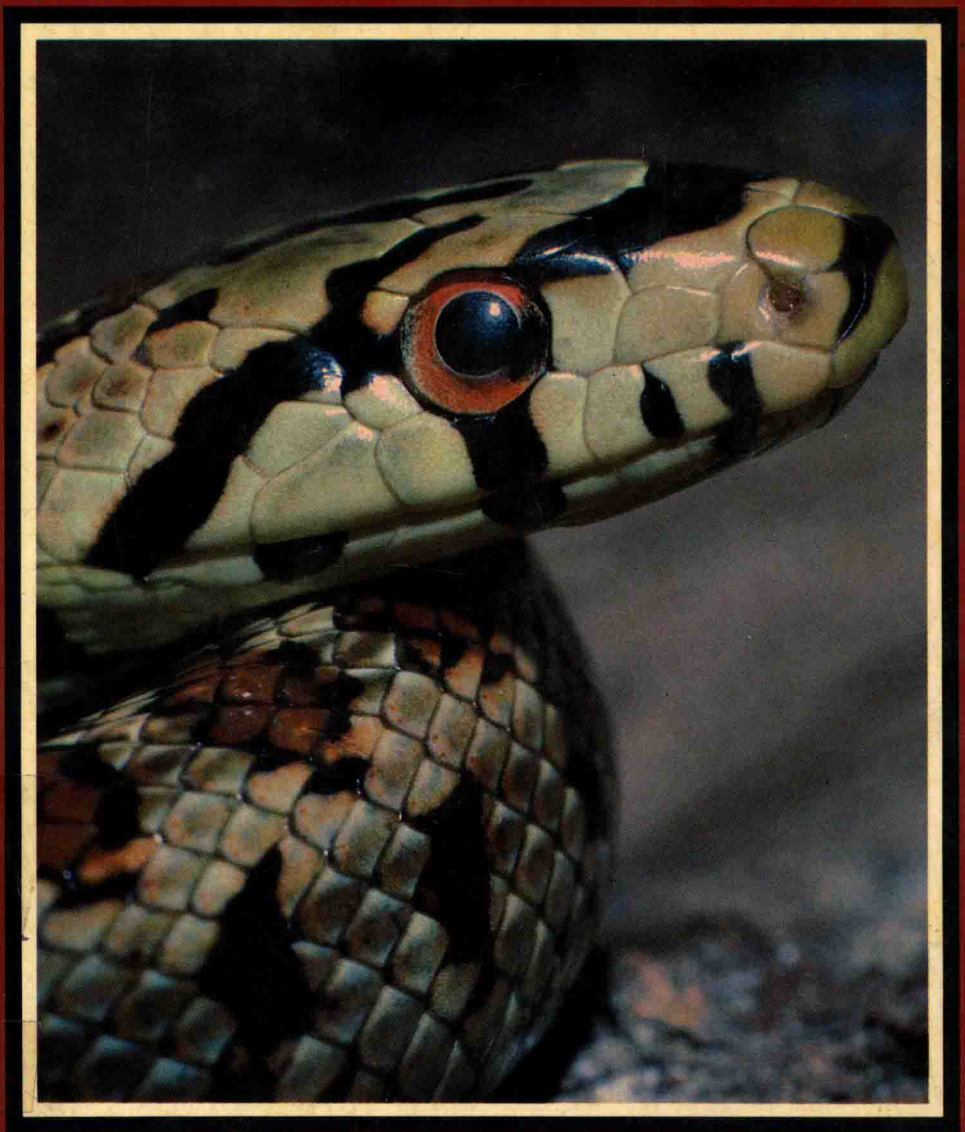
SNAKES OF THE WORLD



Chris Mattison

SNAKES OF THE WORLD

Chris Mattison

Facts On File Publications
New York, New York • Oxford, England

First published in the
United States by
Facts on File, Inc
460 Park Avenue South
New York. N Y 10016

Library of Congress Cataloging in Publication Data
Mattison, Christopher.
Snakes of the world.

