



Bulletin

International Association for Landscape Ecology

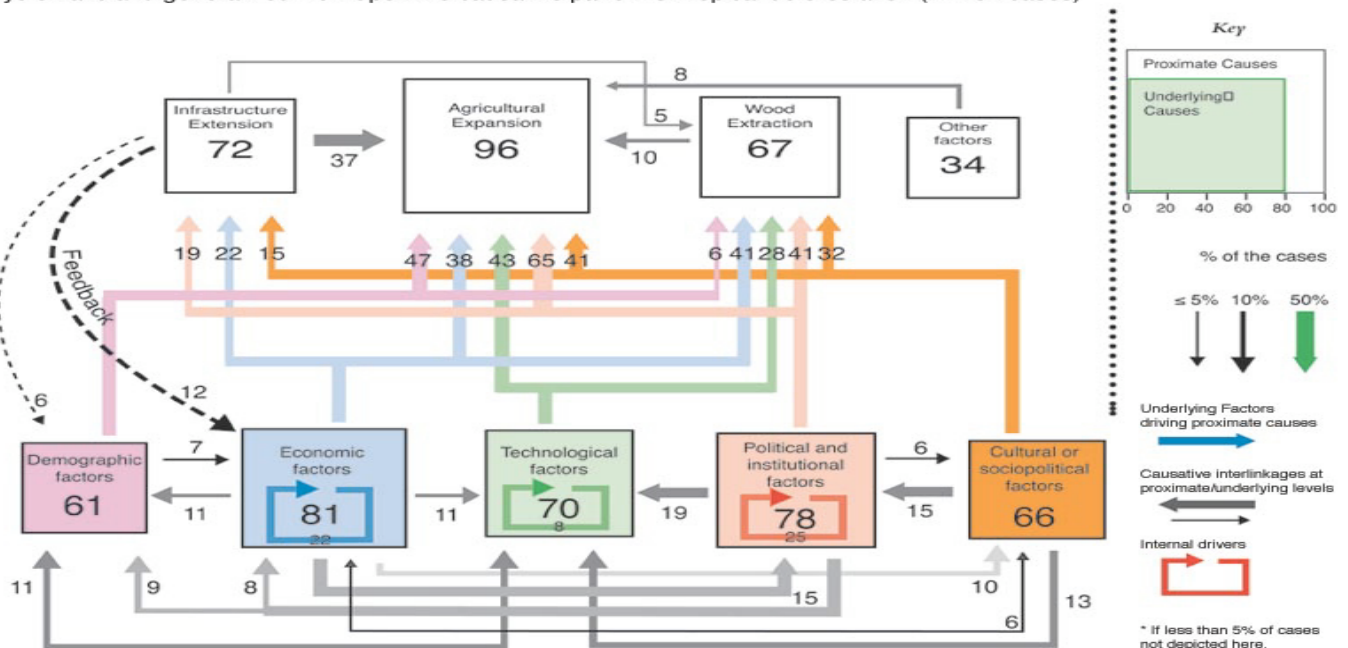
CAUSES AND PATHWAYS OF LAND CHANGE: THE CASE OF TROPICAL DEFORESTATION

Courtesy of H. Geist¹ & E. Lambin, LUCC IPO; Reprinted with permission of LUCC

Until recently, the modelling of tropical deforestation as an important forcing mechanism of global environmental change suffered from a lack of deeper and thorough understanding of the causative pattern behind forest losses. What are the main causes? What are the key agents? What are the underlying social driving forces, and how do they relate to direct or proximate causes? Theories have produced rich arguments, but empirical evidence continues to be largely based on cross-national

statistical analyses. A deeper understanding of the causes finally got trapped between the two major and divergent pathways of explanation: (i) single factor causation (e.g., population growth, poverty, shifting cultivation) versus (ii) irreducible complexity (i.e., correlates of deforestation and causative variables are stated to be many and varied, revealing no distinct pattern). Both explanatory approaches can be seen as ‘myths’ or simplifications of cause-consequence relationships that are

A systematic and generalized view upon the causative pattern of tropical deforestation (N=152 cases)*



© Geist & Lambin, What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence. LUCC Report Series no. 4, 2001



¹ H. Geist, Manager, Land-Use & Land-Cover Change, LUCC International Project Office, University of Louvain, Belgium, www.geo.ucl.ac.be/LUCC; E-mail: lucc.ipo@geog.ucl.ac.be

Fig. 1: A systematic and generalized view upon the causative pattern of tropical deforestation, 1880-1996.

