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Savanna Monkeys

The Genus *Chlorocebus*

Living across Africa and the Caribbean, this widely dispersed primate must adapt to different environmental challenges. How do members of the genus *Chlorocebus* live in desert-like conditions and in areas with freezing temperatures and snow in winter? This book examines the ways these primates adapt genetically, hormonally, physically, and behaviorally to their changing landscapes. It features summary chapters for major topics such as behavioral ecology, life history, taxonomy, genetics, and ethnoprimatology. Shorter essays supplement the work, with experts detailing their particular research on these primates. The combination of scholarship provides both a comprehensive view of this adaptable genus while enabling the reader to gain depth in specific topics. Developed from a symposium, this book combines decades of experience working with savanna monkeys into a tangible resource for students and researchers in primatology, as well as for evolutionary and behavioral studies.

TRUDY R. TURNER is Professor of Anthropology at the University of Wisconsin-Milwaukee and an affiliated faculty member in the Genetics Department at the University of the Free State, Bloemfontein, South Africa. She is the co-founder of the Primate Ecology and Genetics Group (PEGG), the Southern African Primatology Society.

CHRISTOPHER A. SCHMITT is Assistant Professor of Anthropology and Biology at Boston University, where he is also affiliated faculty in the Women's, Gender, and Sexuality Program.

JENNIFER DANZY CRAMER is Associate Professor and Program Director of the Sociology, Anthropology, and Women's Studies Program at American Public University System.

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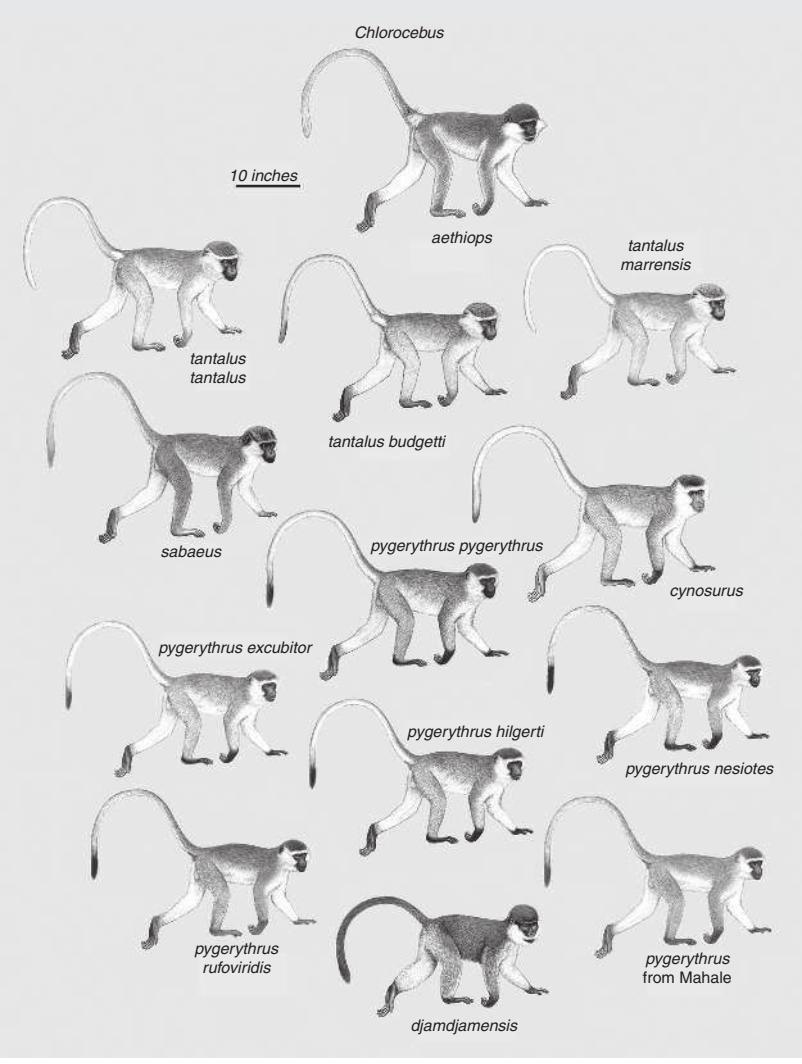