Bibliography: p.
Includes index.
1. Snakes. I. Title.
QL666.06M34 1986 597.96 84-24733
ISBN 0-8160-1082-X

Typeset by Graphicraft Typesetters Ltd
Hong Kong

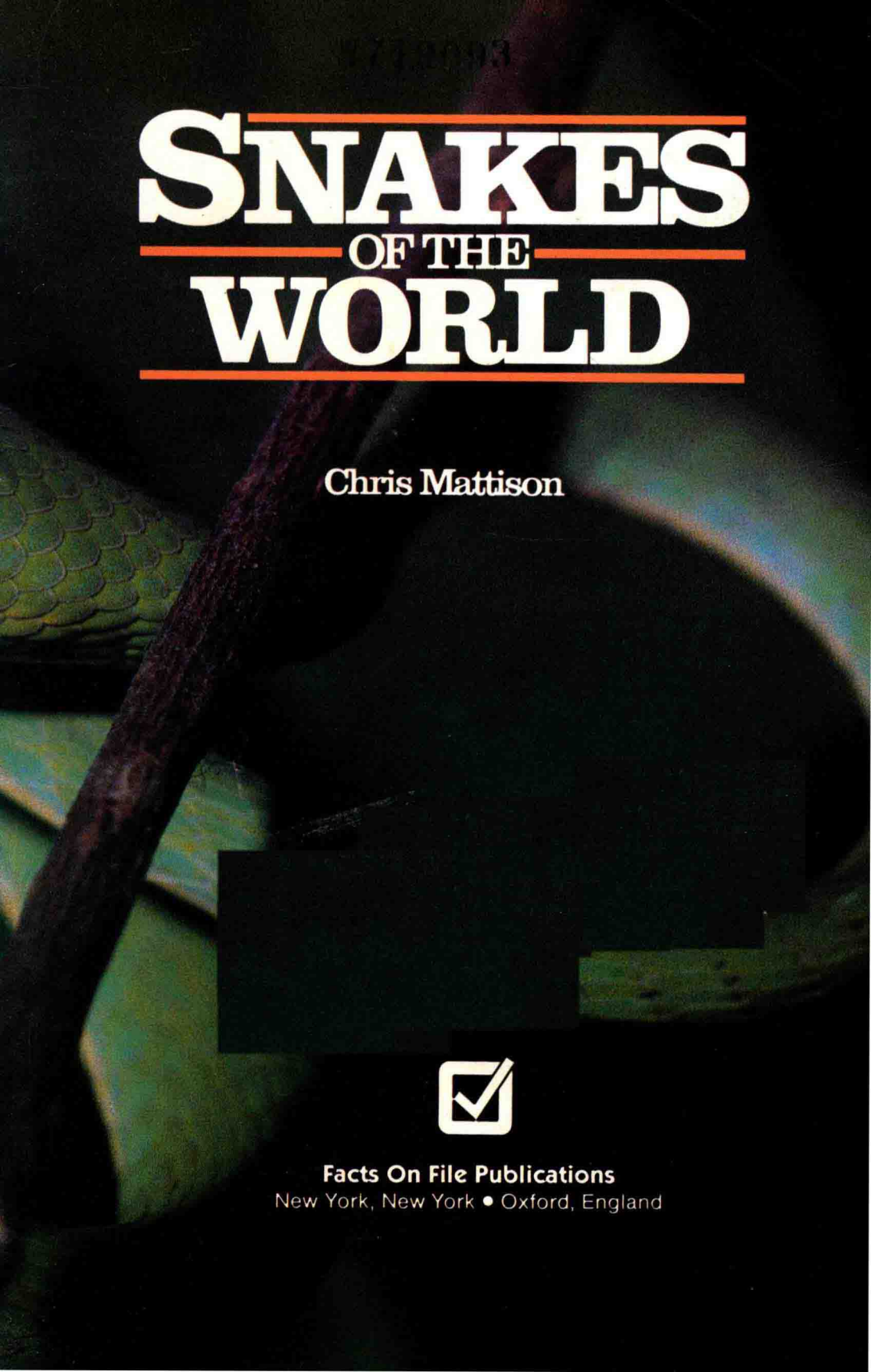
Printed in Hong Kong

Contents

SNAKES OF THE WORLD

SNAKES OF THE WORLD

Chris Mattison



Facts On File Publications
New York, New York • Oxford, England

First published in the
United States by
Facts on File, Inc
460 Park Avenue South
New York. N Y 10016

Library of Congress Cataloging in Publication Data
Mattison, Christopher.
Snakes of the world.

