

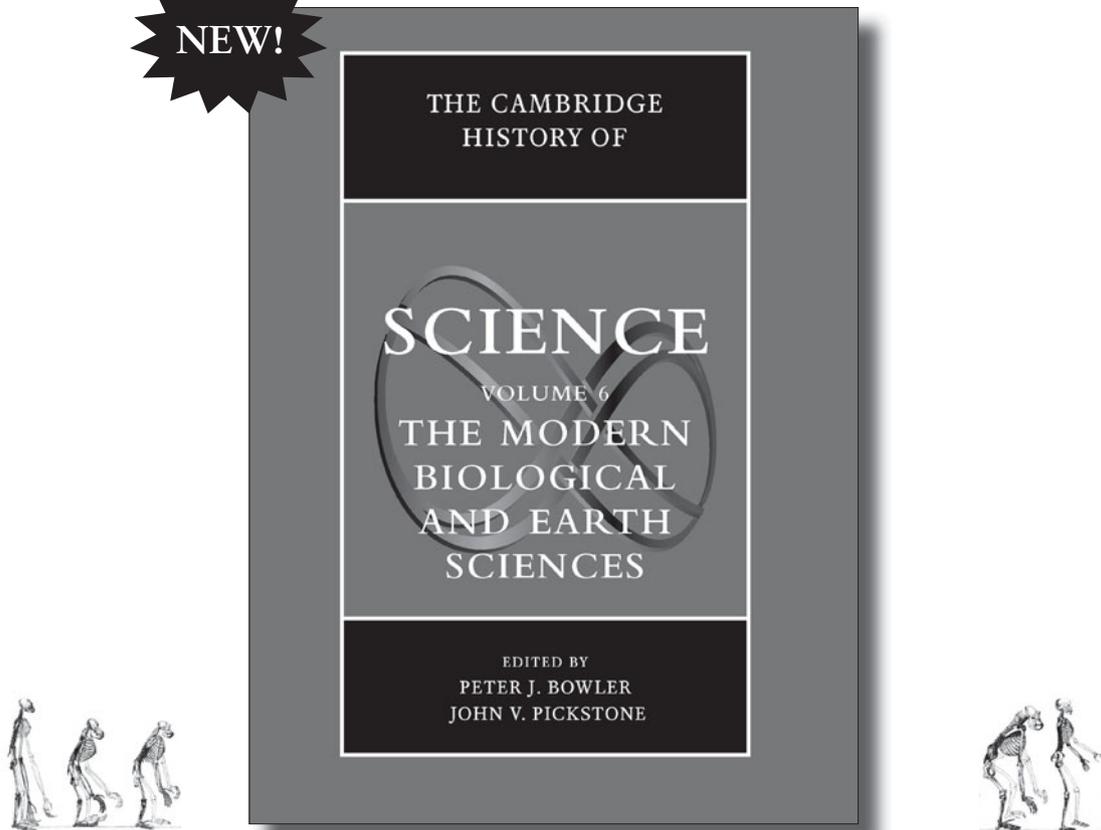
CAMBRIDGE

The Cambridge History of Science

Volume 6: The Modern Biological and Earth Sciences

Edited by Peter J. Bowler and John V. Pickstone

NEW!



- Comprehensive account of the history of the life and earth sciences
- Authoritative surveys of historical thinking on science by expert authors
- Introduction to the latest thinking in the history of science for readers seeking a basic understanding on which to build

688 pages / 3 tables

Series: *The Cambridge History of Science*
Hardback / ISBN: 978-0-521-57201-9

Available March 2009
\$160.00

www.cambridge.org/us



CAMBRIDGE
UNIVERSITY PRESS

1584 · 2009

425 YEARS OF CAMBRIDGE
PRINTING AND PUBLISHING

CAMBRIDGE

JOURNALS



Bird Conservation International

Published for BirdLife International

Bird Conservation International

is available online at
journals.cambridge.org/bci

**To subscribe contact
Customer Services**

in Cambridge:

Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:

Phone (845) 353 7500
Fax (845) 353 4141
Email
subscriptions_newyork@cambridge.org

Editor-in-Chief

Stuart J. Marsden, Manchester Metropolitan University, UK

The official journal of BirdLife International, *Bird Conservation International* provides stimulating, international and up-to-date coverage of a broad range of conservation topics, using birds to illuminate wider issues of biodiversity conservation and sustainable resource use. It publishes papers and reviews to promote world-wide research and action for the conservation of birds and the habitats upon which they depend.

