

iale

bulletin

International Association for Landscape Ecology

EDITORIAL

After quite a long silence: another IALE-BULLETIN, just in time before the next international IALE-symposium on problems of Landscape Ecological Research in Michalovce, Czechoslovakia. This time the symposium - the 8th in succession to be organized by our vice-president Dr. M. Ruzicka and his team - will be devoted to the theme spatial and functional relationships in landscape ecology. The symposium will also host several important IALE-meetings during which the Executive Committee of IALE will hand over its office to a new one.

In this issue you will therefore find information first on the establishment of a preliminary Council of IALE and on the results of the election of a new Executive Committee. Other topics in this Bulletin are reports of several IALE-Working groups, a short article about a European Workshop on Landscape Ecological Impact of Climatic Changes in 1989, as well as several Letters to the Editor.

The founding meeting of IALE lies now almost six years behind us. We - your

editors - have the feeling that IALE has prospered since that time. Landscape ecological societies in several countries have become established and the term Landscape Ecology has become accepted more or less world-wide. An international journal Landscape Ecology exists.

This IALE-Bulletin will be the last one to be published by the international secretariat in The Netherlands. The next one will come - hopefully soon - from Denmark. Though we did not always succeed in informing you on a very regular basis, we hope that the Bulletin has served its purpose: to inform IALE-members about activities in the field of landscape ecology.

We wish to thank all of you who contributed during these first six years of existence of IALE and hope you will continue to do so. Active cooperation by members is necessary for a Bulletin like this.

And, last but not least, we wish the new Executive Committee a very successful time of office.

S.M. ten Houte de Lange
W.B. Harms

IALE INFORMATION

PRELIMINARY COUNCIL OF IALE

Due to several reasons it was not possible to complete the procedure for the appointment of the Council of IALE, as was adopted by the meeting of the Preliminary Council of IALE in Münster in 1987. Therefore the International Secretariat wrote a letter to all IALE-contacts last June and proposed to formalize the establishment of a Preliminary Council for the period of one year and to have the new Executive Committee elected by this preliminary council.

It was proposed that the preliminary council of IALE should consist of

- one representative of each organized region (e.g. landscape ecological societies or associations in different countries);
- active contact persons of IALE in countries where a regional organization had not yet been established;
- chairmen of IALE-working groups.

Up till mid August the international secretariat received - apart from positive reactions from the members of the Executive Committee - 15 reactions to the proposal mentioned above. All respondents agreed with the proposal and as a result of this the Preliminary Council of IALE for the next year consists of the following members (a few regions and working groups have not named their representatives yet, so

there may be a few additions in the near future):

MEMBERS OF THE PRELIMINARY COUNCIL:

- members of the Executive Committee
- Dr. M. Antrop Belgium
- Dr. G. Arnold Australia
- Dr. T. Bartkowski Poland
- Dr. J. Brandt Denmark
- Dr. F. Burel France
- Dr. P. Csorba Hungary
- Dr. O. Kontturi Finland
- Dr. P. Kuneepong Thailand
- Dr. M. Moss Canada (Canadian Association for Landscape Ecology and Management)
- Dr. Z. Naveh Israel
- Dr. P. Opdam Netherlands (Netherlands Society for Landscape Ecology)
- Dr. M. Ruzicka Czechoslovakia (Eastern European Region)
- Dr. R. Jongman Working Group Ecology of the Rhine Catchment Area
- Dr. R. Bunce Working Group Geographical Information Systems

The procedure for the appointment of the formal Council of IALE will have to be completed after the symposium in Czechoslovakia in October 1988.