Bibliography: p.
Includes index.
1. Snakes. I. Title.
QL666.06M34 1986 597.96 84-24733
ISBN 0-8160-1082-X

Typeset by Graphicraft Typesetters Ltd
Hong Kong

Printed in Hong Kong

Contents

To my children, Vicky and James

Acknowledgements

Although I am a firm believer in taking pictures of wild animals in their natural surroundings, this was not always possible when compiling the photographs which were necessary to illustrate this book, and I have had to rely heavily on the generosity of various people and institutions who have allowed me to use animals in their collections, or who have obtained specimens for me. In this respect I am pleased to acknowledge the help of the following: Chester Zoo (Isolde MacGeorge and Keith Brown); Cotswold Wildlife Park (Don Reid); Knaresborough Zoo (Nick Nyoka); Dennis Lee; Mark O'Shea; Jim Pether; John Pickett; Poole Aquarium (Gary Lilley); Phil Reid; James Savage; Sheffield Polytechnic (Sandra Britten); Arthur Stevenson; Twycross Zoo (Chris Howard); and Xotic Pets Ltd of Alfreton. Special thanks are due to Mike Nolan, not only for providing snakes for several of the plates, but also for his help in photographing the *Cerastes* fangs.

Plate 74 was supplied by Ellen Marsden, Plates 51 and 58 by Bill Montgomery, and Plate 3 by Morley Read. Figures 9, 11 and 12 were drawn by Isabelle Naylor and Figures 4, 5, 6 and 13 by Don Reid. Josie Healey and Anne Brennan typed the manuscript. To all of these people, many thanks!

My long-suffering wife and children accompanied me on many trips to southern Europe in order to gather material, and in Trinidad I was fortunate to be helped by Robin Mattison, Bill Montgomery and Dave Reznick, all of whom provided humour as well as practical assistance.

Finally, I must acknowledge the encouragement given by a number of people, but especially by the editors of Blandford Press and my parents, without whose moral support the book would never have been completed.

Introduction

At an early age I came to the conclusion that those organisms which are universally feared and loathed are invariably the most interesting. This opinion has not been modified over the years and I still find pleasure in studying such creatures as leeches, bats, spiders, scorpions and, most of all, reptiles. I saw my first wild snake on a heath near Bournemouth, England, when I was about ten years old. It was an adder, and I caught it by the tail and a friend took a photograph of the two of us. The photograph has long since been lost, but my fascination for snakes grew to obsessive proportions, much to the consternation of parents, friends and, later on, employers. What is it about snakes which attracts some people and repels others? I can only talk about the attraction, for, though I respect the ability of some species to cause a rapid and somewhat sensational death, outright fear of them is, to me, irrational.

Like most species of animals, snakes kill for only two reasons – hunger or fear. To be close to a dangerous species is a unique and awe-inspiring experience. Their supreme arrogance, developed over millions of years as masters of their environment, commands respect out of all proportion to their size. Even harmless kinds make the heart beat faster when they hiss and strike at their tormentor, or when they glide away without appearing to move and are suddenly gone.

If you look closely at their skin you will see scales arranged with geometrical precision, forming a mosaic of colours and patterns which gives each species its identity. Snakes are not only beautiful in appearance but also mysterious in habits. These two qualities provide the perfect combination for those of us with an inquiring mind and a strong hunting instinct. My own hunting is strictly for pleasure, the trophy being a photograph or, very occasionally, a specimen living in a close simulation of its natural habitat to remind me of privileged moments. I can gaze at many of the photographs in this book and be transported back to some of the most thrilling experiences of my life – the sand viper, exposed to view suddenly by turning a rock, a rock which was like about two thousand others I had turned that day on the Greek island of Naxos; the ladder snake, uncovered accidentally by my wife, in the middle of a car park in a Spanish mountain range, after I had spent all day looking vainly in the snakiest places imaginable; and, perhaps most of all, the bushmaster, sprawled across a jungle road one rainy night in Trinidad.

It is this unexpectedness of snakes which is so fascinating. Finding a snake is like finding the needle in a haystack, where the haystack is a boulder-strewn hillside, an acre of reed-bed, or 100 square miles of tropical rainforest.