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TRUDY R. TURNER
University of Wisconsin-Milwaukee

CHRISTOPHER A. SCHMITT
Boston University

JENNIFER DANZY CRAMER
American Public University System

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University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,
New Delhi – 110025, India

79 Anson Road, #06-04/06, Singapore 079906

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www.cambridge.org
Information on this title: www.cambridge.org/9780521782944
DOI: 10.1017/9781139019941

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First published 2019

Printed in the United Kingdom by TJ International Ltd. Padstow Cornwall

A catalogue record for this publication is available from the British Library.

Library of Congress Cataloging-in-Publication Data
Names: Turner, Trudy R., 1950– editor. | Schmitt, Christopher A., editor. |
Cramer, Jennifer Danzy, editor.
Title: Savanna monkeys : the genus Chlorocebus / Trudy R. Turner,
Christopher A. Schmitt, Jennifer Danzy Cramer [editors].
Description: Cambridge, United Kingdom; New York, NY:
Cambridge University Press, 2019. |
Includes bibliographical references and index.
Identifiers: LCCN 2018039944 | ISBN 9780521782944 (hardback)
Subjects: LCSH: Cercopithecus aethiops. | Primates – Behavior.
Classification: LCC QL737.P93 S28 2019 | DDC 599.815–dc23
LC record available at https://lccn.loc.gov/2018039944

ISBN 978-0-521-78294-4 Hardback

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In memory of our friend and colleague
Patricia Whitten

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Contributors

Katherine R. Amato, Department of Anthropology, Northwestern University, Evanston, IL, USA

Cristian Apetrei, Center for Vaccine Research, University of Pittsburgh, Pittsburgh, PA, USA; Department of Microbiology and Molecular Genetics, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

Louise Barrett, Department of Psychology, University of Lethbridge, Lethbridge, Alberta, Canada; Applied Behavioral Ecology and Ecosystems Research Unit, University of South Africa, Pretoria, South Africa

Maryjka B. Blaszczyk, Department of Anthropology, University of Texas at Austin, Austin, TX, USA

Willem G. Coetzer, Department of Genetics, University of the Free State, Bloemfontein, South Africa

Kerry M. Dore, Department of Anthropology, Baylor University, Waco, TX, USA

Lynn A. Fairbanks, Department of Psychiatry and Biobehavioral Sciences, UCLA, Los Angeles, CA, USA

Nelson B. Freimer, Center for Neurobehavioral Genetics, UCLA, Los Angeles, CA, USA

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Tegan J. Gaetano, Department of Anthropology, University of Wisconsin-Milwaukee, Milwaukee, WI, USA

J. Paul Grobler, Department of Genetics, University of the Free State, Bloemfontein, South Africa

Peter Henzi, Department of Psychology, University of Lethbridge, Lethbridge, Alberta, Canada; Applied Behavioral Ecology and Ecosystems Research Unit, University of South Africa, Pretoria, South Africa

Lynne A. Isbell, Department of Anthropology and Animal Behavior Graduate Group, University of California, Davis, Davis, CA, USA

Anna J. Jasinska, Center for Neurobehavioral Genetics, UCLA, Los Angeles, CA, USA; Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland

Joseph G. Lorenz, Department of Anthropology and Museum Studies, Central Washington University, Ellensburg, WA, USA

James E. Loudon, Department of Anthropology, East Carolina University, Greenville, NC, USA

Richard McFarland, Department of Anthropology, University of Wisconsin-Madison, Madison, WI, USA; Brain Function Research Group, School of Physiology, University of Witswatersrand, Johannesburg, South Africa

Michael J. Montague, Department of Neuroscience, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA

Kimberly Moyer, University of Colorado Denver, Denver, CO, USA

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Ivona Pandrea, Center for Vaccine Research, University of Pittsburgh, Pittsburgh, PA, USA; Department of Pathology, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