Price information is available at

journals.cambridge.org/bci

Free email alerts

Keep up-to-date with new material –
sign up at journals.cambridge.org/register

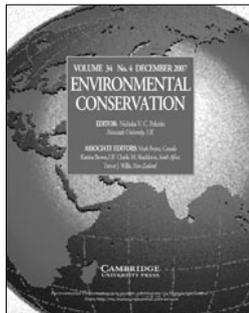
For a free online sample visit
journals.cambridge.org/bci



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS



Environmental Conservation

Published for the Foundation for Environmental Conservation

Environmental Conservation

is available online at
journals.cambridge.org/enc

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:

Phone (845) 353 7500
Fax (845) 353 4141
Email
subscriptions_newyork@cambridge.org

Editor

Nicholas V. C. Polunin, University of Newcastle, UK

Environmental Conservation is one of the most cited interdisciplinary environmental science journals. It publishes research papers, comments, subject reviews and book reviews dealing with environmental science, policy and practice from local to global scales. The journal's scope is very broad, including issues in human institutions, climate change, habitat dynamics and resource sustainability across all the Earth's ecosystems. *Environmental Conservation* is essential reading for all environmental scientists, managers, consultants, agency workers and environmentalists to keep abreast of developments in environmental science and practice.

Price information is available at
[**journals.cambridge.org/enc**](http://journals.cambridge.org/enc)

Free email alerts

Keep up-to-date with new material –
sign up at [**journals.cambridge.org/register**](http://journals.cambridge.org/register)

For a free online sample visit
[*journals.cambridge.org/enc*](http://journals.cambridge.org/enc)



CAMBRIDGE
UNIVERSITY PRESS



THE FLAGSHIP SPECIES FUND

Launched in 2001, FFI's Flagship Species Fund has provided almost £1 million to protect 56 'charismatic' species – species that have important ecological roles and whose protection helps conserve other plants and animals living in the same habitats. These include mountain gorillas, spider monkeys, marine turtles, Cao Vit gibbons, Siamese crocodiles, Irrawaddy dolphins, snow leopards, cheetahs, Sumatran tigers and many others.



EMERGENCY RESPONSE

FFI was the only international conservation organisation to help coordinate the immediate emergency response to the Indian Ocean Tsunami in Aceh, Sumatra, in December 2004. FFI has been working in Aceh since 1998, and was able to help where other organisations could not. FFI has developed a post disaster programme, helping to secure a multi-donor grant of US\$17.6 million for forest protection.

*Fauna & Flora International,
Jupiter House, 4th Floor, Station
Road, Cambridge, CB1 2JD, UK.
Tel +44 (0)1223 571000
Fax +44 (0)1223 461481
Email: info@fauna-flora.org*

*FFI works in over 40
countries, and is involved
in more than 180 projects.
Here are a few of them...*



HALTING DEFORESTATION

Working on the front line in the battle against deforestation in Ecuador, FFI has been instrumental in protecting a strip of forest known as the 'Awacachi Corridor', alongside our local partner. By linking two existing nature reserves via this corridor, we've vastly increased its conservation value. Now we must work to reinforce the corridor at the points where it is most vulnerable to logging and conversion to palm oil plantations. Raising the funds necessary to achieve this will be crucial to the project's success.



BIODIVERSITY & HUMAN NEEDS

FFI wants to ensure that conservation and rural livelihoods are compatible. In the vast Niassa Reserve in Mozambique we helped develop policies that gave the 20,000 reserve residents a say in how the Reserve is managed and used, to protect their rights and traditional practices. In Liberia we helped to draft national legislation that incorporated community interests into forest land use planning.



