

ENVIRONMENTAL CONSERVATION

International Journal of Interdisciplinary Environmental Science

EDITOR

Nicholas V. C. Polunin

ASSOCIATE EDITORS

John Innes, Aaron MacNeil, William J. McShea, Johan Oldekop, Andrew Reeson,
Charlie M. Shackleton, Edward Webb, Trevor J. Willis



Published on behalf of the Foundation for Environmental Conservation
journals.cambridge.org/enc

CAMBRIDGE
UNIVERSITY PRESS

ENVIRONMENTAL CONSERVATION

International Journal of Interdisciplinary Environmental Science

Environmental Conservation aims to embrace all aspects of its field, including issues in: human institutions and attitudes; biodiversity, species losses and introductions; industry, pollution and habitat degradation; movements and agencies; energy and materials sources; trade and conventions; terrestrial ecosystems and carrying capacity; dynamics of populations and ecosystems; atmospheric and oceanic processes; international environmental law; coastal zone management; and environmental economics.

EDITOR

Nicholas V.C. Polunin
Tel: 44 (0) 191 208 6675
School of Marine Science & Technology, Newcastle University
Newcastle upon Tyne NE1 7RU, UK
E-mail: envcons@btinternet.com

COPY-EDITOR

Hollie Franklin
E-mail: franklineditorial@gmail.com

ASSOCIATE EDITORS

John Innes (Forestry) *University of British Columbia, Canada*
Aaron MacNeil (Statistical ecology/biodiversity) *Australian Institute of Marine Science, Australia*
William J. McShea (Wildlife conservation) *Smithsonian Conservation Biology Institute, USA*
Johan Oldekop (Conservation & development) *Newcastle University, UK*
Andrew Reeson (Environmental economics) *CSIRO Ecosystem Sciences, Australia*
Charlie M. Shackleton (Natural resource sustainability) *Rhodes University, South Africa*
Ted Webb (Tropical forest conservation) *National University of Singapore, Singapore*
Trevor J. Willis (Marine ecology/Comments) *University of Portsmouth, UK*

ADVISORY EDITORS

Professor Carl S. Folke (Ecological Economics)
Beijer International Institute of Ecological Economics, Sweden
Dr Paul Jepson (Conservation Practice)
University of Oxford, United Kingdom
Professor Gary Kofinas (Resource Management/Ecological Anthropology)
University of Alaska Fairbanks, USA
Professor William F. Laurance (Tropical Conservation Biology/Global Change Science)
James Cook University, Australia
Dr Timothy R. McClanahan (Marine Ecology)
The Wildlife Conservation Society, Kenya
Professor Herbert H. T. Prins (Wildlife Ecology)
Wageningen University, The Netherlands
Professor Garry W. Trompf (Ethics/Beliefs)
University of Sydney, Australia
Professor Philip H. Warren (Ecological Communities)
University of Sheffield, United Kingdom

SUBMISSION OF MANUSCRIPTS

Manuscripts may now be submitted via Manuscript Central™
Go to <http://mc.manuscriptcentral.com/envcon>.
The Journal's Instructions for Contributors can be found on the Journal's webpage at http://assets.cambridge.org/ENC/ENC_ifc.pdf

SUBSCRIPTIONS

Environmental Conservation (ISSN 0376-8929) is published four times a year in March, June, September and December. Four parts form a volume. The 2016 subscription price (excluding VAT) of a volume, which includes print and electronic access, is £600 (US\$1129 in USA, Canada and Mexico); £152 (US\$278) for individuals, which includes print only, ordering direct from the publishers and certifying that the journal is for their personal use. The electronic-only price available to institutional subscribers is £448 (US\$844 in USA, Canada and Mexico). Single parts are £167 (US\$311 in USA, Canada and Mexico) plus postage. 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, PO Box 55, Chitose, Tokyo 156, Japan. Prices include delivery by air where appropriate. Periodicals postage is paid at New York, NY, and at additional mailing offices.

Postmaster: send address changes in the USA, Canada and Mexico to: *Environmental Conservation*, Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013, USA. Claims for missing issues should be made immediately on receipt of the subsequent issue.

ADVERTISING

Advertising queries for all parts of the world *except* the USA, Canada and Mexico to: ad_sales@cambridge.org
Address enquiries in the USA, Mexico and Canada *only* to: USAdSales@cambridge.org

COPYING

This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com). Organizations in the USA who are also registered with CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC. This consent does not extend to multiple copying for promotional or commercial purposes. *ISI Tear Sheet Service*, 3501 Market Street, Philadelphia, PA 19104, USA, is authorized to supply single copies of separate articles for private use only. Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions. *For all other use*, permission should be sought from Cambridge or the American Branch of Cambridge University Press.

Environmental Conservation is covered by the major abstracting and indexing services including: Biological Abstracts, Current Advances in Ecological Sciences, Current Contents, Ecological Abstracts, Environment Index, Environmental Abstracts, Environmental Periodicals Bibliography, Excerpta Medica/EMBASE, Geographical Abstracts, Science Citation Index, World Agricultural Economics & Rural Sociology Abstracts.

Internet Access

This journal is included in the Cambridge Journals Online service which can be found at journals.cambridge.org. For further information on other Press titles access cambridge.org

This publication is printed on chlorine-free paper made with 75% recycled fibres.

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

Printed and bound by Bell & Bain Ltd, Glasgow, UK

© Foundation for Environmental Conservation 2016
[URL <http://www.foundationforec.org>]

Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, UK.
32 Avenue of the Americas, New York, NY 10013-2473, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
C/ Orense, 4, planta 13, 28020 Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa