Published Quarterly Volume 17, No. 3 — Autumn 1990

[Stressing Tropical Deforestation]

Representation of the interval lours

The international Journal devoted to maintaining global viability through exposing and countering environmental deterioration resulting from human population-pressure and unwise technology

Founded and Edited by Nicholas Polunin

Conferences & Meetings: J. David Laughton Reviews & Notices: Miss C.A. Trangmar-Palmer Editorial Assistants: Dr N.V.C. Polunin Mr Ian L. Holmes



Published for the FOUNDATION FOR ENVIRONMENTAL CONSERVATION by ELSEVIER SEQUOIA S A

ELSEVIER SEQUOIA S.A. Lausanne, Switzerland





&

with the collaboration of the United Nations Environment Programme (UNEP) World Conservation Union (IUCN) International Association for Ecology (INTECOL) International Conferences on Environmental Future (ICEFs) World Council For The Biosphere-International Society For Environmental Education (WCB-ISEE) World Wide Fund for Nature (WWF)

International Society of Naturalists (INSONA)

Environmental Conservation

advocates timely action for the protection and amelioration of the environment of Man and Nature throughout the world. Topics range from pertinent case-histories of the past and present to rational use of resources, foreseeing ecological consequences, enlightened environmental policy, anti-pollution measures, low-impact development, environmental education and law, and ecologically sound management of all land and fresh water, sea and air, for the lasting future of Earth's fragile Biosphere.

The following are the main types of contributions which may be accepted for publication in this Journal: Policy-advocating leaders on outstanding topics; Survey articles on important aspects of its subject; Research papers whether basic or 'confirmatory'; Case-history accounts of wide significance and interest;

&

Items for the following regular sections:

Short Communications & Reports (SCRs): normally not exceeding three pages of the Journal each;

Notes, News & Comments (NNCs): preferably at most one page of the Journal each;

Conferences & Meetings (C&Ms): summary reports, important prospects;

Reviews & Notices (R&Ns): of new books etc.

Each issue is generally headed by an *Editorial* or *Guest Editorial* or *Comment* and/or *Open Letter* or *Editorial Notes* or *Notice*.

Founded and Edited by Nicholas Polunin Conferences & Meetings: J. David Laughton Reviews & Notices: Miss C.A. Trangmar-Palmer Editorial Assistants: Dr N.V.C. Polunin Mr Ian L. Holmes

ADVISORY EDITORS

African Developments: Senator Prof. Mohamed Kassas (Cairo, Egypt) Animal Ecology: Prof. Raymond F. Dasmann (Santa Cruz, California) Animal Impact: Prof. Jean Dorst (Paris, France)

Australasia: Dr Donald F. McMichael (Canberra City, Australia)

Biological Productivity: Dr E. Barton Worthington (Nr Uckfield, England)

Biosphere Maintenance: Prof. Hon. Beatrice E. Willard (Boulder, Colorado)

Central America: Dr Anne LaBastille (Big Moose, NY)

China: Prof. Ma Shijun (Beijing, China)

Climatic Variation: Chancellor F. Kenneth Hare (Toronto, Ontario)

Conservation Evaluation: Dr Michael B. Usher (York, England)

Conservation Policy: Prof. M.E. Duncan Poore (Inverness, Scotland)

Economic Aspects: Prof. Marshall I. Goldman (Cambridge, Mass.)

Ecosystems Research: Prof. Eugene P. Odum (Athens, Georgia)

Education and Training: Prof. William B. Stapp (Ann Arbor, Michigan) Endangered Biota and Ecosystems: Prof. Norman Myers (Oxford,

England)

Energy: Prof. John P. Holdren (Berkeley, California)

Environmental Engineering: Prof. Philip H. Jones (Toronto, Ontario) Ethnobotanical Conservation: Prof. Richard E. Schultes (Cambridge, Mass.)