*Fauna & Flora International is
the world's longest established
conservation organisation,
founded in 1903. We work to
conserve threatened species
worldwide, choosing solutions
that are sustainable, based
on sound science and take
account of human needs.*



BUSINESS AND BIODIVERSITY

FFI works with the private sector to try to ensure that business activities are not undertaken at the expense of biodiversity. We believe that constructive engagement is key to influencing the environmental policies and practices of business and achieving sustainable development. Our approach involves working with the private sector to enable it to understand and manage its impacts on biodiversity.

***We need your support
to protect the world's
threatened species and
ecosystems worldwide.***

www.fauna-flora.org



FAUNA & FLORA
International
Conserving wildlife since 1903

Has nature inspired you in your lifetime? Give future generations the chance to experience the same wonderful world that you know and love leave a legacy to Fauna & Flora International and help us keep the planet the way you remember it.



A legacy to us will make the world of difference

There can be no more positive act than that of preserving the planet.

Imagine a planet where the orangutan or the tiger are merely remote references in a text book or where natural history programmes feature only footage of animals kept in captivity because there are too few in the wild to film. This could be the future planet that your grandchildren live in.

The list of species on the brink of extinction has reached unprecedented levels. Habitat loss, overhunting, and many other threats are destroying the earth's ecosystems, and climate change may push some already endangered species over the edge. **We need to act now to save the planet's wild animals and wild places if we want future generations to enjoy them as we do.**

FFI is committed to raising funds to conserve life on Earth, and we are entirely reliant upon subscriptions, donations, grants and legacies to do this. In the face of today's immense environmental challenges, donations in the form of legacies are amongst our greatest chances to fulfil our aims.

Please consider leaving FFI a Gift in your Will. Of course you will want to make provision for your family and close friends first; we only ask that you consider leaving a share of what is left to the conservation of the planet through FFI's work.

You can learn more about how to help FFI in your Will from our website at:

www.fauna-flora.org/legacies.php or call Milly on +44 (0)1223 579018 for a personal chat.

A Gift in your Will is a simple but effective way for you to make a huge difference to the world you leave for your family.



For further information, e-mail us at camila.iturra@fauna-flora.org

Alternatively contact Milly at: Fauna & Flora International, Jupiter House, 4th Floor, Station Road, Cambridge, CB1 2JD.

Tel: +44 (0)1223 579018 Fax: +44 (0)1223 461481. www.fauna-flora.org

Established in 1903. A Company limited by Guarantee, Registered in England Number 2677068. Registered Charity Number 1011102. *Photos* © Juan Pablo Moreiras / FFI

Fauna & Flora International membership application (Please complete in block letters)

Surname _____ First name(s) _____ Title _____

Address _____

Postcode _____

Membership categories

(tick appropriate box)

- Concessionary (senior citizen, unwaged, student*, includes *Oryx* and *Fauna & Flora*, FFI's magazine) **£40**
- Sponsor (includes additional subscription for *Oryx* in a developing country) **£125**
- Supporter (includes *Fauna & Flora*) **£35** Life **£1500**
- Oryx** (includes *Oryx* and *Fauna & Flora*) **£75**

Payment is also accepted in Euro or USD; contact the Membership Secretary for details

*If student please give date you expect to finish studies _____



Methods of payment

Cheque/postal order (currency: pounds sterling only) I enclose £ _____

Credit Card (state American Express, Visa, Delta, Switch*, Mastercard, CAF, Eurocard) _____

Name of card holder _____ Expiry date _____ / _____ Valid from _____ / _____

Card Number

Three-digit security number (on back of card)

*If paying by Switch, please state issue number _____

FOR UK BANK ACCOUNT HOLDERS ONLY

Direct Debit (Please fill in the whole form and send it to FFI)

