GEOLOGY, PALAEOLOGY, HABITATS, flora and fauna of the UAE, both of its land areas and of the adjacent seas, are becoming increasingly recognised by the global scientific community as being of major importance. Studies of the land itself, its mountains and deserts, have provided valuable information about the evolution of the planet over the last 400 or 500 million years. In more recent geological time, studies of the country's fossils have shown that the UAE has much to reveal about life on earth six to eight million years ago, when Arabia was still connected to Africa, and when the Red Sea had yet to be formed.

Studies of the habitats, flora and fauna that exist today have also shown that the UAE has a lot to contribute to the broader sum of scientific knowledge. Our seas contain some of the most extensive seagrass beds in the world, home to globally endangered species of animals such as turtles and the dugong. In our mountains, plants and animals are still to be found that display remarkable evidence of their ability to adapt to changing climates and increasing aridity over many thousands of years. Several million birds a year pass through our skies on their migration from the heart of Asia southwards to Africa, or eastwards to India and beyond.

All of the above topics, and much more, are included in this book, which seeks to be an accurate, scientifically valid review of the country's geology, palaeontology and current environment and wildlife, but which also seeks, at the same time, to present the data in a way that will be comprehensible to the general reader as well as to the specialist. Through this, we hope that it will disseminate the information more widely, outside of the scientific community to the broader public, both in the UAE and elsewhere.

The authors who have contributed the chapters that follow come from a wide range of disciplines, and are also of a wide variety of nationalities – evidence in itself of the way in which the UAE has been able to attract the interest of the international scientific community. All have a high reputation in their particular field and many have experience of studying the country that goes back 20, 30, or even 40 years. At the same time, all are engaged in current research, continuing to delve yet deeper into their particular areas of study.

The institutions with which the contributors are, or have been, involved are also of some significance. Among them are represented bodies with a global reputation, such as Yale University, Britain's Natural History Museum and Imperial College, London, as well as local UAE bodies, such as the Environment Agency – Abu Dhabi (EA-AD), formerly the Environmental Research and Wildlife Development Agency (ERWDA), of Abu Dhabi, which is proud to be associated with the publication, and the Environment and Protected Areas Authority (EPAA) of Sharjah. This combination of international and local expertise is a factor that has always been present in scientific research in the Emirates, and is something that has contributed substantially to the success of the work that has been undertaken.

Finally, it should be noted that while some of the contributors are professional full-time scientists and research workers, others are dedicated amateurs who, through their own studies, have become experts in a particular field, earning reputations that are on a par with their professional colleagues. This too is a feature of scientific research in the Emirates. In a country where research began only in the last few decades, there is much still to be done, and there is a role both for the professional and for the dedicated amateur.

This book, then, presents an overview of the current state of knowledge about the geology, palaeontology and environment and wildlife of the UAE. In itself, this will prove, we hope, of interest both to specialists and to the general reader.

At the same time, however, it has another purpose – as a handbook of what we already know that can, at the same time, be used as a guidebook on what needs to be done. After all, the conservation of our environment and wildlife is a topic that concerns all of us, not merely those who are directly engaged in scientific study.

Conservation is now widely recognised as one of the major issues facing mankind. Only through sustainable utilisation of natural resources can man hope to continue to co-exist on this planet, where habitats are being degraded on a daily basis, and where species of flora and fauna are becoming extinct at an ever-increasing rate.

The Government of the UAE has adopted the conservation of the environment and wildlife as a key aspect of its strategy. Through bodies such as EA-AD and EPAA at the level of individual emirates, and the Federal Environmental Agency at a national level, this strategy is being implemented, supported by a wide range of legislation.

At the same time, however, in a country that is developing as fast as the UAE, the task of conservation and protection is always a matter of urgency, while the passage of legislation, although important, is only a precursor to the lengthy, complicated and continuing process of ensuring its implementation.

Through the data contained in this book, government policy-makers and others concerned with conservation, such as non-governmental organisations, will be able more easily to identify the challenges, such as those of habitat degradation or rapid industrial development, and then work to devise and implement the necessary course of action.

The process of scientific research is, of course, never complete. During the process of writing the material for this book, new discoveries have been made, and further information has been identified on the diversity of the wildlife of the Emirates, past and present. Thus at the beginning of August 2005, the presence of the honey badger or ratel was first confirmed in the UAE, when three animals, two live and one dead, were found near Ruwais. That such a large animal can avoid detection for so long is an indication of how much more work remains to be done on UAE fauna.

Sadly, two of the contributors have died since submitting their material. Peter Whybrow, one of the founders of UAE palaeontology and chief author of the fossils chapter, was a professional scientist of high standing. Edward Wiltshire, co-author of the provisional checklist of UAE macroheterocera (the larger moths), spent 40 years as a British diplomat, first serving in the Arab world in 1932. In his spare time and after his retirement, continuing to work until his death at the age of 94, he earned a well-justified reputation as one of the region's top entomologists, an example, par excellence, of the role that the interested and talented 'amateur' can play. The contributions of both of them to our knowledge of the natural history of the Emirates – past and present – are gratefully acknowledged.

In this volume, it is our intention to provide a detailed overview that will stand the test of time as an introduction, a handbook, and as a guide for those researchers yet to come. If it meets those tests, we will all be satisfied with the results of our efforts.

*Mohammed Al Bowardi
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Environment Agency – Abu Dhabi*

