



Pachyderm

Journal of the African Elephant, African Rhino
and Asian Rhino Specialist Groups

July 2019—June 2020

No. 61

Managing Editor

Suzannah Goss

Section Editors

Kees Rookmaaker—African and
Asian Rhinos

Lydia Tiller—African Elephants

Editorial Board

Richard Emslie

Deborah Gibson

Suzannah Goss

Mike Knight

Benson Okita-Ouma

Robert Olivier

Kees Rookmaaker

Rob Slotow

Bibhab K Talukdar

Lydia Tiller

Lucy Vigne

Copy Editors

Andrew Halliday

Suzannah Goss

Kees Rookmaaker

Layout

Roshni Peshavaria

Address all correspondences, including
enquiries about subscription, to

The Managing Editor, *Pachyderm*

PO Box 68200–00200

Nairobi, Kenya

Tel: +254 20 249 3561/65

Email: pachydermeditor@gmail.com

Website: http://www.iucn.org/african_elephant

<http://pachydermjournal.org>

Reproduction of manuscripts in this publication
for educational or other non-commercial
purposes is authorized without written
permission from the copyright holder, provided
the source is fully acknowledged.

1 Chair reports/Rapports des Présidents

- 1 African Elephant Specialist Group Chair
report/ Rapport du Groupe de Spécialistes
de l'Éléphant d'Afrique

Benson Okita-Ouma and Rob Slotow

- 23 African Rhino Specialist Group Chair
report/ Rapport du Groupe de Spécialistes
du Rhinocéros d'Afrique

Mike Knight

- 43 Asian Rhino Specialist Group Chair report/
Rapport du Groupe de Spécialistes du
Rhinocéros d'Asie

Bibhab K Talukdar

49 Research

- 49 More than just mud: the importance of
wallows to Javan rhino ecology and
behaviour

*Steven G Wilson, Georgina Hockings,
Jo-Anne M Deretic, Salit Kark*

Cover caption: "Tim" (1970–2020), one of the last remaining
iconic "tusker" elephants in Kenya died of natural causes
in Amboseli National Park in February 2020, aged 50. Tim
whose tusks swept the ground was well-known and much-
photographed earning significant revenue for the Kenya Wildlife
Service from tourism.

©Ryan Wilkie

- 63 System for Elephant Ear-pattern Knowledge (SEEK) to identify individual African elephants
Anka Bedetti, Cathy Greyling, Barry Paul, Jennifer Blondeau, Amy Clark, Hannah Malin, Jackie Horne, Ronny Makukule, Jessica Wilmot, Tammy Eggeling, Julie Kern, Michelle Henley
- 78 The status of the forest elephant in the world heritage Dja Faunal Reserve, Cameroon
Rajan Amin, Oliver Fankem, Oum Ndjock Gilbert, Thomas Bruce, Constant Ndjassi, David Olson, Andrew Fowler
- 90 An accurate molecular method to sex elephants using PCR amplification of Amelogenin gene
George L Gwaltu
- 97 Evaluating uncertainty in estimates of large rhinoceros populations
Sam M Ferreira and Danie Pienaar
- 109 Management**
- 109 Progress on the Kenya black rhino Action Plan (2017–2021)
Cedric Khayale, Linus Kariuki, Geoffrey Chege, Mxolisi Sibanda, Martin Mulama, Benson Okita-Ouma, Rajan Amin
- 120 Local attitudes and perceived threats of human-elephant conflict: a case study at Lake Jipe, Kenya
Maureen W Kinyanjui, Naiya R Raja, Ewan J Brennan, Lucy E King, Lydia N Tiller
- 131 Night census and infrared technology monitoring of a black rhinoceros population and species competition monitoring to inform management action in Tsavo, Kenya
Sospeter M Kiambi, Kenneth Muriithi, Grace Waiguchu, Kenneth Ochieng, Linus Kariuki, Patrick Omondi
- 140 Alternative crops as a mitigation measure for elephant crop raiding in the eastern Okavango Panhandle
Tiroyaone A Matsika, Joseph A Adjetey, Motshwari Obopile, Anna C Songhurst, Graham McCulloch, Amanda Stronza

153 History

- 153 Part I. Policies of confusion 1960—1978: elephant ivory, rhino horn and hippo teeth

Ian SC Parker and AD Graham

- 161 Part II. Auctions and export from Mombasa 1960—1978: elephant ivory, rhino horn and hippo teeth

Ian SC Parker and AD Graham

- 176 Rhinoceros pulling a plough—fact or fiction?

Kees Rookmaaker

179 Field Notes

- 179 Anti-poaching strategies employed by private rhino owners in South Africa

Laura A Chapman and Piran CL White

- 184 The maximum size of the greater one-horned rhinoceros (*Rhinoceros unicornis*)

Kees Rookmaaker

- 191 Does dehorning lead to a change in inter-calf intervals in free-ranging white rhinoceros?

Samuel G Penny, Rachel L White, Dougal MacTavish, Lynne MacTavish, Dawn M Scott, Angelo P Pernetta

- 194 The battle for breeding rights—male behaviour at Ziwa Rhino Sanctuary, Uganda

Felix J Patton, Petra E Campbell, Angie Genade

197 Review

- 197 Myanmar's growing illegal ivory trade with China (Lucy Vigne and Esmond Martin)

John Frederick Walker

- 200 Survival or extinction? How to save elephants and rhinos
(Bridget Martin)
Suzannah Goss
- 203 Obituaries**
- 203 Tribute to Colin Groves by Alison M Behie
- 205 Acknowledging our Reviewers**
- 206 Guidelines for contributors**

Donate to *Pachyderm*

To support the continued publication of *Pachyderm* and its contribution to the conservation and management of African elephants, African rhinos and Asian rhinos, please click <http://goo.gl/P2Czvk> to donate. Indicate *Pachyderm* in the organisation field.

Acknowledgements

A special thank you to the OAK Foundation who have fully funded this Issue of *Pachyderm*.



Views expressed in *Pachyderm* are those of the individual authors and do not necessarily reflect those of IUCN, the European Union, the Species Survival Commission or any of the three Specialist Groups responsible for producing *Pachyderm* (the African Elephant Specialist Group, the African Rhino Specialist Group and the Asian Rhino Specialist Group).