

Acknowledgement

This important publication presents a comprehensive introduction to the Terrestrial Environment of Abu Dhabi Emirate. The publishing of this book would not have been possible without the contributions made by:

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Terrestrial Environment

of Abu Dhabi Emirate



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FOREWORD



A bleak, barren, inhospitable wilderness is an image that springs to mind for many people when they think of the desert. Yet to the initiated, the desert can be a place of immense beauty, teeming with life and full of interest. Here in the Emirate of Abu Dhabi we are blessed to be surrounded with such beauty, doubly so when we consider the additional diversity from our coastal areas and the beautiful azure sea that abounds with life.

It is our sincerest wish that this book will inspire readers to explore further and appreciate deeper, the wonderful natural world that surrounds us here in Abu Dhabi. For we hope, that through a greater appreciation of the beauty of nature around us and an understanding of its fragility, people will be encouraged to preserve the natural environment for themselves and their children's children.

The emirate has seen an incredible pace of development over the last few years that only seem to be accelerating and if we are not careful, there is a danger we will lose much of our natural heritage to either the bulldozer or the dredger. Fortunately, steps are being taken to address this that include; the establishment of the Environment Agency Abu Dhabi (formerly the Environmental Research and Wildlife

Development Agency, ERWDA) and new Laws and Regulations to protect the environment, the development of strategic plans, state of the environment reporting and a whole raft of individual projects aimed at preserving particular species such as the Arabian Oryx or the Asian Houbara.

This institutional capacity building coupled with special projects and awareness raising will help to enable the fast pace of development to continue with minimal impact on the beautiful environment that surrounds us. Indeed, we are already seeing new prestigious eco-tourism projects seeking to capitalise on the beautiful natural environment and wildlife of the emirate.

We trust that you will enjoy this book but also that you will help to encourage others to preserve the wonderful natural environment that we have here in the emirate of Abu Dhabi.

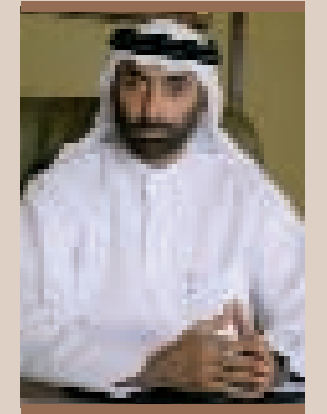
Hamdan Bin Zayed Al Nahyan

Deputy Prime Minister of UAE,

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INTRODUCTION



Background

This book has been a long time in the making for its predecessor, “Desert Ecology of Abu Dhabi” (1996 ed. Patrick Osborne), set a standard that was hard to beat. So, over a decade on, you might ask why the need for another book? Well, in the intervening period much has been achieved. The National Avian Research Center (NARC) where much of the original research and survey work was conducted evolved into the Environmental Research and Wildlife Development Agency (ERWDA), which more recently became the Environmental Agency – Abu Dhabi (EAD). During the last decade the Emirate has developed at an incredible pace, with so much achieved in terms of economic development and progress that it is useful to stop and take stock and reflect upon the natural environment and all its wonderful glory and to record the advances made in our knowledge of this environment.

Scope of the book

This book attempts to describe, in a fair amount of detail, the terrestrial environment of the Emirate of Abu Dhabi. Commencing with the bedrock of geology and moving on through to the life giving soils, the all determining climate, the ever so precious water resources, and on to the flora and fauna of this gem of an Emirate. Even the Emirate’s name “Abu Dhabi” (“Father of Gazelle”) reflects the importance that the emirate places upon the environment and the rich heritage it has to offer.

The book is not intended to be the definitive source of all information on the terrestrial environment of Abu Dhabi Emirate, but it does go a long way towards providing a detailed picture. Throughout the book the contributing authors have referenced the voluminous works of others, such that the reader is directed towards what must amount to almost the totality of current knowledge of the terrestrial environment of the Emirate of Abu Dhabi. What is perhaps missing at this stage is detailed spatial information as to where many of these species and areas of interest may be found. Much of that information has yet to be collected or collated. However, with the recent development of the Abu Dhabi Global Environmental Data Initiative (AGEDI), it is anticipated that much of the effort will now turn towards the collection of spatial information regarding the distribution of species across the Emirate. Not just for the fauna and flora, there is also a major initiative underway between EAD and the International Centre for Biosaline Agriculture (ICBA) to map the soils of the Emirate.