ELECTION NEW EXECUTIVE COMMITTEE

The members of the Preliminary Council elected - by way of mail - the members of the new Executive Committee of IALE, who will take over from the present one at the general assembly, to be held during the International Symposium on Problems of Landscape Ecological Research in Michalovce (Czechoslovakia). The - almost unanimous - results of this election is as follows:

President:

Dr. H.G. Merriam Canada

Secretary-General:

Dr. J. Brandt Denmark

Deputy Secretary-General:

Dr. P. Agger Denmark

Treasurer:

Dr. M.J. McDonnell USA

Vice-Presidents:

Dr. P. Bridgewater Australia

Dr. W. Haber F.R. Germany

Dr. M. Husain India

Dr. M. Ruzicka Czechoslovakia

Dr. I.S. Zonneveld Netherlands

We would like to congratulate the members of the newly elected committee already here and wish them a very active and succesfull period of office.

The international secretariat was informed by several IALE members that it

is normal and good for the continuity in a board that a past-president is a member of the Executive Committee. Also, several suggestions were made to have the past-president as well as a fifth vice-president in the executive Committee. The international secretariat thinks these are very sensible suggestions and proposes to discuss these during the next general Assembly, as a slight amendment to the statutes of IALE would be required for this.

NEXT GENERAL ASSEMBLY OF IALE

During the international symposium on Problems of Landscape Ecological Research, to be held from 2 to 8 October 1988 in Michalovce (Czechoslovakia) the next general Assembly of IALE will be held. During this meeting the executive Committee will present its report and will hand over its office to the new Executive Committee.

NORDIC IALE BEING SET UP

A Nordic IALE (Denmark, Norway, Sweden and Finland) is planned to be set up. Proposals for regional activities have been worked out: they encompass at least two short nordic seminars per year (proposals for themes: landscape ecological perspectives on

- 1) Extensive and intensive tendencies in the use of Scandinavian landscapes,
- 2) Wetlands and their use,
- 3) Town-near areas,
- 4) Landscapes around the Baltic,

5) Coastal areas.

Also regional working groups on different topics are being planned. A new topic, which seems to be of special interest in the nordic countries is:

landscape ecological perspectives on sustainable development.

A preliminary set of statutes for a Nordic IALE is under preparation.

FEATURES

EUROPEAN WORKSHOP ON LANDSCAPE ECOLOGICAL IMPACT OF CLIMATIC CHANGES; autumn 1989

There is a consensus amongst most scientists that the global temperature will rise from 1.5-4.5°C within the next 100 years (Villach Conference, 1985) due to an increase of atmospheric carbon dioxide and other "greenhouse gases". This may lead to a global climate warming larger and more rapid than that will possibly be the last 200,000 years. The possible changing of the climate due to the emissions of greenhouse gases should be considered as one of today's most important long-term environmental problems (Bolin et al., in SCOPE Publication 29, 1986).

Direct and indirect effects of climatic change, for example on water resources, agriculture, fisheries, forestry and human health are becoming of major interest for governmental policy makers. It should be regarded as an important socio-economic long-term (50-100 yrs) planning decision concerning water resources management, irrigation, hydropower, drought, land use, structural designs, coastal engineering or any other

capital expenditure.

Reports on climatic change impact so far have mainly dealt with general recommendations with regard to possible effects on agriculture, water resources, sea level and forestry. However to assess the interrelationships between (changing) climatic parameters and various biotic and abiotic processes a more specialized and interdisciplinary program is needed. This program should therefore focus on fundamental ecological processes (e.g. primary and secondary productivity, biochemical cycling, eco-regulation), pedological processes (e.g. weathering, soil formation), geomorphological processes (sediment/solute transport and landform development) and hydrological processes (runoff, groundwater flow, desiccation). These studies are needed to improve our understanding of interrelationships of nutrient, sediment and water pathways, the role of vegetation, the shifts in production, diversity, migration, destruction or inhibition of living species. Experts in relevant research fields mentioned are now being consulted on specific climate sensitive processes in order to achieve a state-of-the-art on the subject. They

are being invited to contribute in the preparation of scientific working papers.