There is also something else about snakes. Observe the people in the reptile house at a zoo – the lizards may be prettier, the frogs more active, and the turtles more amusing, but it is the snakes which draw the crowds. How? By just sitting there and *being* snakes. Why is there this fascination for long shiny animals with no legs and a flickering tongue? Who knows? Whatever the reasons, snakes are amongst the most hated, most worshipped, and least known animals sharing our planet. This book will, I hope, help to shed some of the mystery about snakes without detracting from the wonderment that they arouse.

Chapter 1

What are Snakes?

Snakes are members of the class Reptilia – the reptiles. More precisely, they form part of the order Squamata, which also includes the closely related lizards (about 3,000 species) and amphisbaenians (about 140 species). The snakes, of which there are approximately 2,700 species, comprise the sub-order Serpentes (sometimes known as Ophidia).

The other orders of reptiles are the Testudines (turtles and tortoises – about 230 species), the Crocodilia (crocodiles and alligators – 21 species) and the Rhynchocephalia (tuatara – 1 species).

All of these animals are characterised by having a scaly skin which helps to protect them from desiccation in dry environments, an advantage which historically enabled them to move out over the land, breaking the tie with water which still limits the distribution of their ancestors, the amphibians. Also important in this respect is their ability to produce a shelled egg (or, in some cases, living young) within which the embryo can develop in a suitable micro-environment, thus avoiding the necessity to return to the water in order to breed. (Rather perversely, some reptiles which went back to an aquatic way of life, for instance turtles, now have to leave the water and return temporarily to the land to breed.)

The snakes are the most recently evolved group of reptiles, probably having first appeared during the early Cretaceous period 120 million years ago. This was towards the end of the Mesozoic era – the 'Age of the Reptiles'. Although fossil records of them are rather thin on the ground, it is generally believed that they arose from a line of lizards or lizard-like animals which adopted a subterranean life-style. In order to burrow more effectively these animals lost their limbs (as several modern burrowing lizards have done) and grew a transparent covering, the brille, to protect their eyes in place of movable eyelids. In time, the limb-girdles degenerated and the external ear-drum, or tympanum, was lost (although the main components of the ear are still present internally).

Since their appearance, snakes have adapted to most types of habitat found in the world, their only serious limitation being the inability to produce heat internally, forcing them to rely on external sources in order to raise their body temperature to a level necessary for them to function properly (somewhere around 25–30°C, 77–86°F, depending on species). For this reason, snakes are most numerous, both in terms of individuals and of species, in tropical regions, with their numbers falling off as the

Plate 1 The adder, *Vipera berus*, occurs up to 68°N – further north than any other snake.

poles are approached, the most northerly species being the adder, *Vipera berus* (Plate 1), and the common garter snake, *Thamnophis sirtalis*, reaching 68°N and 67°N in Scandinavia and North America respectively, whereas in the south a pit viper, *Bothrops ammodytoides*, occurs to approximately 45°S in Argentina. Altitude also affects temperature and the highest recorded species is *Agkistrodon himalayanus*, which ranges up to 4,900 m (16,000 ft) in the Himalayas.

Animals which cannot produce their own body-heat are known as ectotherms, as opposed to those which can (birds and mammals) which are known as endotherms. Snakes may be loosely defined, therefore, as ectothermic vertebrates with elongated bodies covered in scales, and having no limbs or limb-girdles (except the most primitive families, which retain traces of the pelvic girdle and hind-limbs), no external ear-openings, and no movable eyelids. Internally, their organs are necessarily elongated and the left lung may be absent altogether or very much smaller than the right. They usually have a single row of wide scales beneath the body, each corresponding to a vertebra and a pair of ribs, and all have a long, forked tongue.

Plate 2 The slow-worm, *Anguis fragilis*, is a legless lizard and can be distinguished from snakes by the presence of eyelids.

It is worth pointing out that legless lizards occur in several families, for instance in the Anguidae (slow-worm, glass lizards), the Scincidae (skinks), and the Pygopodidae (snake-lizards), and that some of these also

Table 1: Morphological Differences between Snakes and Lizards

	Snakes	*Lizards*
Front limbs	Never	Usually
Front limb-girdles	Never	Always
Hind limbs	Rarely (vestigial)	Usually
Hind limb-girdles	Rarely	Always
Single row of ventral scales	Usually	Never
Moveable eyelids	Never	Usually
External ear-drums	Never	Usually
Deeply forked tongue	Usually	Rarely