Kevin Raehtz, Center for Vaccine Research, University of Pittsburgh, Pittsburgh, PA, USA; Department of Microbiology and Molecular Genetics, School of Medicine, University of Pittsburgh, Pittsburgh, PA, USA

Rafael L. Rodríguez, Behavioral and Molecular Ecology Group, Department of Biological Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI, USA

Matt Sponheimer, Department of Anthropology, University of Colorado, Boulder, Boulder, CO, USA

Erica van de Waal, Anthropological Institute and Museum, University of Zurich, Zurich, Switzerland; Inkawu Vervet Project, Mawana Game Reserve, KwaZulu-Natal, South Africa

Wesley C. Warren, University of Missouri, Columbia, MO, USA

Patricia Whitten, formerly of Department of Anthropology, Emory University, Atlanta, GA, USA

Brandi T. Wren, Sepela Field Programs, Fort Pierce, FL, USA; Department of Anthropology, Purdue University, Lafayette, IN, USA; Applied Behavioural Ecology & Ecosystem Research Unit, University of South Africa, Johannesburg, South Africa

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Preface

Trudy R. Turner, Christopher A. Schmitt,
and Jennifer Danzy Cramer

Savanna monkeys – at times called vervet monkeys and African green monkeys, among many other local names – were always the least studied of the most abundant nonhuman primates. In recent years, this has begun to change. New studies have taken advantage of their wide distribution in different ecological zones to study wide-ranging variation. In addition to behavioral studies on savanna monkeys, over the years, we have extensively sampled animals and obtained morphological, hormonal, and genetic information. We have collected comprehensive information that allows us to take advantage of the most recent technologies to understand the life histories of these animals. It is through the study of these animals in their different environments that we can begin to see the effects of climate and human influence on physiology, morphology, and behavior and elucidate the ways in which evolution operates.

This book was designed to allow the reader to understand savanna monkeys and their place both in the natural world and as a model species for research in several fields. The main chapters of the book describe our own work on savanna monkeys, while separate chapters allow additional researchers to tell the reader about their own work. We want the reader to be aware of the increasing number of people working on savanna monkeys and to have them showcase their own exciting research. The reader can also use this volume to better understand research topics specific to savanna monkeys or to go into more depth on these topics. Our chapter on taxonomy, for example, describes the history of the systematics of savanna monkeys, while additional chapters in this part allow J. Paul Grobler and Willem G. Coetzer to discuss the taxonomic and phylogenetic work on South African vervets in particular, Wesley Warren

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to talk about new work on the savanna monkey genome, Katherine Amato to present her work on the vervet microbiome, and Cristian Apetrei to discuss how vervets have evolved to respond to taxon-specific infections with simian immunodeficiency virus. We also present basic information on behavioral ecology and historical work on savanna monkeys, while Lynne Isbell discusses vervet social structure, Brandi Wren looks at feeding ecology, Lynn Fairbanks talks about novelty-seeking, and Erica van de Waal discusses cognition. We describe life history theory and how our own work shows the surprising diversity of life history strategies in savanna monkeys, while Rafael Rodríguez discusses sexual selection and morphology and Maryjka Blaszczyk talks about her work on vervet personality. Our final part on ethnoprimatology follows the same pattern – we discuss our own work on savanna monkeys at the human interface, while Kerry Dore discusses her work on interactions between savanna monkeys and humans on the island of St. Kitts and James Loudon and Matt Sponheimer discuss the ways in which isotopes can inform what we know about vervet diets. Each part can be read independently, but together, all parts present a complete picture of what we now know about the genus *Chlorocebus*. It is our hope that this will provide readers with flexibility to explore the genus and all of the work that has been done to understand it to date.

This book originally began with the collaboration of Patricia Whitten and Trudy Turner, who met while they were both (young and) conducting fieldwork in Kenya. While Pat went on to explore many other primates, Trudy and her students continued to work primarily with savanna monkeys. Although Pat was not able to work on this volume, we will always remember her joy in working with primates and her insight into the field.