Aims and Objectives of the Workshop

- a) Increasing the understanding of the significance of climatic impact on terrestrial ecosystems and thereby on society.
- b) Presentation of several case study results and of 'state-of-the-art' presentations on the impact of climatic change on natural ecosystems and landscapes.
- c) Exchange of ideas on methodologies to be used in terrestrial impact assessment studies.
- d) Evaluation of results and drafting recommendations for policy development and indicative research.
- e) Assessment of adaptive measures and their effectiveness.

Topics

- * General abiotic and biotic aspects of climate sensitive terrestrial patterns and processes.
- * Case studies on Alpine systems, river systems and wetlands, coastal wetlands, inland- and coastal dunes, loess zones, boreal forests and tundras. Three case studies cover geographical distinct areas in Northern Fennoscandia, Spain and the Alps.
- * Methods and techniques of climatic impact assessment studies related to terrestrial ecosystems.

Co-ordination and organization

The workshop will be held at the Congress Centre "de Leeuwenhorst", Noordwijkerhout, The Netherlands, Autumn 1989. It is organized by the Department of Nature Conservation of the Agricultural University of Wageningen, Department of Physical Geography of the University of Utrecht, the Department of Physical Geography and Soil Science of the University of Amsterdam on behalf of The Netherlands' Ministry of Housing, Physical Planning and the Environment as a contribution to the UNEP-WMP-ICSU World Climate Impact Assessment Programme, EC and MAB-Europe.

Participants

- * Invited speakers.
- * Scientists and policy makers who wish to present a paper, poster or audiovisual presentation. Abstracts of proposals should be submitted to the Organizing Committee. Proposals will be screened by an International Advisory panel.

Publications

Discussion papers and interim reports of the secretariat will be distributed internally and are to be considered as drafts for further publications. Proceedings of the Workshop with an executive summary will preferably be printed as one booklet or as one or a few special volumes in leading European journals.

For further information contact the LICC-secretary:

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IALE WORKING GROUPS

WORKING GROUP G.I.S.

Report of the IALE Workshop of the Geographical Information System Working Group, held 24-26 March 1988 at the Institute for Terrestrial Ecology, Merlewood, Grange-over-Sands, Cumbria, U.K.

The central theme of this meeting was "Geographical Information Systems for Planning in Ecology". The workshop was attended by some 80 persons of different nationalities (mainly from the UK, but also participants from Canada, The Netherlands, West Germany, Belgium and Spain. The programme included formal presentations, discussions and an excursion. The workshop was organised by Dr. R.M.G. Bunce from ITE.

The papers presented covered both the aspects of supply of, and demand for, Geographical Information Systems. Thereafter, participants split into groups to discuss GIS topics that are of most importance to both users and system developers.

The most important points arising from

the papers and the discussions were:

- * the problems and dangers associated with the propagation of errors during multiple data manipulations and modelling (Burrough).

- * "State-of-the-art" GIS are designed mainly to cope with static data - i.e. at present, GIS can better be applied in examinations of patterns rather than in process modelling.

- * The ability to link the spatial data in GIS to dynamic models of spatial processes was considered to be of increasing importance. But many models of ecological processes that have so far been developed make little direct use of spatial information. Only a few examples of linking GIS and process models were shown: in hydrological modelling HAGIS (Moore, Morris & Bonvoisin) and in integrated ecological and economic models (Moffatt, University of Stirling).

- * There was much discussion about the technology of spatial analysis (general term applied to all kinds of analyses using spatial data) and of pattern analysis (more specific term, often used

only for the study of images from sensors). Conversely, there was little discussion about "line statistics". Warnings were sounded about over-optimistic expectations of the results of pattern analyses of complex data.

* There will be increasing efforts to incorporate expert systems in GIS in the future.