Originator's identification number 916890



1. Name and full postal address of your Bank or Building Society branch

To: The Manager _____ Bank or Building Society

Address _____ Postcode _____

2. Name(s) of account holder(s) _____

3. Branch Sort Code - -

4. Bank or Building Society account No. _____ 5. FFI ref. no. (office use only) _____

6. Instructions to you Bank or Building Society. Please pay Fauna & Flora International Direct Debits from the account detailed on this instruction subject to safeguards assured by The Direct Debit Guarantee

Signature(s) _____ Date _____

FOR UK TAX PAYERS ONLY

Gift Aid Declaration

Please return your completed membership application to:

I would like my subscription payment and any donations to Fauna & Flora International to be under the Gift Aid 2000 scheme. I will be paying an amount of income tax and/or capital gains tax at least equal to the tax that Fauna & Flora International reclaims on my subscription in each tax year.

Name _____

Address _____

Postcode _____

Signature _____

Date _____

Membership Secretary, Fauna & Flora International, 4th Floor, Jupiter House, Station Road, Cambridge CB1 2JD, UK



The Direct Debit Guarantee

This guarantee should be detached and retained by the Payer

- This Guarantee is offered by all Banks and Building Societies that take part in the Direct Debit Scheme. The efficiency and security of the scheme is monitored and protected by your own Bank or Building Society.
- If the amounts to be paid or the payment date changes, Fauna & Flora International will notify you 14 days in advance of your account being debited or as otherwise agreed.
- If an error is made by FAUNA & FLORA INTERNATIONAL or by your Bank or Building Society, you are guaranteed a full and immediate refund from your branch of the amount paid.
- You can cancel a Direct Debit at any time by writing to your Bank or Building Society. Please also send a copy of your letter to us so that we can alter our records.



Instructions for Contributors

Oryx—*The International Journal of Conservation*, published quarterly on behalf of Fauna & Flora International, is a journal of biodiversity conservation, conservation policy and sustainable use, and the interactions of these with social, economic and political issues. The journal has a particular interest in material with the potential to improve conservation management and practice. *Oryx* also supports the publishing and communication aspirations of conservation practitioners and researchers worldwide, and helps build capacity for conservation.

Articles (2,000–7,000 words), *Reviews* (<7,000 words), *Forum* papers (<4,000 words) and *Short Communications* (<2,000 words) are invited on topics relevant to the journal's focus, including:

- The nature and results of conservation initiatives, including case studies
- Research on the sustainable use of wild species
- Research on the status of threatened species, taxonomic groups or habitats
- Reviews of conservation policy, strategy and legislation in practice
- Planning for species and biodiversity conservation
- The working of international conservation conventions
- The history of conservation, including the role of key people, organizations and initiatives
- The causes and consequences of biodiversity loss
- Case studies of conservation projects and programmes
- The social, economic and political dimensions of conservation

Reviews provide comprehensive overviews of a particular conservation topic. *Forum* papers promote debate about current and controversial issues, with critical responses commissioned from one or more authors. *Articles* on the status of threatened species, taxonomic groups or habitats should generally be <4,500 words and have, where relevant, a context beyond that of the subject studied.

Submission Online at <http://www.epress.ac.uk/oryx/webforms/author.php> (see <http://www.oryxthejournal.org> for further advice). **Upon submission the Corresponding Author must confirm that: (1) the submitted manuscript has not been published or submitted for publication elsewhere, (2) all authors have read the submitted manuscript and agreed to its submission, and (3) all authors have abided by the Code of Conduct for authors contributing articles (see *Oryx*, 35, 99–100 or <http://www.oryxthejournal.org>).** If there is overlap with other articles, including any in press or in preparation, this should be stated and the articles in question sent to the Editor. Both quantitative and qualitative methodology used in the reported work should be appropriate to the research question and must be clearly described. Management recommendations should be made where appropriate, and details of any implementation provided. Dates of any fieldwork must be provided and, other than long-term studies, submissions with data >4 years old will not normally be considered.