...continued from p. 1 (Tropical deforestation)

difficult to support empirically but have gained considerable public currency. Moving beyond such simplifications, a growing body of case study evidence illuminates multiple and connected forces that drive forest cover change, and, in general, a more robust understanding of the causes of land change is developing. Results of careful and rigidly structured surveys support the view that, for example, population growth is never the sole and often not even the major underlying cause. And, where deforestation is linked to the increased presence of shifting cultivators, triggering mechanisms invariably involve change in frontier development and policies by national governments that pull and push migrants into sparsely occupied areas. The critical point is that tropical deforestation is driven largely by changing economic opportunities which are linked to yet other social, political and infrastructural changes.

As a major step forward in understanding tropical land change, case study comparisons reveal qualitatively common sets of cause-consequence relations that vary by large geopolitical regions. This means that identifiable regional variations of synergetic cause/driver combinations exist in which economic factors, institutions, national policies and remote influences are prominent. Having not only disproved irreducible complexity as well as single factor causation, regional comparative assessments also point to the fact that interactions and feedbacks (endogenous driving forces) exist or co-exist at various scales - rather than linear causality or postulated exogenous drivers. Thus, 'universal' models of tropical deforestation as well as uniform global policies to control tropical forest losses seem to be out of reach, but regionally-based cause/drivers combinations offer strong advances in conceptualization and modelling.

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J.F., Skånes H., Steffen W., Stone G.D., Svedin U., Veldkamp T., Vogel C., Xu J. (2001): The causes of land-use and land-cover change: Moving beyond the myths. - *Global Environmental Change: Human and Policy Dimensions*. Vol. 11 (4), pp. 261-269.

H.J. Geist & E.F. Lambin (2001): What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence (= LUCS Report Series; 4). - LUCS International Project Office: Louvain-la-Neuve, 116 pp.

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MEETINGS (SEE ALSO PAGE 4 OF THIS BULLETIN:

IALE WORLD CONGRESS 2003 IN AUSTRALIA: SEND REGISTRATION NOW!!

<http://www.iale.ntu.edu.au/registration.html>

July 13-17, 2003

Landscape Dialogues in Metropolitan Delta Areas, will be held at the World Congress of the International Association of Landscape Ecology, "Crossing Frontiers: Landscape Ecology Down Under – Building Bridges between Cultures, Disciplines and Approaches", Darwin, Australia.

The aim of the symposium is to bring researchers, non-academic actors and stakeholders together and to discuss the specific problems, solutions and challenges for planning and management approaches in metropolitan delta areas. We invite papers that deal with problems and challenges of participatory and transdisciplinary landscape planning and management in metropolitan delta areas all over the world. Please send your abstract (200 words) before 20 January 2003 to tress@tress.cc. Information at: <http://www.wur.nl/delta/darwin-symposium.html>

The IALE Bulletin is distributed six times a year to the members of the IALE. The IALE - International Association for Landscape Ecology was founded in 1982 to promote communication between scientists, planners and interdisciplinary scientific research. IALE Executive Committee: **President:** Richard J. Hobbs (CSIRO Wildlife and Ecology, Private Bag, P.O., Wembley WA 6014, Australia), tel +61 8 9333 6442 fax +61 8 9333 6444 email Richard.Hobbs@per.dwe.csiro.au; **Past President:** John A. Wiens (USA), email jaws@lamar.colostate.edu; **Vice Presidents:** Duning Xiao (China), email ldnscp@iae.syb.ac.cn; Kathryn Freemark (Canada), email kathryn.freemark@ec.gc.ca; Margareta Ihse (Sweden), email ihse@natgeo.su.se; Francoise Burel (France), email francoise.burel@univ-rennes1.fr; **Secretary General:** Michael Moss (Faculty of Environmental Sciences, University of Guelph, Guelph, Ontario, N1G 2W1 Canada), tel +1 519 824-4120 ext.4800 fax +1 519 763-4686 email mmoss@uoguelph.ca; **Bulletin Editor and Deputy Secretary General:** Felix Kienast (Swiss Federal Institute of Forest, Snow and Landscape Research WSL, CH-8903 Birmensdorf, Switzerland), tel +41 1 739 23 66 fax +41 1 737 40 80 email felix.kienast@wsl.ch; **Treasurer:** Rob Jongman Alterra, Green World Research, PO Box 47, 6700 AA Wageningen, The Netherlands, tel +31 317 474626 fax +31 317 41900 email R.H.G.Jongman@Alterra.wag-ur.nl