* Successful use of GIS requires good ideas, good tools and good, appropriate data. Data quality is one of the main bottle necks for using GIS successfully. Very often the data about the spatial units stored in a GIS are little more than average values obtained from few samples. When surrogate data are used to represent or to estimate the value of expensive-to-measure attributes, the relations between the two kinds of data may not be adequately described. There is a definite need for optimizing statistical sampling methods in order to speed up the input, and to improve the intrinsic quality of many ecological data that should be used in model-based GIS for land resources planning.

* More attention needs to be paid to the scale-dependent spatial variation of many properties of ecological attributes. Mapping methods should be used that make clear the importance of spatial variation at a given scale. Many GIS lack the facilities for presenting the results of statistical and geostatistical analyses.

The following computer packages were demonstrated:

- MICROMAPPER which is a simple raster GIS suitable for small, detailed landuse studies.

- AUTOCAD for automated map drawing (Nb. not a GIS),

- dBASE III and LOTUS 1-2-3 for storing spatial data and for obtaining results in tabular form.

- LASERVISION video disks for storing image data from photographs, video tape, maps, etc. By recording images of sources made at different scales, data at many levels of detail can be stored and retrieved.

- SPANS is a compact GIS that used a quadtree database structure for storing thematic data. It is particularly useful for combining data from several map overlays either by logical intersection or by mathematical manipulation (maximum 14 overlays at any one time).

The workshop ended with an excursion to the Lake District National park. The excursion demonstrated both the role and the need for GIS in planning and managing the National park with respect to changes in agriculture, forestry, settlement, employment and most important, the increasing pressure of tourism.

The practical application in the National park of the results of research done

by the ITE was clearly shown. This was a good example of close cooperation between researchers and managers.

Proceedings of the workshop will be published in autumn, 1988.

WORKING GROUP URBAN ECOLOGY

Report on the Scientific Conference
"UPON THE NOTION OF URBAN ECOLOGY"
Poznań October 26-29 1987

The conference was held at the Institute of Physical Geography of the Adam Mickiewicz University in Poznań.

Despite the small number of 19 participants the total program has been carried out: sessions with reports, discussion, poster exhibition and 2 excursions. The participants obtained a volume of xero-printed "Materials" before the conference.

Contributing were presented in the following sessions:

1. Session: "The notion of urban ecology".
2. Session: "The notion of urban ecosystem and related problems".
3. The poster session.

Excursions were held during and after the conference.

The results of the discussion will be presented with more detail in the adjoined "post-conference" paper of T. Bartkowski, titled: "In what measure is

urban ecology a biological science?".

The discussion was predominantly focussed on the notions of human and urban ecology. There was a general consent with respect to the definition and the scope of urban ecology. Urban ecology can only partially be classified as a biological science. It is however an interdisciplinary science, including elements of biological, physico-geographical, social, and even psychological and anthropological sciences. Its "differentia specifica" lies in the application of the so called "ecological paradigm". This paradigm, which is based on biological concepts of Haeckel and Tansley, is described in the "General systems theory" by L.v.Bertalanffy. Ecological paradigm concerns the study of "open systems". Organisms and populations are according this paradigm interfering with "inputs", "out-puts" of matter, energy and especially information. This approach gives way to general methodological foundations to study interacted open systems, which can be applied in numerous other disciplines. This can be called "ecologization of science". Human and urban ecology are in this way more comprehensive than for instance biology or anthropology.

At the end of the conference the participants agreed, that during this conference the discussion has only been started, and that it has to be continued. In order to fix this starting point the prepared "pre-conference Materials" will be printed in 1988 and

sent to interested scientists, working in multidisciplinary research areas. A second conference on this theme will be held in 1989 or 1990.

Dr. Daniela Solowiej

Prof. Dr. habil. Tadeusz Bartkowski

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The International for Landscape Ecology (IALE) exists to promote interdisciplinary scientific research and communication between scientists and planners

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The IALE BULLETIN is published twice yearly. News items, articles comments and suggestions are welcomed.

