



Bulletin

International Association for Landscape Ecology

MY ROAD TO A HOLISTIC MISSION-DRIVEN TRANSDISCIPLINARY LANDSCAPE ECOLOGY.

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My road to landscape ecology started far back almost 60 years ago, as a shepherd of goats, sheep and cattle in our newly founded Kibbutz (collective settlement) Mazuba in the Western Galilee in Israel. This marked the beginning of my attachment to the rocky Mediterranean hill and mountain landscape, and its rich natural and cultural assets. After World War II I decided to study agronomy at the Hebrew University in Jerusalem and later work as a range research scientist at a Governmental Experimental Station in the Lower Galilee. Here I worked on the ecology, management, and improvement of native hill pastures, which were considered by an important natural resource for milk, meat and wood production (the newly founded State of Israel). As a result I rejected the then prevailing ideas in the Mediterranean about the wholly destructive role of humans, goats and fire.

From 1958 to 1960, as a research fellow at the School of Forestry of the University of California in Berkeley, I carried out a systematic comparison of vegetation types and their dynamics in California and Israel. We provided quantitative proof of the beneficial effects of optimum defoliation pressures, and of the important co-evolutionary role of human land uses in creating the richest Mediterranean multi-layered vegetation types and landscapes.

In California I learned much about pre-European land uses and realized that in North-American landscapes also the duration and kind of human cultural imprints on the land, and its vegetation, have created closely interwoven natural and cultural patterns and processes.

I was fortunate enough to make the personal acquaintance with the great geographer Carl Sauer, who could be regarded as the first American landscape ecologist, and the first, truly holistic ecologist, Frank Egler. He coined the term "Total Human Ecosystem", to integrate humans with their environment; hence, regarding humans not merely as external disturbance factors of "natural ecosystems", but to be treated as integrative, co-evolutionary part-

ners at a higher geo-bio-anthropological hierarchical level above the natural ecosystems level.

From 1962-1965, I served as pasture and range specialist in northern Tanzania under an assignment of the Israel International Cooperation Program. Facing bewildering ecological and cultural diversity, I adopted this "Total Human Ecosystem" concept to make clear agro-ecological and socioeconomic distinctions for designing diverse research and development strategies. Thus, for the stalled cattle of the Chagga people, growing coffee and bananas on the humid slopes of Mt. Kilimanjaro, I introduced more productive and more efficient soil erosion controlling grass-legume mixture. But the transhumance Maasai pastoralists in the semi-arid plains had very different needs. For these, the number of milk producing cows per family, especially during the frequent drought years, determine their survival potentials. Therefore improved milk production was the main socio-economic and cultural incentive on which ecological and sociological sound (today called "sustainable") development should be based.

In 1965 I was appointed Senior Lecturer at the Faculty of Agricultural Engineering of the Technion. My exposure to engineering and to the professional architecture and planning environment opened the way for the transdisciplinary direction of my future work. For instance, I collaborated with agricultural engineers in the development of ecological engineering devices for flood control and soil conservation, and with rural sociologists on socio-ecological studies.

I was very fortunate to make close personal acquaintance, and to create long-lasting and warm contacts, with several outstanding landscape ecologists in Germany and Holland - and later on also in East Europe. Their impressive, problem-solving oriented work enriched my thinking and inspired the direction of my research on dynamic conservation management and on the restoration of degraded Mediterranean landscapes.

I continued, my earlier contacts with British and American ecologists and inspired by my dear friend Arnold Schultz who developed the first interdisciplinary course on ecosystematology, attended by hundreds of students from the Berkeley campus, I followed closely recent developments in General systems theory and environmental sciences. During a sabbatical leave in Berkeley I attended a series of lectures on "The Self-Organizing Universe" by Emil Jantsch and realized that recent developments in general systems and hierarchy theory, and other systems paradigms, such as non-equilibrium thermodynamics, catastrophe theory, bifurcations, and chaos and their applications in the natural and social sciences had opened new vistas for holism, order and complexity.