Fresh Waters: Prof. Werner Stumm (Zurich, Switzerland)

Geographical Aspects: Prof. Gilbert F. White (Boulder, Colorado)

Human Behaviour: Dr Ivan Polunin (Singapore)

ICEFs: Nicholas Polunin (Geneva, Switzerland)

Indian Subcontinent: Dr Jai Kishan Maheshwari (Lucknow, India) Indian-Malaysian Wildlife: Dr G.M. Oza (Baroda, India)

INTECOL: Prof. Frank B. Golley (Athens, Georgia)

International Wildlife Conservation: Jeffrey A. McNeely (Gland, Switzerland)

Island Ecosystems: Dr F. Raymond Fosberg (Washington, DC) IUCN: Dr Martin W. Holdgate (Gland, Switzerland) Land Use and Recovery: Prof. Kai Curry-Lindahl (Lidingö, Sweden)

Law and Enforcement: Prof. Homer G. Angelo (Davis, California)

Marine Waters: Prof. G. Carleton Ray (Charlottesville, Virginia)

Medical Aspects: Dr Bent Juel-Jensen (Oxford, England)

Meteorology and Climatology: Prof. Reid A. Bryson (Madison, Wisconsin)

Microbiological Implications: Prof. Donovan P. Kelly (Coventry, England)

Ornithological Aspects: Dr Christoph Imboden (Cambridge, England) Parks and Reserves: Dr James W. Thorsell (Gland, Switzerland) Pesticides and Toxicants: Dr Daniel Osborn (Abbots Ripton, England) Plant Ecology: Prof. Makoto Numata (Chiba, Japan) Plant Physiology: Prof. Terence A. Mansfield (Lancaster, England) Pollutants and Disposal: Prof. Kenneth Mellanby (Cambridge, England) Population Impact: Prof. Paul R. Ehrlich (Stanford, California) Resources Conservation: Prof. S. Fred Singer (Charlottesville, Virginia) Social Studies: Prof. Lynton K. Caldwell (Bloomington, Indiana) Soils and Erosion: Prof. Victor A. Kovda (Moscow, USSR) South America: Dr José C. de Melo Carvalho (Rio de Janeiro. Brazil) South-East Asia: Prof. 'Otto' Soemarwoto (Bandung, Indonesia) South-West Asia: Christopher D.W. Savage (Petworth, England) UNEP: William H. Mansfield III (Nairobi, Kenya) WCB-ISEE: Prof. Craig B. Davis (Columbus. Ohio) West Africa: Dr Emmanuel O.A. Asibey (Accra, Ghana) WWF: Dr Luc Hoffmann (Gland, Switzerland)

SUBMISSION OF MANUSCRIPTS

All contributions must be in precise English and original, submission of a 'manuscript' implying that it is unpublished and is not being considered contemporaneously for publication elsewhere. Manuscripts (three copies, *including one or two on light airmail paper*) and allied materials should be sent to:

Prof. Dr Nicholas Polunin, Editor ENVIRONMENTAL CONSERVATION 7 Chemin Taverney 1218 Grand-Saconnex Geneva, Switzerland, or to one of the Advisory Editors (listed above). There is a set of Instructions for Authors on the inside of the back cover of each issue: failure to follow these in reasonable degree may lead to, at best, protracted correspondence or return of a manuscript for restyling before it can be considered or even refereed.

PUBLISHING AND SUBSCRIPTION INFORMATION

Environmental Conservation is published by Elsevier Sequoia S.A. Lausanne, Switzerland, for the Foundation for Environmental Conservation, with the collaboration of the United Nations Environment Programme (UNEP), the World Conservation Union (IUCN), the International Association for Ecology (INTECOL), the International Society of Naturalists (INSONA), International Conferences on Environmental Future (ICEFs), World Council For The Biosphere-International Society For Environmental Education (WCB-ISEE), World Wide Fund for Nature (WWF), and others. It is covered in numerous international indexing or abstracting journals emanating particularly from Great Britain, the United States, Italy, and West Germany. The ISSN is 0376-8929.

Environmental Conservation is published quaterly, correspondingly to the year's four seasons in the Northern Hemisphere.

Size 27.5 x 20 cm, comprising usually 384 pages (with additional covers, etc.) per annum. The volume subscription price for 1990 is SFr 235 (including postage — subscribers in the following countries receive their copies by airmail without extra charge: Australia, Brazil, Canada, China, Hong Kong, India, Israel, Japan, Malaysia, New Zealand, Pakistan, Singapore, South Africa, South Korea, Taiwan, and USA).

Subscription orders and inquiries should be sent to:

ENVIRONMENTAL CONSERVATION Elsevier Sequoia SA PO Box 564 1001 Lausanne 1 Switzerland