Preparation of manuscripts Consult a recent issue of *Oryx* for general style. Contributions should be in English, with British English spelling and terminology, double-spaced, without footnotes, and with line numbers. Submissions, which must consist of **only one manuscript file**, with all Tables, Figures and Plates at the end, may be in any widely used word processor format (but not PDF). For submission, graphics can be in low to medium resolution as long as they are legible, with publication-quality graphics to be provided upon any final acceptance. Cover page should contain title, word count (all inclusive except for Tables and Figure and Plate legends), and full mailing address, e-mail, and address at the time the research was carried out, if different, of the corresponding author and all additional authors. Pages to be numbered, and order of sections to be: cover page, main text, biographical sketches, Tables, Figure and Plate legends, Figures, Plates. Short Communications must not have any subheadings.

Title A succinct description of the work (≤20 words) preferably embodying either the aim or the overall conclusion.

Abstract In <250 words, the aims, methods, major findings and conclusions; should be informative without reference to the text and should not contain any references or undefined abbreviations.

Keywords Up to eight pertinent words or phrases, in alphabetical order.

Structure Articles should generally follow the Introduction, Study Area (where appropriate), Methods, Results and Discussion format. Minimize use of other subheadings.

References Cited in the text as, for example, Hardcastle & Wilson (1996) or (Leadbeater, 1996). For three or more authors use the first author's surname followed by et al. Multiple references to be in chronological order. Reference list should be in alphabetical order, and article titles and the titles of serial publications to be given in full. If citations and bibliography are prepared using a bibliography manager any field codes, tags or similar must be removed. The following are examples of *Oryx* style:

Beck, B.B., Rapaport, L.G. & Stanley Price, M.R. (1994) Reintroduction of captive-born animals. In *Creative Conservation: Interactive Management of Wild and Captive Animals* (eds P.J.S. Olney, G.M. Mace & A.T.C. Feistner), pp. 265–286. Chapman & Hall, London, UK.

Bowler, M. (1991) *Implications of large predator management on commercial ranchland in Zimbabwe*. MSc thesis, University of Zimbabwe, Harare, Zimbabwe.

Brady, L.D., Huston, K., Jenkins, R.K.B., Kauffmann, J.L.D., Rabearivony, J., Raveloson, G. & Rowcliffe, M. (1996) *UEA Madagascar Expedition '93*. Unpublished Report. University of East Anglia, Norwich, UK.

IUCN (2008) *2008 IUCN Red List of Threatened Species*. IUCN, Gland, Switzerland. <http://www.iucnredlist.org> [accessed 24 July 2008].

LeBoeuf, B.J., Kenyon, K.W. & Villa-Ramirez, B. (1986) The Caribbean monk seal is extinct. *Marine Mammal Science*, 2, 70–72.

MacArthur, R.H. & Wilson, E.O. (1967) *The Theory of Island Biogeography*. Princeton University Press, Princeton, USA.

Sutherland, W.J. (ed.) (1998) *Conservation Science and Action*. Blackwell Science, Oxford, UK.

Biographical sketches The research interests of all authors (<150 words total), over and above what is obvious from the subject of the manuscript and the authors' affiliations.

Tables Each on a separate page, with captions that are comprehensible without reference to the text.

Figures & Plates Guidelines for the preparation of Figures and Plates are at <http://www.oryxthejournal.org>

Appendices For mathematical or statistical models, lengthy tables, and questionnaires. May be published online-only, depending on length. Online-only appendices can also include Figures and Plates, and these can be in colour.

Abbreviations Minimize use, and provide full expansion of any at first mention in the text.

Symbols, units & currencies Use SI units (International System of Units, <http://www.bipm.org/en/si/>) and ISO 4217 currency codes (http://www.iso.org/iso/support/faqs/faqs_widely_used_standards/widely_used_standards_other/currency_codes/currency_codes_list-1.htm).

Nomenclature Where necessary, provide the basis used for nomenclature of taxa. The first time a species is mentioned its scientific name should follow without intervening punctuation, thus African elephant *Loxodonta africana*. English names should be in lower case throughout except when they incorporate a proper name.

Offprints, page charges & colour figures Contributors receive a PDF file of their article, and may purchase additional hard copy offprints. No page charges are levied. Colour Figures can be published but only at the author's expense.