All of this, together with conclusions from my own studies and reflections, lead to a conceptualization of landscape ecology. I perceived it not just as another, interdisciplinary branch of ecology and/or geography, but as a much broader and more far-reaching transdisciplinary environmental systems science on its own right. In collaboration with Arthur Lieberman of Cornell University, we presented this view of landscape ecology in the first (1984) and the second (1994) editions of our book as a science of the Total Human Ecosystem. In this, biosphere and technosphere landscapes serve as the tangible spatial and functional matrix for all organisms, including humans, their populations, communities and ecosystems. As such they are the most relevant ecological and cultural entities to bridge the gaps between bio-ecology and human ecology, and between the different academic and professional disciplines dealing with land use in the broadest sense. For this purpose, advanced methods of remote sensing, and holistic and dynamic systems modelling, in combination with thorough fieldwork, and with planning and management methods can be of greatest value.

In my opinion, landscape ecology is not just another interdisciplinary science dealing chiefly with landscape heterogeneity and dynamics, as has been claimed in the recent IALE Mission Statement (IALE Bulletin 16/1, 1998). In this statement the close and even synergistic interac-

tions between landscape, people and economies have not been mentioned at all. The importance of landscape ecology, in facing the challenges of the emerging information-rich society and as a problem-solving, -oriented, and mission-driven science, should have been expressed in a much more forceful and more committed way. Landscape ecologists should not be content to compile and publish more and more scholarly information on landscape heterogeneity and dynamics. Their main goal for research, education, and for active involvement in the land use decision making process should be to contribute to comprehensive and integrative planning, design, management, conservation, and restoration, as well as to further sustainable development of rich, healthy and beautiful, open and built-up landscapes with highest attainable over-all total landscape ecodiversity. Only in this way can the further biological and cultural evolution of our total human ecosystem be ensured for the sake of both humankind and nature.

Landscape ecology will become a more innovative and creative science of integration, if the new generation of landscape ecologists makes use of the above mentioned dynamic and holistic systems theories and their new paradigms of wholeness, complexity, order and creativity, as an overarching transdisciplinary conceptual framework. Thereby landscape ecologists will fulfill a meaningful role in this crucial period of the transition from the industrial to the post-industrial information-rich society. Thus, in the words of our most influential and far-sighted Mediterranean ecologist, Francesco di Castri, landscape ecologists will become committed actors and not only marginal and critical spectators in a changing globalized environment.

CALL FOR SYMPOSIUM PROPOSALS FOR THE FIFTH IALE WORLD CONGRESS, USA 1999.

Symposia are a central feature of the scientific program of most scientific and professional meetings. They are especially important elements of the IALE World Congress, however, because the Congress is held only once every four years and because it attracts scholars, practitioners,

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, John A. Wiens (USA), Fax: +1 970 491 0649, e-mail: jaws@lamar.colostate.edu; Past President, Henri Decamps (France); Vice-Presidents, Joan Iverson Nassauer (USA), Paul F.M. Opdam (The Netherlands), Almo Farina (Italy), Xiao Duning (China); Secretary General, Michael Moss, Faculty of Env. Science, Blackwood Hall, Trent Lane, University of Guelph, Ontario N1G 2W1, Canada, Tel: +1 519 824 4120, Fax: +1 519 763 4686, e-mail: mike@envsci.uoguelph.ca; Deputy Secretary General and Bulletin Editor, Jesper Brandt, Dept. of Geography and International Development Studies, Roskilde University, P.O. Box 260, DK-4000 Roskilde, Denmark, Tel: +45 46 74 24 63, Fax: +45 46 74 30 32, e-mail: brandt@geo.ruc.dk; Treasurer, Rob Jongman, WAU, Dept. of Physical Planning & Rural Development, Gen. Foulkesweg 13, NL-6703 Wageningen, The Netherlands, Tel: +31 317 483 713, Fax: +31 317 482 166, e-mail: robjongman@plano.rpv.wau.nl.

Deadline Bulletin volume 16 no 6 is October 10, 1998

and students from many countries and a wide array of disciplines.