IALE on the Internet: IALE International: <http://www.iale.ws>

International
Association for
Landscape
Ecology

**Landscape Ecology
Summer School,
Darwin, Australia,
7th-12th July, 2003**

'Landscapes and Sustainability'



*Organised as part of the 2003
IALE World Congress*

The Summer School and its Aims

The Summer School has been organised to make use of the opportunity provided by the many teachers and researchers from the International Landscape Ecology Community who will be visiting Darwin for the 6th IALE World Congress in July 2003. The course has been designed to support the training and development of the next generation of Landscape Ecologists, and is intended for young researchers at an early stage in their PhD studies.

The Aims of the Summer School are:

- To explore the global aspects of landscapes and sustainability and to compare and contrast different national perspectives, approaches and issues and in particular which role Landscape Ecology can play in developing strategies for a sustainable future.
- To allow young scientists from around the world to make contact with established scholars to reflect upon current issues in Landscape Ecology in a critical way.
- To enable young scientists to develop and discuss their own thinking in the context of other approaches and perspectives.

The Organisation and Venue

The Summer School is organised by the Institute of Physical Geography and Landscape Ecology, University of Basel (Dr. Marion Potschin) and the School of Geography, University of Nottingham (Prof. Dr. Roy Haines-Young) and will be hosted by the School of Biological Environmental and Chemical Sciences and the Key Centre for Tropical Wildlife Management at the Northern Territory University (NTU). Students will reside in NTU accommodation.

The Summer School Themes

The teaching at the Summer School has been organised around a number of session themes:

- 'Rio+10' and the landscape agenda
- Understanding pattern and process in sustainable landscapes
- Cultural landscapes and sustainability
- Participation and transdisciplinary approaches to Landscape Ecology
- Using GIS and other tools for developing and evaluating scenarios of landscape change.

In addition there will be an opportunity to study and discuss the issues facing the management of landscapes in Australia's 'Top End', in the Northern Territories. This will include a one-day field trip with local experts.

Graduation and Accreditation

Students will graduate from the Summer School at a ceremony organised as part of the World Congress, with a certificate of attendance showing the number of hours of postgraduate study represented by the course, so that their work can be accredited by their home institutions.

The Lecturers of the Summer School

The lecturers of the Summer School have been drawn from the international Landscape Ecology Community, and have given their time freely to the event. They have been selected on the basis of their excellence in teaching and research.

The Staff teaching and organising the Summer School include:

- Prof. Richard Aspinall, Geographic Information and Analysis Centre & Department of Earth Sciences, Montana State University, USA
- Dr. David Bowman, Key Centre for Tropical Wildlife Management, Northern Territory University, Australia
- Prof. Gary Fry, Department of Land Use & Landscape Planning, Agricultural University of Norway
- Prof. Roy Haines-Young (Joint Course Director), Chair of Environmental Management at the University of Nottingham

ham, England

- Dr. Kathrine Freemark Research Scientist - Environment Canada
- Dr. Diane Pearson, School of Biological, Environmental and Chemical Sciences, Information Technology and Education, Northern Territory University, Australia
- Dr. Marion Potschin (Joint Course Director), who holds teaching and research posts at the University of Basel, Switzerland & the University of Nottingham, England
- Dr. Helle Skånes, Department of Physical Geography and Quaternary Geology, Unit for Ecological Geography, University of Stockholm, Sweden.
- Prof. Margaretha Ihse, Department of Physical Geography and Quaternary Geology, Unit for Ecological Geography, University of Stockholm, Sweden.
- Dr. Peter Whitehead, Key Centre for Tropical Wildlife Management, Northern Territory University, Australia