Copyright Authors will be asked, upon acceptance of an article, to transfer copyright to Fauna & Flora International.

Review Manuscripts are subject to rigorous peer review. Contributors may suggest appropriate reviewers. For manuscripts with a substantial statistical content, one of the reviewers will be a statistician. The main criteria for acceptance are originality, scientific rigour, an appropriately broad context, relevance to the readership and acceptability of style. We receive more submissions than we are able to publish and the final authority in all matters relating to publication lies with the Editor.

Proofs Sent to authors as a PDF file (free viewer available from <http://www.adobe.com>). Corrected proofs must be returned to the Editor within 3 days of receipt; minor corrections can be communicated by e-mail.

The Editor welcomes contributions to the other sections of the journal (deadlines for the January, April, July and October issues are 1 October, 1 January, 1 April and 1 July, respectively), by e-mail to oryx@fauna-flora.org (see <http://www.oryxthejournal.org> for further advice).

Letters Substantial and informative contributions (<700 words) in response to material published in the journal.

Briefly News (<6 months old) of general conservation interest based on authoritative published sources (<150 words), including reputable web sites.

Conservation news Major recent developments (<6 months old) in conservation or important announcements (<700 words), other than from published sources.

Grants & Opportunities, Meetings and Publications Availability of grants or funding opportunities, meeting announcements and book reviews, respectively. Authors and publishers are invited to send publications to the Editor for potential review.

These *Instructions for Contributors* (including the *Guidelines for preparation of Figures & Plates* and the *Code of Conduct for authors contributing articles*) are available on the *Oryx* web site (<http://www.oryxthejournal.org>), from Cambridge University Press (<http://journals.cambridge.org/oryx>), or from the Editor, *Oryx*—*The International Journal of Conservation*, Fauna & Flora International, 4th Floor, Jupiter House, Station Road, Cambridge, CB1 2JD, UK; E-mail oryx@fauna-flora.org; Tel. +44 (0)1223 571000; Fax +44 (0)1223 461481.

Oryx is covered by *Biological Abstracts*, *BIOBASE/Current Awareness in Biological Sciences*, *Current Contents Agriculture, Biology and Environmental Science*, *Science Citation Index*, *SciSearch*, *Research Alert* and *Ecology Abstracts*.

