



The International Journal of Conservation

ORYX

www.oryxthejournal.org

Published for
Fauna & Flora International

July 2018 · Volume 52 · Number 3

Plant conservation

Seed dispersal syndromes
A botanical mystery solved
A hundred years' tale
Conservation & development conflict
Conservation framework for palms
Contribution of seed banks
Grassland plant diversity

Attitudes to protected areas

Insights from Ghana

Hunting in Afghanistan

Variation in motivations

Clear and present danger

Poisoning of a vulture population

Walking on their own legs

Reintroduced agouti

ISSN 0030-6053 Fauna & Flora International
A company limited by guarantee registered in England 2677068
Registered Charity 1011102
A non-profit charitable institution ABN 75132715783 in Australia
A non-profit organization EIN #81-3967095 in the USA
Twitter @oryxthejournal

FFI, The David Attenborough Building, Pembroke St,
Cambridge CB2 3QZ, UK
Tel: +44 1223 571000; Fax: +44 1223 461481
E-mail info@fauna-flora.org http://www.fauna-flora.org
FFI Australia, PO Box R697, Royal Exchange, NSW 1225, Australia;
E-mail ffiaustralia@fauna-flora.org
FFI USA, 1720 N Street NW, Fourth Floor, Washington, D.C. 20036,
USA; E-mail ffiusa@fauna-flora.org

Editor

Dr Martin Fisher FFI, UK

Managing Editor

Julia Hochbach FFI, UK

Editorial Assistant

Jessica Haskell FFI, UK

Senior Editors

Professor Bill Adams *University of Cambridge, UK*
Professor Andrew Balmford, FRS *University of Cambridge, UK*
Dr Porter P. Lowry II *Missouri Botanical Garden, USA and France*
Dr Mike Maunder *Eden Project, UK*
Professor Jeffrey A. McNeely *Thailand*
Professor E. J. Milner-Gulland *University of Oxford, UK*
Dr John G. Robinson *Wildlife Conservation Society, USA*
Professor William Sutherland *University of Cambridge, UK*

International Board of Editors

Dr Elizabeth L. Bennett *USA*
Professor Neil Burgess *Denmark*
Dr Lisa Campbell *USA*
Dr Jenny Daltry *UK*
Dr Joice Ferreira *Brazil*
Dr Brendan Fisher *USA*
Professor Brendan J. Godley *UK*
Professor Rhys Green *UK*
Dr James Iggoe *USA*
Professor Zhigang Jiang *China*
Dr K. Ullas Karanth *India*
Dr Gustavo Kattan *Colombia*
Dr Sandra Knapp *UK*
Ashish Kothari *India*
Dr Sarah Legge *Australia*
Dr Kathy MacKinnon *UK*
Dr David Mallon *UK*

Dr Charudutt Mishra *India and USA*

Professor Yaa Ntiamoah-Baidu *Ghana*
Dr David Obura *Kenya*
Sara Oldfield *UK*
Dr Kent H. Redford *USA*
Dr Jon Paul Rodriguez *Venezuela*
Dr Anthony B. Rylands *USA*
Professor Philip Seddon *New Zealand*
Dr Noah Sitati *Kenya*
Dr Bob Smith *UK*
Dr Paul Smith *UK*
Dr Rashid Sumaila *Canada*
Dr Matt Walpole *UK*
Dr Sven Wunder *Brazil*

Rove McManus

Blaine T. Phillips
Dr Lisbet Rausing
Dr Claudio Segré
The Rt Hon Mark Simmonds
Hugh Sloane
Jon L. Stryker
Charles Whitbread
The Rt Hon Baroness Young of Old Scone

Council

Chair Andrew Sykes
Vice Chair
Professor Nigel Leader-Williams
Treasurer Paul Baldwin

Stephen Georgiadis

David Gibson
Dr Charlotte Grezo
Andrew Joy
Dr Sandra Knapp
Annette Lanjouw
Mike Maunder
Richard Plackett
Sir Gareth Rhys-Williams
Edward van Cutsem
Diana van de Kamp
Professor Bhaskar Vira
John Wotton

Chief Executive Officer Mark Rose**US Board of Directors**

President Dr Sandra Knapp
Secretary Diana van de Kamp

Diane Alfano
Dorette Louise (Dielle) Fleischmann

Australian Board of Directors

Chairman Michael Forsdick
Nick Bubb
Dr Angela Dwyer
Mark Rose

FFI Member Subscription Membership of Fauna & Flora International starts from £45 a year for concessions and £85 for other members (or equivalent price in dollars/euros). For more information about FFI membership visit <http://www.fauna-flora.org/membership>. Enquiries about back issues for members should be addressed to the Membership Secretary at FFI (members@fauna-flora.org).

Institutional Subscription Oryx (ISSN 0030-6053) is published four times a year (one volume per annum) in January, April, July, and October. The 2018 subscription price (excluding VAT) of a volume, which includes print and electronic access, is £746.00 (US \$1343.00 in USA, Canada and Mexico). The electronic-only price available to institutional subscribers is £592.00 (US \$1061.00 in USA, Canada and Mexico).

Orders, which must be accompanied by payment, may be sent to any book seller, subscription agent or direct to the publisher: Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK; or in the USA, Canada and Mexico: Journals Fulfillment Department, Cambridge University Press, 1 Liberty Plaza, Floor 20, New York, NY, 10006, USA. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered members should provide their VAT registration number. Japanese prices for institutions (including ASP delivery) are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan. Prices include delivery by air. Periodicals postage paid at New York, NY, and at additional mailing offices. Postmaster: send address changes in USA, Canada and Mexico to: Oryx, Cambridge University Press, 1 Liberty Plaza, Floor 20, New York, NY, 10006, USA. Claims for missing issues should be made immediately on receipt of the subsequent issues.

Back volumes Copies of the current volume and two previous volumes can be obtained from Cambridge University Press at the above address. Requests for previous volumes should be directed to the Membership Secretary at FFI (members@fauna-flora.org).

Copyright and Permissions This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organizations in the USA who are also registered with C.C.C. may therefore photocopy material (beyond the limits permitted by Section 107 and 108 of U.S. Copyright law) subject to payment to C.C.C. of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0030-6053/2017 \$16.00. ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA, is authorized to supply single photocopies of separate articles for private use only. Organizations authorized by the UK Copyright Licensing Agency may also copy material subject to the usual conditions. For all other use, permission should be sought from Cambridge University Press.

No part of this publication may otherwise be reproduced, stored or distributed by any means without permission in writing from Cambridge University Press, acting for the copyright holder.

Internet Access This journal is included in *Cambridge Core*, which can be found at: <http://cambridge.org/orx>. For further information on other Press titles access <http://cambridge.org>.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-government, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.