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LETTERS TO THE EDITOR

COMMENT ON THE PROPOSAL FOR A THEME FOR THE 3d IALE SEMINAR 1991.

The idea of an explicit confrontation of landscape ecology with economy through a IALE seminar (IALE Bull. 5,2,p.12) is excellent and is a challenge to various conceptual models about environment and development.

Before IALE will step into the economic boat, it should reflect well about its own concepts, which are still internally exposed to some different, sometimes controversial interpretations and appreciations. The seminars in Roskilde and in Münster clearly demonstrated the dialectical differences within landscape

ecology. Maybe an influx of economic thought can be very beneficial, because it will ask for a consolidated landscape ecological thinking.

In the proposal text of Jongman, Nierwerth and Smeets, landscape ecology is, as usually within IALE, presented as the convergency field between physical geography and ecology. It is an echo of Troll's definition of landscape ecology, and it suggests the stewardship of geographers and ecologists over a new, emerging research field. Furthermore, landscape ecology is often being associated with nature conservation and with planning methods which strive towards its interweaving with other functions in the open spaces.

As an agronomist with soil science background, I only partially agree with this perception of the roots and the scopes of landscape ecology. I would like to emphasize the fact that there is another branch of landscape ecology, which occasionally re-emerges at the surface. It is the landscape ecology which lays, very often implicitly, at the basis of (agricultural) land evaluation and land development, and which has been fed essentially by soil scientists, agriculturalists, foresters etc. This is still a very important body of research and applications, and it has really an economic rationale, linked to the assumption that there are ways to use the land surface in a sustainable fashion.

Ecology and landscape ecology cover much more than "natural ecosystems", and not only biologists with such an interest are ecologists. Landscape ecology not only has to converge spatial and ecological concepts, but also the "landscape ecology of natural systems" and the "landscape ecology of production and development systems". Economy is by no means alien to landscape ecology.

But it is true, economy deserves a far greater attention within landscape ecology and within IALE. The reasons are well described by the authors of the seminar proposal. Furthermore, the traditional land-evaluation-like landscape ecology, with its economic rationale, should be enlarged with the new ideas of the "heterogeneity"-landscape ecol-

ogy, with its stronger conservation rationale. As such the idea of a confrontation of landscape ecology and economy partially matches the idea of finding the unifying concepts within landscape ecology itself.

So, let's endorse the challengers!

Hubert Gulinck

INTECOL TO FORM ECOLOGY REGISTRY

When INTECOL president F.B. Golley and treasurer Helmut Lieth visited the Washington, DC (USA) offices of the World Bank last fall, Bank officials stated they would welcome information on the capacity of the ecological community to provide them advice and council. In response to this clear need, Prof. Lieth has prepared a survey form to initiate a registry of international ecological-environmental experts willing to assist the Bank and other international development projects.

INTECOL requests all those interested in this activity to contact prof. Helmut Lieth, University of Osnabrück, FB5, P.O.Box 4469, D-4500 Osnabrück, FRG. International agencies interested in assistance for specific projects will contact individuals directly.

This registry is an opportunity for individual ecologists to have a voice in international projects of environmental significance. The need for such input is clearly urgent.

CORNELL ECOLOGY PROGRAMS FOR THE IBM-PC

The ordination and classification programs written at Cornell by H.G. Gauch and M.O. Hill under the direction of R.H. Whittaker have been translated to FORTRAN 77 and are now available for the IBM-PCTM and compatible computers. The mainframe versions of these programs, formerly distributed by Cornell University are now being distributed by Microcomputer Power of Ithaca, New York. The MD-DOS package, prepared by Charles Mohler with assistance from Hugh Gauch and Microcomputer Power, includes DECORANA, TWINSPAN, ORDIFLEX, COMPLUS, and a utility program for formatting and editing data sets. A large collection of simulated data sets is also available. Further information and a catalog are available from:

