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978-1-107-05231-4 - Mahale Chimpanzees: 50 Years of Research

Edited by Michio Nakamura, Kazuhiko Hosaka, Noriko Itoh and Koichiro Zamma

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Mahale Chimpanzees

50 Years of Research

Long-term ecological research studies are rare and invaluable resources, particularly when they are as thoroughly documented as the Mahale Mountains Chimpanzee Research Project in Tanzania. Directed by the late Toshisada Nishida from 1965 until 2011, the project continues to yield new and fascinating findings about our closest neighbor species.

In a fitting tribute to Nishida's contribution to science, this book brings together 50 years of research into one encyclopedic volume. Alongside previously unpublished data, the editors include new translations of Japanese writings throughout the book to bring previously inaccessible work to non-Japanese speakers. The history and ecology of the site, chimpanzee behavior and biology, and ecological management are all addressed through first-hand accounts by Mahale researchers. The authors highlight long-term changes in behavior, where possible, and draw comparisons with other chimpanzee sites across Africa to provide an integrative view of chimpanzee research today.

This is a major contribution to great ape research, complementing Nishida's last work *Chimpanzees of the Lakeshore* (Cambridge University Press, 2012).

Michio Nakamura is Associate Professor at the Wildlife Research Center, Kyoto University, Japan. He has studied the Mahale chimpanzees since 1994 and is a recipient of the Primate Society of Japan's Takashima Prize.

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CAMBRIDGE
 UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781107052314

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First published 2015

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

A catalog record for this publication is available from the British Library

Library of Congress Cataloging in Publication data

Mahale chimpanzees : 50 years of research / edited by Michio Nakamura, Wildlife Research Center, Kyoto University, Japan, Kazuhiko Hosaka, Kamakura Women's University, Japan, Noriko Itoh, Wildlife Research Center, Kyoto University, Japan, Koichiro Zamma, Graduate School of Asian and African Area Studies and Wildlife Research Center, Kyoto University,

pages cm

ISBN 978-1-107-05231-4

1. Chimpanzees – Tanzania – Mahale Mountains National Park. 2. Chimpanzees – Research – Tanzania – Mahale Mountains National Park. I. Nakamura, Michio, 1971–

QL737.P94M34 2015

599.88509678–dc23

2015004541

ISBN 978-1-107-05231-4 Hardback

Additional resources for this publication at www.cambridge.org/9781107052314

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

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FOREWORD

Frans B. M. de Waal

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The Mahale Mountains National Park on the shore of Lake Tanganyika in Tanzania offers a habitat for up to 1000 chimpanzees. This site was among the first chosen for research on the social lives and survival strategies of one of our closest relatives. Study of their behavior began in 1965, when a Japanese scientist, the late Toshisada Nishida of Kyoto University, set up camp there, habituated the apes to his presence, and started following them around on a daily basis.

In contrast to the human anthropologist, who simply asks his subjects about their kinship relations, the primatologist needs many years to collect such critical information. With a species that breeds as slowly and is as long-lived as the chimpanzee, one needs to follow individuals for a long time to know whether or not two adult males are brothers or how many offspring a female rears during her lifetime. Before scientists learned to analyse DNA extracted from fecal or hair samples, the only way to know about genetic relatedness was a long-term project such as the one Nishida set up.

Fifty years later, Nishida is not with us anymore, but his work continues unabated, carried out by former students and young colleagues on a scale that arguably exceeds that of any other chimpanzee field site in Africa. I once spent some time at Mahale, and was impressed by the dedication and sweaty hard fieldwork that is required. In order to follow the chimpanzees around, which is done every day, they obviously first need to be found. Fortunately, chimps are an exceptionally noisy species, often calling from one end of the forest to the other, which helps in locating them. One of Nishida's many discoveries was that these apes form so-called *unit-groups*, whose members rarely travel all together, but disperse over the forest in smaller groups, or "parties," which meet intermittently. Once found, a party is followed through a dense and hilly jungle, full of sections that humans find hard to negotiate. The best way to ensure continued observation is to follow the chimps until they build their beds, or night nests, which they do high up in the trees, and to arrive early next morning at the same tree before they wake up. This method obviously implies that fieldworkers get little rest, and need to travel through dark forest at both dawn and dusk.

I gained deep respect for their endurance, and look at this volume through the same eyes, thinking of the effort that went into collecting all of the precious information it contains. The volume offers an overview of many areas, from the ecology of the park and the food habits of the apes to their health, social organization, occasional violence, endocrinology, internal parasites, and the specific cultural patterns observed at Mahale. Primate culture has become a huge topic focused on habits and behavior patterns that are not genetically, but socially transmitted, producing impressive behavioral diversity in chimpanzee populations across Africa. The Mahale project has been at the forefront of these discoveries, largely because of the very detailed, often videotaped, description of all sorts of behavior patterns. One of this population's many characteristic patterns is the *social scratch* (i.e. one individual deliberately scratching the back of another), which is virtually unknown in other populations in the world.

