

**THE NATURAL
HISTORY OF MEXICAN
RATTLESNAKES**

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The natural history of Mexican rattlesnakes by Barry L. Armstrong & University of Kansas
Museum of Natural History & James B. Murphy

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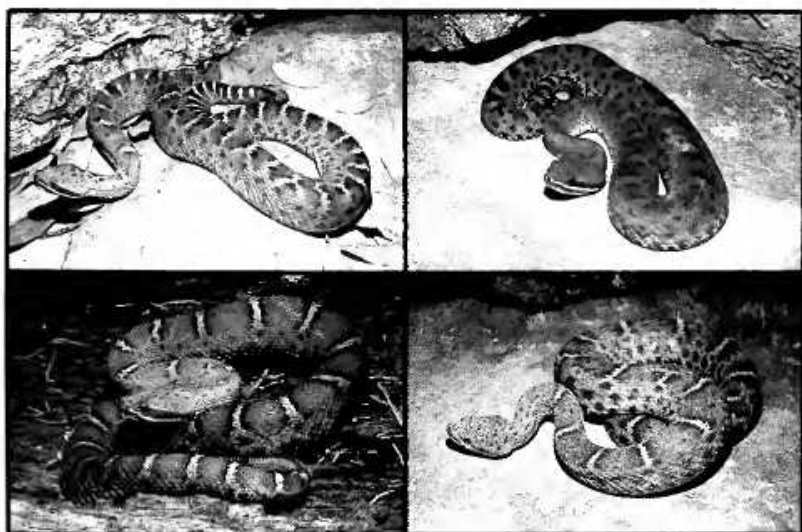
**BARRY L ARMSTRONG & UNIVERSITY OF KANSAS
MUSEUM OF NATURAL HISTORY & JAMES B. MURPHY**

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The Natural History of Mexican Rattlesnakes

*by Barry L. Armstrong
James B. Murphy*



*The University of Kansas
Museum of Natural History*

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Front cover: The subspecies of the ridgenose rattlesnake (*Crotalus willardi*). Clockwise, starting from the upper left, *C. w. amabilis*, *C. w. meridionalis*, *C. w. silus*, and *C. w. willardi*. All photographs by Joseph T. Collins, with the cooperation of the Dallas Zoo.

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**THE NATURAL HISTORY OF
MEXICAN RATTLESNAKES**

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PREFACE

Beginning in November, 1966, studies on rattlesnakes (genera *Crotalus* and *Sistrurus*) and other pit vipers were initiated at the Dallas Zoo which included techniques for maintenance and disease treatments, in conjunction with observations on captive and wild populations. Maintenance techniques and disease treatments have been published in an earlier contribution.

The results of our studies on the ecology and natural history of Mexican rattlesnakes are contained in the present account. Since numerous behavioral sequences were difficult to record in the field, many rattlesnakes were maintained in the laboratory. Over one hundred and twenty-five captive individuals, comprising over 50 taxa (including forms indigenous to the United States) were available for study.

We have attempted to show the value of a multifaceted approach to the study of a body of organisms by beginning with field observations as a basis for understanding, followed by maintenance in the captive state whereupon specimens can be placed upon death in a systematic museum collection. This arrangement allows an investigator to examine various aspects of an animal's "being" by recording data which would be virtually impossible to record in the field. Further, this combined approach maximized our abilities as one of us is somewhat incompetent in the field and the other is an erratic animal keeper.

The assistance and cooperation of many persons contributed to the completion of this study. For various courtesies extended to us, we thank Ray Ashton, James P. Bacon, Robert L. Bezy, Charles M. Bogert, David Brown, Mary E. Dawson, J.S. Dobbs, Michael S. Edwards, Thomas H. Fritts, James C. Gillingham, Ronald Goellner, Harry W. Greene, Herbert S. Harris, Charles Hoessle, Terry Hulsey, J. P. Jones, Thomas L. Jordan, John E. Joy, Tommy Logan, Arthur Lopez, Danny Lopez, Edward Maruska, Hymen Marx, Robert W. Murphy, George R. Pisani, the late Louis Pistoia, Thomas Porter, Steve J. Prchal, Peter C. Pritchard, William F. Pyburn, George B. Rabb, Charles W. Radcliffe, Vincent D. Roth, Thomas Schultz, Hobart M. Smith, Barney Tomberlin, Tom Van Devender, R. Wayne Van Devender, James Walker, Tim Walker, John W. Wright, Richard G. Zweifel, and our many friends throughout Mexico.

