



Journal of Tropical Ecology

VOLUME 4 PART 1 FEBRUARY 1988

Published for INTECOL and the ICSU Press by
Cambridge University Press

Journal of Tropical Ecology



Editor

Dr Adrian G. Marshall, Institute of South-east Asian Biology, c/o Department of Zoology, University of Aberdeen, Aberdeen AB9 2TN, Scotland.

Editorial address

Editor-JTE, Department of Plant Science, University of Aberdeen, Aberdeen AB9 2UD, Scotland.

Editorial Board

INTECOL Tropical Ecology Working Group

Professor J. I. Furtado, Science Adviser, Commonwealth Secretariat, Marlborough House, Pall Mall, London SW1Y 5HX, England.

North America

Dr D. H. Janzen, Department of Biology, University of Pennsylvania, Philadelphia, Penn. 19104, USA

South America

Dr E. Medina, IVIC Centro de Ecología, Aptdo. 1827, Caracas 1010-A, Venezuela.

Europe

Dr M. J. A. Werger, Department of Plant Ecology, University of Utrecht, Lange Nieuwstraat 106, 3512 PN Utrecht, The Netherlands.

East Africa

Dr C. G. Gakahu, Wildlife Management Department, Moi University, P.O. Box 3900, Eldoret, Kenya.

Deputy Editor

Dr M. D. Swaine, Institute of South-east Asian Biology, c/o Department of Plant Science, University of Aberdeen, Aberdeen AB9 2UD, Scotland.

Editorial assistant

Catherine J. Tuckey

West Africa

Professor D. U. U. Okali, Department of Forest Resources Management, University of Ibadan, Ibadan, Nigeria.

South Asia

Professor M. Gadgil, Center for Theoretical Studies, Indian Institute of Science, Bangalore – 560012, India.

South-east Asia and the Far East

Professor Sanga Sabhasri, Ministry of Science, Technology and Energy, Rama VI Road, Bangkok 10400, Thailand.

Australasia and the Pacific

Professor J. Kikkawa, Department of Zoology, University of Queensland, St Lucia, Brisbane – 4067, Australia.

© International Association for Ecology (INTECOL).
(Published for INTECOL and the ICSU Press by Cambridge University Press).

Subscriptions: The *Journal of Tropical Ecology* (ISSN 0266-4674) is published quarterly. The subscription price of Volume 4 is £51 (USA and Canada US \$103) for institutions; £20.00 (USA and Canada US \$40) for individuals; £10.00 for individuals in developing countries; airmail £11 extra; single parts available at £13.50 (USA and Canada US \$28.00) each plus postage. Four parts form a volume. Orders, which must be accompanied by payment, may be sent to a bookseller, subscription agent or direct to the publishers: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU. Orders from the USA and Canada should be sent to the Cambridge University Press, 32 East 57th Street, New York, NY 10022, USA. Copies of the journal for subscribers in the USA and Canada are sent by air to New York to arrive with minimum delay. Second class postage paid at New York, NY, and at additional mailing offices.

POSTMASTER: send address changes in USA and Canada to *Journal of Tropical Ecology*, Cambridge University Press, 32 East 57th Street, New York, NY 10022.

Claims for missing issues should be made immediately on receipt of the subsequent issue.

Continued on inside back cover