- 157 Can science in China do more for conservation? *John R. Fellowes, Michael W.N. Lau and Bosco P.L. Chan*
- 158 Note from the Editor—Conservation in China
- 159 Briefly
- 169 Conservation news
- Conservation in China**
- 176 *Perspective* Conservation of the Endangered giant panda *Ailuropoda melanoleuca* in China: successes and challenges, *Jianghong Ran, Beibei Du and Bisong Yue*
- 179 *Perspective* Conservation of bats in China: problems and recommendations, *Libiao Zhang, Guangjian Zhu, Gareth Jones and Shuyi Zhang*
- 183 *Review* Tibetan antelope *Pantholops hodgsonii* conservation and new rangeland management policies in the western Chang Tang Nature Reserve, Tibet: is fencing creating an impasse? *Joseph L. Fox, Kelsang Dhondup and Tsechoe Dorji*
- 191 Surveys at a Tibetan antelope *Pantholops hodgsonii* calving ground adjacent to the Arjinshan Nature Reserve, Xinjiang, China: decline and recovery of a population, *William V. Bleisch, Paul J. Buzzard, Huibin Zhang, Donghua Xü, Zhihu Liu, Weidong Li and Howman Wong*
- 197 Distribution and conservation of the Sino-Mongolian beaver *Castor fiber birulai* in China, *Hongjun Chu and Zhigang Jiang*
- 203 The Critically Endangered black crested gibbon *Nomascus concolor* on Wuliang Mountain, Yunnan, China: the role of forest types in the species' conservation, *Fan Peng-Fei, Jiang Xue-Long and Tian Chang-Cheng*
- 209 *Short Communication* A small population and severe threats: status of the Critically Endangered Chinese crested tern *Sterna bernsteini*, *Shuihua Chen, Shouhua Chang, Yang Liu, Simba Chan, Zhongyong Fan, Cangsong Chen, Chung-wei Yen and Dongsheng Guo*
- 213 *Short Communication* The chelonian trade in the largest pet market in China: scale, scope and impact on turtle conservation, *Shi-Ping Gong, Alex T. Chow, Jonathan J. Fong and Hai-Tao Shi*
- 217 *Review* Bats as bushmeat: a global review, *Simon Mickleburgh, Kerry Waylen and Paul Racey*
- 235 Seasonality of habitat use, mortality and reproduction of the Vulnerable Antillean manatee *Trichechus manatus manatus* in the Orinoco River, Colombia: implications for conservation, *Delma Nataly Castelblanco-Martínez, Ana Lucía Bermúdez-Romero, Isabel Victoria Gómez-Camelo, Fernando Cesar Weber Rosas, Fernando Trujillo and Enrique Zerda-Ordoñez*
- 243 *Short Communication* Olive ridley turtle *Lepidochelys olivacea* in French Guiana: back from the brink of regional extirpation? *Laurent Kelle, Nicolas Gratiot and Benoît de Thoisy*
- 247 Distribution, habitat utilization and conservation of the Vulnerable bush dog *Speothos venaticus* in northern Brazil, *Tadeu G. de Oliveira*
- 254 *Short Communication* Distribution, population size and conservation of the endemic muriquis (*Brachyteles* spp.) of the Brazilian Atlantic Forest, *Andre A. Cunha, Carlos Eduardo Viveiros Grelle and Jean Philippe Boubli*
- 258 Spatial and temporal variation in meat and fish consumption among people in the western Serengeti, Tanzania: the importance of migratory herbivores, *J.W. Nyahongo, T. Holmern, B.P. Kaltenborn and E. Røskaft*
- 267 Decline in the geographical range of the southern patas monkey *Erythrocebus patas baumstarki* in Tanzania, *Yvonne A. de Jong, Thomas M. Butynski, Lynne A. Isbell and Claire Lewis*
- 275 Land cover change in western Madagascar's dry deciduous forests: a comparison of forest changes in and around Kirindy Mite National Park, *Amanda S. Whitehurst, Joseph O. Sexton and Luke Dollar*
- 284 *Short Communication* Subterranean herpetofauna show a decline after 34 years in Ndumu Game Reserve, South Africa, *G. John Measey, Adrian J. Armstrong and Cathariné Hanekom*
- 288 *Short Communication* Status and distribution of the Near Threatened Tibetan argali *Ovis ammon hodgsoni* in Ladakh, India: effect of a hunting ban, *Tsewang Namgail, Joseph L. Fox and Yash Veer Bhatnagar*
- 292 Decline of the Endangered lion-tailed macaque *Macaca silenus* in the Western Ghats, India, *Honnvallli N. Kumara and Anindya Sinha*
- 299 Distribution of the Endangered Hermann's tortoise *Testudo hermanni hermanni* in Var, France, and recommendations for its conservation, *Barbara Livoreil*
- 306 *Book review* Wildlife Conservation in China: Preserving the Habitat of China's Wild West
- 306 *Book review* The Dominant Animal: Human Evolution and the Environment
- 307 *Book review* Climate Change and Forests: Emerging Policy and Market Opportunities
- 308 *Book review* Ecological Restoration: Principles, Values, and Structure of an Emerging Profession
- 309 Meetings
- Cover:** The giant panda *Ailuropoda melanoleuca*, endemic to China, has been categorized as Endangered for nearly 20 years and remains threatened by habitat fragmentation and synchronous bamboo flowering and die-off. This issue includes a perspective on this icon of biodiversity conservation, along with seven further articles that illustrate the range of problems being tackled by conservationists in China. For further details see pages 176-216. (Photograph © Eric Baccaga / Naturepl.com).



Mixed Sources
Product group from well-managed
forests and other controlled sources
www.fsc.org Cert no. TT-COC-002769
© 1996 Forest Stewardship Council

Supported by