We are grateful to Walter Auffenberg, Charles M. Bogert, Charles C. Carpenter, Joseph T. Collins, Roger Conant, James R. Dixon, William E. Duellman, the late Howard K. Gloyd, Michael Herron, Donald W. Moore, John A. Shaddock, and the late Edward

H. Taylor for reading and criticizing the manuscript and offering many helpful suggestions. Photographic assistance was offered by R. Terry Basey, M. Granger, Wayne Seifert, and John H. Tashjian. The able staff of the Dallas Zoo Department of Herpetology, David G. Barker, Raymond K. Guese, William E. Lamoreaux, and Lyndon A. Mitchell have recorded numerous observations and have contributed to the overall maintenance of the rattlesnakes discussed through their enthusiasm and expertise. The librarian staff of Instituto Butantan in São Paulo assisted us in numerous ways. Various persons associated with the University of Texas Press, specifically Ann Hidalgo Manley, Philip L. Wagner, Robert Wauchope, and Robert C. West, allowed us to use figures from *Handbook of Middle American Indians*. Ralph R. Woodiwiss and Anton S. Prechtel of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, D.C., provided climatic information and allowed us to use material from *Climate of Mexico* by John L. Page. Señor Silvino Aguilar Anguiano, Subdirector Gral. de Geografía y Meteorología, sent climatic data and numerous maps for our use. Members of the Dallas Zoological Society, through the efforts of Bernard Brister, provided partial travel expenses.

The arduous task of typing certain parts of the manuscript was cheerfully accomplished by Kathryn Campbell, Janet Jackson, Martha, F. Murphy, Verna S. Murphy, and Myra Smith. Deb Bennett skillfully executed the drawing of the map of Mexico on the inside back cover.

Finally, special recognition must be extended to Jonathan A. Campbell, who in so many ways aided us in the preparation of this manuscript. His unflagging enthusiasm in the field, the generous donation of specimens under his care, his thoughtful comments and criticisms of the manuscript, his photographic abilities and overall encouragement made the completion of this study much more enjoyable for us. For these reasons, we have dedicated this study to him.

Barry L. Armstrong and James B. Murphy
Dallas Zoo
Dallas, Texas
March 1979

CONTENTS

	PAGE
INTRODUCTION	1
GENERAL DESCRIPTION OF THE REGION	1
MATERIALS AND METHODS	3
ACCOUNTS OF SPECIES	
<i>Crotalus atrox</i> Baird and Girard	4
<i>Crotalus basiliscus</i> (Cope)	6
<i>Crotalus catalinensis</i> Cliff	8
<i>Crotalus cerastes</i> Hallowell	9
<i>Crotalus durissus</i> Linné	10
<i>Crotalus enyo</i> (Cope)	16
<i>Crotalus intermedius</i> Troschel	18
<i>Crotalus lepidus</i> (Kennicott)	22
<i>Crotalus mitchelli</i> (Cope)	29
<i>Crotalus molossus</i> Baird and Girard	31
<i>Crotalus polystrictus</i> (Cope)	34
<i>Crotalus pricei</i> Van Denburgh	38
<i>Crotalus pusillus</i> Klauber	43
<i>Crotalus ruber</i> Cope	46
<i>Crotalus scutulatus</i> (Kennicott)	48
<i>Crotalus stejnegeri</i> Dunn	50
<i>Crotalus tigris</i> Kennicott	50
<i>Crotalus tortugensis</i> Van Denburgh and Slevin	53
<i>Crotalus transversus</i> Taylor	53
<i>Crotalus triseriatus</i> (Wagler)	56
<i>Crotalus viridis</i> (Rafinesque)	61
<i>Crotalus willardi</i> Meek	63
<i>Sistrurus ravus</i> (Cope)	68
DISCUSSION	70
RESUMEN	77
APPENDIX: RANGE OR ALTITUDE EXTENSIONS	
REPORTED IN TEXT	78
LITERATURE CITED	79
INDEX TO HERPETOLOGICAL SCIENTIFIC NAMES	86