Advisory Board

To review and advise on the academic aspects of the Summer School programme, an Advisory Board has been established. The members are: Jesper Brandt, Denmark; Bob Bunce, Alterra, (the Netherlands); Françoise Burel, IALE Vice president (France); Kathrin Freemark, IALE Vice President (Canada); Richard Hobbs, IALE President (Australia); Margareta Ihse, IALE Vice President (Sweden); Rob Jongam, IALE Treasurer (the Netherlands); Michael Moss, IALE Secretary General (Canada); Zev Naveh, Israel; Diane Pearson, NTU (Australia); Bas Pedroli, Alterra, Landscape Europe (the Netherlands); John Wiens, IALE Past President (USA).

Applications and Course Fees

The fee for the Summer School is A\$900 (currently equivalent to €507 or US\$507). This does not include the conference fee. The Summer School has been organised on a non-profit basis. The teachers are giving their time freely, and course fees cover the costs of materials & staff subsistence, the field trip, students' accommodation and meals. Prospective students may apply to their own IALE Regional Committees for financial support. Scholarships are available from IALE International for students from developing countries to attend the conference. A limited number of places (25) are available at the Summer School. The closing date for applications is 17th March 2003.

Details of the summer school on the Web:

<http://www.landscape-ecology.info/summerschool.htm>
via the conference homepage: www.iale.ntu.edu.au

Contact: **Marion Potschin** at Marion.Potschin@unibas.ch

IALE WORLD CONGRESS 2003 IN AUSTRALIA: SEND REGISTRATION NOW!!

The conference secretariat (Convention Catalysts Int.) is now open. You can register as follows:

- directly via <http://www.iale.ntu.edu.au/registration.html>
- via downloaded registration form (<http://www.wsl.ch/land/iale/bulletin.htm>, attachment to the Bulletin No. 20.6, December 2002 or directly via ftp: ftp://ftp.wsl.ch/pub/kienast/iale/darwin_registr.pdf)

A **registration brochure** of the congress can be downloaded (<http://www.wsl.ch/land/iale/bulletin.htm>, attachment to the Bulletin No. 20.6, December 2002 or directly via ftp: ftp://ftp.wsl.ch/pub/kienast/iale/darwin_program.pdf)

March 24-26, 2003

State of the Art in Vegetation Monitoring Approaches, Swiss Federal Research Institute WSL, Birmensdorf, Switzerland.

The aim of the symposium is to portray and link the know-how in different fields involved in environmental monitoring (botany, ecological modeling, statistics). Standards for sampling and storage of data useful in a broad range of long-term vegetation surveys shall be worked out. The topics are: "GIS, remote sensing and spatial modeling approaches", "Designs and strategies for short and long-term monitoring" and "Statistical methods and their applications".

Information and electronic registration are available at: <http://www.wsl.ch/land/monitoring/>

October 24-26, 2003

Landscape Ecology, Land Use Planning and Nature Conservation, Évora, Portugal

Organization: Centro Estudos Ecosistemas Mediterrânicos. Information and registration: Teresa Pinto-Correia: mtpc@uevora.pt

June 19-21, 2003

Lake Shores: Ecology, Quality Assessment, Sustainable Development, Univ. of Constance, Konstanz, Lake Constance, Germany

The shores of many lakes are favorite areas for settlement, industries, transport facilities and recreational activities. A sound scientific background is needed to develop strategies and techniques for sustainable development in these areas. We invite a broad range of scientists, practitioners and managers to join our conference.

More information: lakeshores2003@uni-konstanz.de or download flier (<http://www.wsl.ch/land/iale/bulletin.htm>, attachment to the Bulletin No. 20.6, December 2002 or directly via ftp: <ftp://ftp.wsl.ch/pub/kienast/iale/lakeshore2003.pdf>)