None of our work would have been possible without the help of many people. While we have worked primarily in Ethiopia, Kenya, and South Africa, our work has been as wide-ranging as the genus we study, which has also brought us to Botswana, Zambia, Ghana, The Gambia, and St. Kitts and Nevis. For permission and support in conducting this research, we are indebted to the governments

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and wildlife offices in all of these countries. We specifically thank the Kenya Department of Wildlife Management; the Gambia Department of Parks and Wildlife Management; Botswana Ministry of Environment and Wildlife and Tourism; Ghana Wildlife Division, Forestry Commission; Zambia Wildlife Authority; Ethiopian Wildlife Conservation Authority; Ministry of Forestry and the Environment, Department of Environmental Affairs, South Africa; Department of Economic Development and Environmental Affairs, Eastern Cape; Department of Tourism, Environmental and Economic Affairs, Free State Province; the Ezemvelo KZN Wildlife in KwaZulu-Natal Province; and the Department of Economic Development, Environment and Tourism, Limpopo Province.

We are also indebted to the many institutions that have hosted us while conducting research, including the Institute of Primate Research, Kenya; the University of Limpopo, South Africa; the University of the Free State, South Africa; the Mammal Research Institute, University of Pretoria, South Africa; Adrian Tordiffe and the Faculty of Veterinary Medicine, University of Pretoria, South Africa; the Medical Research Council (MRC), The Gambia, specifically Martin Antonio, Michel Dione, and Mamkumba Sanneh; Gene Redmond of the St. Kitts Biomedical Research Foundation; and all of the wonderful researchers who work as part of the International Vervet Research Consortium.

We thank the International Union for Conservation of Nature (IUCN) Red List for permissions to use *Chlorocebus* distribution maps. We are also grateful to Donna Genzmer and University of Wisconsin-Milwaukee Cartographic Services for map production. We are indebted to Stephen D. Nash/IUCN Primate Specialist Group for the wonderful cover illustration and front plate.

Our research has been conducted over many years and in many places and could not have been done without the many people who have helped us on the ground, in the field, in the lab, and in valuable discussions. For this invaluable assistance, guidance, skilled reading, and support, we thank Cliff Jolly, Fred Anapol, Fred Brett, Nicholas Dracopoli, James Else, Judith Masters, Krista Fish, J. Paul Grobler, Pat

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Gray, Adrian Tordiffe, Joe Lorenz, Anna Jasinska, and Nelson Freimer in particular. We have many more people to thank for helping us collect data, including Laura Alport, David Beller, Micah Beller, Sumarie Besler, Magdalena Lukasic-Braun, Annesca Bubb, Maryjka Blaszczyk, Illysees Coetzee, Willem G. Coetzer, Jill Drake, Tegan Gaetano, Angus Hart, Martin Haupt, Peter Heisler, Leizel Herselman, Magali Jaquier, Bea Jordann, Antoinette Kotze, Ute Kryger, Michael Lawes, Thabiso Ledwaba, Hanna Legator, Nicole Lukas, Lizanne Meiring, Steffi Meyer, Adelene Marais, Hannes Marais, Kerry McAuliffe Dore, Oliver "Pess" Morton, Helene de Nys, Alex Nisbett, Thabag Nkadmeng, Pieter Olivier, James Pampush, Brian Peters, Dewald du Plessis, Francoise Rademeyer, Charmaine and Gavin Rous, Marwa Sayed, Claudia Schoene, Patrick Schwab, Murray Stokoe, Nicholas Theron, Elzet Van Aswegen, Bob and Lynn Venter, Rudolf Venter, Wynand Volk, Jonathan Bethard, Morgan Farrar, Christian Gagnon, Stacy-Anne Parke, and Alicia Rich.

Trudy Turner is particularly indebted to her family, Scott, David, and Micah Beller, for their never-ending support.

Christopher Schmitt is, as always, grateful for the support of his family and close friends, especially the patience and (when he's lucky) assistance in the field of his niece, Sasami, and nephews, Kyle and Jaaron.

Jennifer Danzy Cramer thanks her daughters and husband for their patience and encouragement.

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