A quick sketch of the Emirate

Abu Dhabi is the largest emirate within the United Arab Emirates (UAE), a federation of seven sheikhdoms that also includes Dubai, Sharjah, Fujairah, Ras Al Khaimah, Ajman, and Umm Al Quwain. Total area of UAE is 77,700 km², of which Abu Dhabi forms 80%.

The country lies between 22°30' and 26° north, and 51°30' to 56° east, on the southern coast of the Arabian Gulf; nestled between the Straits of Hormuz in the east and the Qatar Peninsula in the west. Abu Dhabi forms the north-eastern edge of the Rub'al-Khali or "Empty Quarter", and is bordered in the south and west by Saudi Arabia, and in the east by Oman (see map).

Desert sands and coastal sediments characterize the surface geology of the western and central part of the country, while to the northeast a mountain range extends from Ras Al Khaimah to Al Fujairah and extend southward to Al-Ain region (the eastern provinces of Abu Dhabi Emirate). The climate of Abu Dhabi may be classified as 'desert', but the emirate experiences a wide variation of weather throughout the year. Air temperatures range from 16 – 44°C and average annual rainfall is 37mm. Few can forget the feeling of being sand blasted by the strong 'shamal' winds, or the feeling of being lost in a bleak barren sun baked landscape. However, neither can they forget the marvel of waking at dawn and finding that the 'barren' landscape has been literally teeming with life all around, as witnessed by the plethora of footprints left behind in the dew damp sand. There is no denying that the desert can be bleak and hostile but it can also be extremely beautiful, peaceful and full of fascination.

Organisation of the book

The text is divided into nine technical chapters that provide a comprehensive picture of the terrestrial environment of Abu Dhabi. Following this introduction, the book commences with a detailed look at the geology, by Abdulrahman Al Sharhan, and the soils, by Shabbir Shahid, that so heavily influence the character of the natural environment. Chapter 4 revisits the chapter by Nigel Bottomley on climate in

the original "Desert Ecology of Abu Dhabi" and updated by Shaikha Moza Ali Hamed Al Mualla. Chapter 5, by Abdulrahman Al Sharhan, examines the precious water resources of the Emirate. The remaining chapters describe the flora and fauna of the Emirate with chapters by Dr. Gary Brown, Dr. Sàlim Javed, Professor Drew Gardner, Dr. Peter Cunningham, and Dr. Brigitte Howarth & Dr. Michael Paul Trafford Gillett on vegetation, birds, reptiles, mammals, and arthropods respectively.

Epilogue

In terms of an understanding of the beauty, diversity and even fragility of the terrestrial environment of the Emirate of Abu Dhabi it is my heartfelt desire that this book provides the reader with a deeper understanding and even a sense of belonging. For it once we feel that we belong that we truly begin to respect and have a desire to protect. Protect we must, if we are to pass on to our children and our children's children an environment that is as beautiful and intact as the one we inherited.

So, before you commence your journey through this book, I shall leave you with a poem that portrays the beauty of the desert we inhabit and that sense of belonging and peace one feels when you take the time to stop and look at the beauty all around.

I trust that you find this book educational as well as enlightening and I pray that it inspires you, and those you come into contact with, to protect and preserve the beautiful and delicate terrestrial environment of the Emirate of Abu Dhabi.

Mohammed Al Bowardi

Secretary General, Executive Council - Abu Dhabi,

Managing Director, Environment Agency - Abu Dhabi

Rub'al-Khali

*Listen to the stillness,
to the total quiet.
Listen to the calmness,
the beating of your heart.
Feel the baking dryness,
Blasting upon your face.
Feel the rivulets of sweat,
Cascading down your brow.*

*As you take the first steps
Across sun baked sabkha,
towards the blowing sands,
hear the crisp, sharp footsteps
as you crunch cross the land,
turn and stop a moment.*

*Watch footprints disappear
washed by rolling sands.
Watch the dhub lizard bask
and the sand fish burrow
in the cool leeward sand.*

*Take all this in as you
inhale the desert air,
as it burns throat and lungs,
remember where you are.*

*Marvel at the beauty,
the Place called "Rub'al-Khali",
the "empty quarter", where
peace is all around, and
where tranquility hangs
the vastness of the sands.*

Richard Perry

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Chapter 1

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Chapter 9

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