



**Muhammad Sharif Khan** 





## **Herpetology of Pakistan**

Muhammad Sharif Khan Ph.D. (Punjab) 306 N. Morton Avenue Morton, PA 19070, USA Tel: 484-477-6834 http://muhammadskhan.wildlifeofpakistan.com



Zoological Society of Pakistan, University of the Punjab, Lahore, Pakistan President:Prof. Dr. Abdul Rauf ShakooriSecretary:Abdul Aziz KhanEditor in Chief:Prof. Dr. Abdul Rauf Shakoori



Top row: From Left to Right: *Duttahrynus hazarensis* Khan, *Eriyx conicus, Rhinogekko misonnei* de Witte Middle row: From Left to Right: *Varanus bengalensis, Geochelone elegans* Schopff, *Crocodylus palustris* Lesson Bottom row: From Left to Right: *Natrix tessellata, Mesalina watsonana* (Stoliczka), King Cobra

@ Muhammad Sharif Khan

ISBN 978-969-9715-01-3

All rights reserved. No part of this book covered by the copyright hereon may be reproduced or used in any format in any form or by any means –photographic, electronic or mechanical, including photocopying, recording, taping or information storage and retrieval system – without written permission of the publisher.

Published by the Zoological Society of Pakistan, Department of Zoology, University of the Punjab, Quaid-i-Azam Campus, Lahore, 54590, Pakistan.

## PREFACE

Herps are generally considered dangerous, dreadful creatures, though fascinatingly diverse and colorful. We try to avoid them and will not fearfully tolerate to cohabit if found around or in In spite of that these animals cannot be ignored because of their ecological and vicinity. evolutionary importance. Pakistan is bestowed with all types of ideal habitats for variety of animals present on this planet Earth. Unfortunately, except for some groups of insects, we are still unaware of number of species of animals that we have. There is a need to prepare an inventory of the all groups of animals. This is a huge and very ambitious task, but beginning has to be made sometime, somewhere. Prof. Dr. Muhammad Sharif Khan undertook this task on himself to record and collect herps of Pakistan. He collected frogs, toads, lizards and snakes from different parts of Pakistan, identified them and recorded their geographical distribution in the country. His passion was evident back in 1961-63, when he was studying development of local frog species in the laboratory during his M.Sc. degree thesis work. He would spent hours together to observe different developmental stages. During subsequent years when he was working as lecturer in Zoology in a local college, he would go out to different parts of Pakistan, taking his students with him to collect lizards and frogs/toads. He described these amphibians and reptiles and published his work in different national and international scientific journals. After his retirement he moved to USA to live with his son, where he compiled different guide books on herps of Pakistan. The present book has been compiled with his permission from the various guide books authored by him. I hope this book the publication of which has been sponsored by the Zoological Society of Pakistan will provide impetus to young zoologists to venture into studies on amphibians and lizards of Pakistan.

## **Abdul Rauf Shakoori**

## CONTENTS

	Page
Chapter-1:	Collection and Preservation of Amphibians and Reptiles1
Part-I:	Amphibia: Toads and Frogs
Chapter-2	An Overview of Amphibians in Pakistan9
Chapter-3	Amphibia: Morphology and Description of Species19
Part-II:	Turtles and Corocodiles
Chapter-4	Chelonia and Crocodilia41
Part-III:	Lizards
Chapter-5	Geckos: Eublepharidae & Gekkonidae53
Chapter-6	Agamidae & Chamaeleonidae
Chapter-7	Lacertidae111
Chapter-8	Scincidae
Chapter-9	Uromastidae & Varanidae
Part-IV:	<b>Snakes</b>
Chapter-10	Non-venomous Snakes: Boidae, Colubridae, Typhlopidae & Leptotyphlopidae143
Chapter-11	Venomous Snakes: Elapidae, Viperidae, Crotalidae & Hydrophiidae
Bibliography	



Prof. Dr. Muhammad Sharif Khan



He was born in 1939, graduated from University of the Punjab in 1960, obtained his M.Sc. in 1963 and Ph.D in Zoology in 1996 from University of the Punjab, Lahore. He started his career as Lecturer in Zoology in Talim ul Islam College, Rabwah in 1963, retired as Professor and Head of Zoology Department in 1999. Dr. Khan worked on herps (amphibians, lizards and snakes) of Pakistan, at the time when the knowledge about herps in Pakistan was about nil. Dr. Khan pioneered the study of herps in Pakistan. He searched almost every corner of Pakistan to collect and record species. He redescribed all species, discovering 34 new species:11 snakes, 15 lizards and 8 amphibians. His first research article was published in 1965.

Prof. Khan has published more than 300 research papers on herps of Pakistan in different national and international scientific journals, and authored 10 books on amphibians and reptiles of Pakistan in English, Urdu and German languages.

- 1. *Amphibians and Reptiles of Pakistan*. Krieger Publishing Company, Melbourne, Florida, USA, 2006
- 2. *Die Schlangen Pakistans.* Bucher-Kreth GmbH, Frankfurt, Germany, 2002
- 3. *The Snakes of Pakistan.* Bucher-Kreth GmbH, Frankfurt, Germany, 2002
- A field guide to the identification of Herps of Pakistan. Part-I: Amphibia. Biological Society of Pakistan, Lahore 1987
- A field guide to the identification of Herps of Pakistan. Part-II: Chelonia. Biological Society of Pakistan, Lahore, 1990
- Venomous terrestrial snakes of Pakistan and snake bite problem. In: *Snakes of medical importance* (Asia-pacific region), pp. 419-446, P. Gopalakrishnaconc and L.M. Chou (eds). National University of Singapore, 1990
- Endangered species of reptiles of Pakistan and suggested conservation measures, pp. 42-45. In: Handbook published to mark second seminar on "*Nature Conservation and Environmental Protection*," 12 March 1991, Islamabad, Wildlife Conservation Foundation, Islamabad
- 8. *Amphibians and reptiles of Pakistan*. Urdu Science Board, 299-Upper Mall, Lahore, 2000 (in Urdu)
- 9. *Snakes of Pakistan*. Urdu Science Board, 299-Upper Mall, Lahore pp. 299 (in Urdu)
- Amphibians, Lizards, Turtles and Snakes. Chapter 2 In: Wildlife of Pakistan. Urdu Science Board, 299-Upper Mall, Lahore 1991 (in Urdu)
- 11. Pakistan ki hawaniat: Vol.1 Amphibians. Nia Zamana Publishers, Lahore, 2011 (in Urdu)

Prof. Khan received Sir William Roberts Gold Medal for first position in M.Sc. in order of merit and was honoured by Zoological Society of Pakistan with Zoologist for the year Award in 2002 and Life Achievement Award in 2013 for his outstanding achievements.

After his retirement, Prof. Khan moved to USA where he is as active as before, guiding students from Pakistan, Iran and other countries for identification of the species they are working on and supervising their research work.