If you wish to propose a symposium, please submit a proposal containing:

1. A clear statement of the symposium theme and its relevance to landscape ecology as a science and a practice,
2. A provisional symposium program, listing presentations and potential speakers. Please indicate whether speakers have been contacted and/or have agreed to participate, and
3. Your address, phone and fax numbers, and e-mail address.

before September 15, 1998 to both

Mike Moss

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Guelph, Ontario N1G 2W1

Canada

John Wiens

Department of Biology

State University

Fort Collins, CO 80523

USA

Symposium proposals will be screened by an international Program Development Committee, which may approve proposals, make suggestions for modifications, or decide that a proposal is not appropriate for the Congress. Because space on the program is limited, it is likely that not all proposed symposia will be approved.

Further information on <http://lamar.colostate.edu/~iale/Congress.htm>

Inquiries may be directed to John Wiens: jaws@lamar.colostate.edu

Note: Symposium proposals will be considered after 15 September until the final deadline for submission of abstracts for contributed papers, but late proposals will not be given as high a priority and cannot be included in the Second Announcement and Call for Papers, to be issued

International Scientific Conference in Irkutsk, 20-23 October, 1998.

"ECOLOGICAL RISK: ANALYSIS, VALUATION, PROGNOSIS"

The conference will focus on the actual direction of the present geocology - research of the ecological risk under different natural conditions and factors of anthropological impact. As at present there are a lot of various approaches to solve these problems the conference is to elaborate a unified direction in valuation, classification and analysis

of ecological risk formation factors. At the same time the system of the modern nature use cannot be developed without conceptual valuation in the ecological risk. A special session will be aimed at the analysis of the peculiarities of the quality of the environmental changes under the impact of large technological complexes and formation of the factors of ecological risk in Baikal Region.

For further information, see the diary.

IALE CONGRESS AWARDS: CALL FOR NOMINATIONS

Although landscape ecology is a relatively young discipline and IALE is a young organization, both have been around long enough for us to be able to look back and recognize individuals whose efforts have contributed substantially to the character of contemporary landscape ecology and to the success of IALE as an organization. It is fitting that we recognize these contributions. Accordingly, at the upcoming IALE World Congress, to be held at Snowmass Village, Colorado in summer 1999 (see the website for details: <http://lamar.colostate.edu/~iale/Congress.htm>), IALE Awards will be conferred in two categories:

IALE Distinguished Contribution Award, recognizing individuals whose work has laid the foundations for landscape ecology as a science and a practice IALE Distinguished Service Award, recognizing those whose efforts have contributed significantly to the growth and vitality of IALE as a professional organization.

We anticipate that 6-8 awards might be given in each category at the Snowmass Congress; thereafter, each award would be conferred annually, with the formal award presentation at the following IALE World Congress.

We are now soliciting nominations for these awards. If you wish to nominate an individual (or group of individuals) in either category, please submit a statement of support (1 page maximum) for each nominee, indicating (1) the nominee's name and affiliation, (2) the award for which the individual is being nominated, and (3) a justification, indicating how the nominee's activities meet the criteria described above. Nominations are due by 1 November 1998, and should be sent to:

Michael Moss

Secretary General, IALE

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e-mail: mike@envsci.uoguelph.ca

Almo Farina: Principles and Methods in Landscape Ecology. Chapman & Hall, London 1998. Price £ 65 (hardback version) and £ 24.99 (paperback version) further information on: <http://www.wkap.nl> E-mail: Noeline.Gibson@wkap.nl

Based on the experiences from an Italian textbook on landscape ecology that the author wrote in 1993, Almo Farina has worked out a condensed English textbook on principles and methods in landscape ecology.