Microcomputer Power
111 Clover Lane
Ithaca, NY 14850 USA
(607)272-2188

CANOCO - AN EXTENSION OF DECORANA TO ANALYZE SPECIES-ENVIRONMENT RELATIONSHIPS

CANOCO is a genuine extension of DECORANA. It includes not only the ordination techniques of principal components analysis (PCA), (detrended) correspondence analysis and principal coordinates analysis, but also the direct gradient analysis techniques of weighted averaging, canonical correspondence analysis,

canonical variates analysis (= linear discriminant analysis) and redundancy analysis. In PCA, there are options for centring/standardization by species and by samples and for producing biplots. CANOCO can also carry out "partial" ordination, in which the effects of particular environmental "background" variables are eliminated. A partial ordination allows one to display the residual variation in the species data and to relate the residual variation to the environmental variables one is specifically interested in.

CANOCO allows one to test statistically whether the species are related to supplied environmental variables. The test provided is a Monte Carlo permutation test. This facility of CANOCO makes it attractive for environmental impact assessment, as an alternative for MANOVA and for Pielou's method of random skewers.

CANOCO is available on mainframes and on personal computers. It is written in standard FORTRAN 77 and can be supplied on 5.25 inch diskette for IBM-compatible PC's, on 3.5 inch diskette for Apple Macintosh and ATARI-ST PC's, on magnetic tape (1600 bpi, ASCII-code) or via BITNET/EARN. On an IBM-compatible PC with 640 Kb, CANOCO can analyse ca. 750 samples, 600 species, 60 environmental variables and 100 covariables. An order form is sent on request. The one-time costs are at present ca. \$150 for educational institutions and ca. \$300 for

others. A comprehensive manual and a collection of relevant papers will be sent with the program. Researchers from countries with valuta problems may send in a request for a free copy.

Cajo J.F. ter Braak
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DIARY

Oct. 3-7, 1988

VIIIth. International Symposium on Problems of Landscape Ecological Research: Spatial and functional relationships in landscape ecology. Enq.: Inst. of Exp. Biol. and Ecol. Obrancov mieru 3, 814 34 Bratislava, CSSR.

Dec. 14-16, 1988

Workshop: Species Dispersal in Agricultural Habitats. Grange-over-Sands, Cumbria. Enq.: The Conference Organiser, Land-Use Section, Merlewood Research Station. Grange-over-Sands, Cumbria LA11 6JU. England.

Jan. 8-10, 1989

Workshop: Landscape ecology and Spatial Information Systems. Enq.: Dr. R.M. Haines-Young, Dept. of Geography, Univ. of Nottingham, Nottingham, NE7 2RD, England.

March 15-18, 1989

Fourth Annual Landscape Ecology Symposium - Linking Landscape Structure to Ecosystem Processes. Fort Collins, CO, USA. Information: Dr. M.G. Turner, US-IALE Program Chair, Environmental Sciences Division, ORNL, Oak Ridge, TN 37831-6038, USA.

Sept. 11-15, 1989

Conference/Workshop: Nature Conservation, the role of corridors. Busselton, Western Australia. Enq.: Miss P. Hussey, Roadside Vegetation Conservation Committee, P.O. Box 104, COMO WA 6152 Western Australia.

Autumn, 1989

European Workshop on landscape Ecological Impacts of Climatic Changes. Enq.: LICC-secretary, Dr. F.A. Eybergen, Dept. of Physical Geography, University of Utrecht, P.O. Box 80.115 NL-3508 TC Utrecht.

August 23-30, 1990

5th International Congress of Ecology. Yokohama, Japan. Enq.: Dr. P.F. Maycock, Secretary-General, INTECOL, Erindale College, Univ. of Toronto, 3359 Mississauga Rd., Mississauga, Ontario L5L 1G6, Canada, or Prof. A. Miyawaki, Director, Inst. of Environmental Science and Technology, Yokohama National Univ., Yokohama 240, Japan.

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