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One significant advance in the study of chimpanzee habits is the discovery that wild chimpanzees consume *Aspilia* leaves, which lack known nutritional value, and are in fact not digested. The apes consume them slowly, mostly in the morning, swallowing the leaves whole, without chewing. The leaves may help them expel parasites. The new field of zoopharmacognosy (i.e. self-medication by animals ingesting plants, insects, or soils) that resulted from this discovery receives attention in this volume, as do many other areas of learned and transmitted behavior at Mahale.

Without making an attempt to review all of the various approaches and topics that are covered, I was struck by the attention to a variety of “political” behaviors, from grooming to coalitions, and to the sharp difference chimpanzees make between in-group and out-group. They are hostile and violent against their neighbors yet show conflict management within their own unit-group. Many developments within and between unit-groups have been followed for years on end, providing a detailed record of shifts in the hierarchy, migrations, and demographic changes. In this context, it is informative to return to notes on historical events, such as one chapter that treats the final days of the last male of K group, in 1982, and the eventual extinction of this unit-group.

The present volume summarizes research projects in first-hand accounts by scientists who have actually worked at Mahale. Some of the material has previously been published, but not always in English. It was never brought together in the coherent whole that we now hold in our hands, however. It offers a treasure trove of information, which is especially useful given our current interest in detailed behavioral comparisons between chimpanzee populations. How wild chimpanzees differ from location to location, either due to genetic factors (e.g. subspecies), ecological differences, or special cultural traditions, helps build an ethnographic record of chimpanzee societies, something thus far not tried for any species other than our own.

Unfortunately, chimpanzees are, like all the apes, under grave existential threat. In the coming 50 years, the species may disappear from all but a few selected sanctuaries and parks. Mahale became Tanzania’s 11th national park in 1985, thanks to an initiative by Toshisada Nishida and his teacher, Jun’ichiro Itani, which was followed by the establishment of the Mahale Wildlife Conservation Society in 1994. Not only has Mahale been at the forefront of the accumulation of scientific information on the species, it also remains central for its conservation, setting an inspiring example for other field sites. The combination found at Mahale between detailed record keeping of behavior and ecology, controlled ecotourism, and conservation efforts provides perhaps the best safeguard against extinction of a species that, as no other, sheds light on our own evolutionary background.

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PREFACE

Michio Nakamura, Kazuhiko Hosaka, Noriko Itoh, and Koichiro Zamma

Chimpanzee research in the Mahale Mountains, Tanzania, started in 1965 and reaches its 50th year in 2015. Over these 50 years, more than 70 researchers and students have participated in field studies at Mahale. Each of them has focused on particular research topics: from the society, behavior, and ecology of chimpanzees, to the natural environment surrounding them. Such studies have been published in more than 300 academic papers in English and more than 400 articles and books in Japanese. This book aims to commemorate the 50th year of research at Mahale and summarizes the various research outcomes and knowledge gained during this half century. For Western readers, the long-term chimpanzee study at Gombe, started by Jane Goodall, may be more familiar and famous. However, another long-term research project started by the late Toshisada Nishida is equally important and has contributed much in understanding chimpanzees. The Mahale project has been continued seamlessly by Nishida, his colleagues, and students, targeting the wide scope of chimpanzee sociality, behavior, and ecology.

Nishida, as a founder and principal researcher, authored a monograph in 2012 on Mahale's chimpanzees, titled *Chimpanzees of the Lakeshore*, published by Cambridge University Press. Much of the book was his autobiography describing various episodes of his research life in Tanzania. Although the book included several important academic topics to which he dedicated his research career, it was not intended to comprehensively cover the research topics investigated by other researchers at Mahale. Nishida wanted to edit an encyclopedic volume about Mahale, which would complement his personal account. However, his untimely death prevented this. We pursued his goal, making use of the apt opportunity of the 50th year of research at Mahale.

Although this book takes the form of an edited volume, we asked authors to summarize the research outcomes from Mahale for their chapter topics. Thus, the reader will easily learn the key information published from Mahale. We focus on the accumulation of the research effort of 50 years. Thus, we highlight long-term changes in behavior wherever possible. For a wider perspective, we include comparative findings from other chimpanzee research sites across Africa. Finally, we seek to introduce and summarize the publications that were written only in Japanese in English. Most researchers who have worked at Mahale are Japanese and have published many reports about their findings, some of which are important to the scientific community but inaccessible to non-Japanese-speaking researchers.

Although we aimed for this book to be as comprehensive as possible, there must be some topics that remain to be understood. Compared with thousands of years of efforts to understand our own species, humans, from ancient ages, 50 years are insufficient to understand our evolutionary neighbors. We hope that this book will inspire the younger generations to participate in the studies and conservation of this fascinating species and that the research will continue for another 50 years.