In a forward by Zev Naveh, the book is presented as the first one of the 'third generation' of landscape ecologists. This follows the first, mainly central and eastern European generation of geobotanists, ecologists, geographers, landscape planners and architects, striving towards a spatial and functional integration of nature, humans and land into a holistic presentation of the rich and heterogeneous European landscapes, and a second, chiefly North American, generation of ecologists and geographers, putting emphasis on the need for broadening the spatial scales of ecosystem ecology for the study of the ordered complexity of natural and cultural landscapes. These generations were joined into the formation of IALE at a time of a dramatic development within remote sensing and GIS-development that influenced the further development of landscape ecology. The third generation seems to contribute especially to the education of the next generation through a meaningful synthesis of 'best theory, concept, principles and methods' presently applied in a multitude of landscape-ecological studies.

After a short introduction to different views on landscape ecology (1), main theories and models are briefly introduced: Hierarchy theory and the structure of the landscape

percolation theory, the metapopulation and the systems source-sink (2). A chapter is devoted to the important concept of scale (3). Emerging processes focusing on disturbance, fragmentation, connectivity and movement of water and nutrients in the soil and across landscapes are examined (4), followed by an overview of emerging patterns, especially heterogeneity and ecotones (5). Different types of principles of landscape dynamics are presented, mainly on stability, self-organization and human-perturbed changes with different example (6), as an introduction to a review of principles of landscape conservation, a management and design (7). A last chapter is devoted to a very condensed introduction to methods, focusing on spatial dataprocessing, fractal geometry, GIS, R.S., GPS and a presentation of some spatial population models (8). Despite the short and concentrated chapters (mostly between 15 and 35 pages each), the book is very rich on diagrams and illustrations, with upto-date references, suggested readings in the end of each chapter, and a list of glossary and acronyms.

Although a vary broad variety of themes are handled in the book, it is not the textbook on landscape ecology, rather an advanced introduction to the bio-ecological part of landscape ecology: The geo-ecological schools as well as the landscape architectural and planning traditions within landscape ecology are only scarcely represented. We have to wait for an English third generation introduction to these aspects of modern landscape ecology. But we have got a brilliant textbook on contemporary bio-ecologically oriented methodologies within landscape ecology that deserves to be widespread used within the education of the next generation of landscape ecologists.

Jesper Brandt

Diary

1998

Oct. 5-7

Asia and Pacific Region IALE Conference will be held in Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang, 110015. Contact Prof. Xiao Duning, Inst. of Applied Ecology, Academia Sinica, Shenyang, 110015, Fax: 86-024-3843313 E-mail: Indscp@iae.syb.ac.cn,

Oct. 15-17

IV. International Conference on Culture and Environment, "Cultural Landscapes for Ecological Networks", in Banská Stiavnica, Slovakia. Contact: UNESCO-Chair, Akademicka 13, 969 00 Banská Stiavnica, Slovakia. Tel/fax: +42 1 859 621 065. E-mail: unchair@zv.sanet.sk

Oct. 8-12

International Ph.D student courses will be held in Eco-environmental Research Center, Chinese Academy of Sciences in Beijing. Contact Prof. Xiao Duning, Inst. of Applied Ecology, Academia Sinica, Shenyang, 110015, Fax: 86-024-3843313 E-mail: Indscp@iae.syb.ac.cn

20-23 October

International Scientific Conference on "Ecological risk: analysis, valuation, prognosis". Contact Academician, Head of the Institute Vladimir Vladimirovich Vorobyev, Institute of Geography of SD RAS, Ulanbatorskaya str. 1, 666033 Irkutsk, Russia. Phone: +7 3952 46-46-40, Fax: +7 3952 46-77-17, E-mail: root@irigs.su

1999

June 24-26

1999 Open meeting of the human dimensions of global environmental change research community. Shonan Village, Kanagawa, Japan. Contact the IGES Web Site (<http://www.iges.or.jp/>), e-mail: hdgec@iges.or.jp, Fax: +81 468 55 3709 to Mr. Yasushi Itoh, IGES

July 29-August 3

1999 IALE World Congress will be held in Snowmass Village, Colorado. Contact IALE President John A. Wiens, Fax: +1 970 491 0649, e-mail: jaws@lamar.colostate.edu NB! Look at the web site for the IALE Congress: <http://lamar.colostate.edu/-iale/Congress.htm>