ACKNOWLEDGMENTS

First of all, we would like to express our gratitude to William C. McGrew whose encouragement and advice certainly helped us realize our ambitions to publish this book. We also show deepest gratitude to Mahale predecessors and colleagues, Jun'ichiro Itani, Toshisada Nishida, Kenji Kawanaka, Shigeo Uehara, Kohshi Norikoshi, and those listed in Appendix V, who have contributed by the accumulation of common data and maintenance of the research camp. Some of their families also stayed at Mahale and helped the camp management: Haruko Nishida, Hatsuko Kawanaka, Moyo Uehara, Hideko Kakeya, Hitomi Takahata, Kazumi Takasaki, and Kazue Ihobe. We would also like to thank Japanese TV crews, Miho Nakamura, Tamotsu Asou, Masayasu Mori, and Mitsue Matsuya for their various support and collaboration in the field.

The long-term research would not have been possible without help from research assistants at Mahale, Omali Kabule, Mkoli Saidi, Ramadhani Nyundo, Mohamedi Seifu, Sadi Katensi, Jumanne Katensi, Juma Kahaso, Issa Ally Kapama, Haruna Sobongo, Alimasi Kasulamenba, Kabukula Kasulamenba, Athumani Katumba, Haruna Huseni, Ramadhani Kabilambe, Ramadhani Kasakampe, Matumula Nyundo, Rashidi S. Kitopeni, Moshi Bunengwa, Hamishi Bunengwa, Moshi Hamisi (Samola), Rashidi Hawazi (Kijanga), Saidi Musa, Yasini Kiyoya, Hassani Kajugi, Mtunda Mwami, Hamisi Katinkila, Moshi Matumula, Kabumbe Athumani, Bunde Athumani, Luhembe Ramadhani, Abdala Ramadani, Juma Hassani, Makelele Masayuke, Shabani Kabangula, Mwami Rashidi, Bunengwa Hamisi, Deosdery Shija, Hamisi Ramadhani, Shaka Kabugonga, Luhunga Ramadhani, Ramadhani Hamisi, Jafari Zuberi, Maiko Salumu, Moshi Haruna, Baraka Rehani, and Hemedi Rashidi. All have helped us tremendously at different times during the 50 years.

We also owe our gratitude to many predecessors, colleagues, and counterparts who worked or are working at various places in Tanzania, such as Kinji Imanishi, Akira Suzuki, Shigeru Azuma, Kosei Izawa, Takayoshi Kano, Akisato Nishimura, Gen'ichi Idani, Hideshi Ogawa, Midori Yoshikawa, Toshimichi Nemoto, Asami Kanayama, Juichi Itani, Hosea Kayumbo, George Sabuni, Edeus Massawe, Julius Keyyu, Edward Kohi, Pius Kavana, Steven Temu, Tadei Clamsen, Andrei K. Seki, Frederick Malisa, Hassani Mbagha, Crispin Mwinuka, Herman Batiho, Butati Nyundo, Kozo Tomita, Eiko Kimura, and Masaki Nishida.

We thank the Tanzania Commission for Science and Technology, the Tanzania Wildlife Research Institute (formerly Serengeti Wildlife Research Institute), the Tanzania National Parks, the Mahale-Gombe Wildlife Research Centre (formerly Mahale Mountains Wildlife Research Centre), and the Mahale Mountains National Park for their permission to conduct research at Mahale and for logistic support.

Many chapter authors graduated from the Graduate School of Science, Kyoto University. Therefore, we would like to thank its current and former members: Juichi Yamagiwa, Naofumi Nakagawa, Shigeru Suzuki, Chisa Tokimatsu, Ayako Tokunaga, Hidemi Ishida, Kazumichi Katayama, Suehisa Kuroda, Masato Nakatsukasa, Naomichi Ogihara, Yuko Eguchi, Kaoru Imamura, Masato Sawada, Naobi Okayasu, Kaori Kawai, Tomoaki Nishihara, Toru Soga, Daisuke Takekawa, Koichi Kitanishi, Kaoru Adachi, Hiroyuki Takahashi, Yuji Takenoshita,

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We acknowledge *Pan* researchers, such as Yukimaru Sugiyama, Tetsuro Matsuzawa, Takeshi Furuichi, Chie Hashimoto, Gen Yamakoshi, Yasuko Tashiro, Gaku Ohashi, Richard Wrangham, and Vernon Reynolds, for their discussion and/or acceptance to their field sites for comparative research.

We, the editors, would also like to thank colleagues Shiro Kohshima, Miho Murayama, Hideki Sugiura, Masayuki Tanaka, Satoshi Hirata, Naruki Morimura, Michiko Fujisawa, Tadamichi Morisaka, Aya Saito, and Takushi Kishida at the Wildlife Research Center, Kyoto University, and Kazuteru Fukui at the Kamakura Women's University.

The long-term research and conservation activities at Mahale have been financially supported by various funding organizations (see Appendix VII for the list of research grants). We particularly want to thank the Ministry of Education, Culture, Sports, Science and Technology in Japan, the Japan Society for the Promotion of Science, the Japan International Cooperation Agency, the Japan Environment Corporation, the Japan Great Ape Conservation Fund (Tamotsu Aoki and Yuichiro Kitamura), and the Embassy of Japan in Tanzania.