



# bulletin

## International Association for Landscape Ecology

### EDITORIAL

#### NEW EXECUTIVE COMMITTEE OPEN FOR BUSINESS

The new executive committee elected last year is now open for business.

The formation of IALE resulted from a happy and fruitful cooperation between an enthusiastic and internationally orientated landscape ecological tradition in Holland, and a strong and steady contribution from the Slovakian landscape ecologists, which had formed a tradition for a continuous landscape ecological forum within Eastern Europe. Both groups had articulated the relationship between research and planning in the development of an interdisciplinary orientated landscape ecology.

For practical reasons the daily leadership of the new organization was in the first period located in the Netherlands, internationally assisted by the three vice presidents, thus forming an efficient base for the development of an

#### List of content:

New executive committee open for business.....	1
Greetings to all members of IALE from the new president.....	3
Swedish conservation research with a landscape approach.....	5
IALE-meetings:	
VIIIth international symposium on problems of landscape ecological research. Final recommendations.....	7
Forth annual US-IALE landscape ecology symposium.....	12
Meeting of the old and new IALE executive committee.....	13
IALE general assembly .....	14
Proposals for revision of the statutes.....	17
Regions:	
Brief history and present situation in the east European region of IALE/EER .....	18
French IALE Group .....	20
Regional contacts of IALE .....	21
Working Groups:	
IALE-GIS: The working group on geo-information systems .....	23
IALE working Group contacts.....	26
European conference on the landscape ecological impact of climatic change .....	28
Diary .....	29
Regional information .....	31

international network within landscape ecological research and planning.

A main precondition for the newly elected Executive Committee has been that this leadership should now decentralize, and use modern communication techniques to overcome the geographical separations.

This is true - in principle. But we

still have to get used to it! It will certainly take its time before we feel like being in a business meeting by exchanging information through telex, telefax and electronic mail. So we ask you to be a little patient.

Once operational, we plan to issue four bulletins per year and pay much attention to the support for activities of IALE regions and working groups.

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

**IALE EXECUTIVE COMMITTEE**

President: H. G. Merriam (Canada)  
Vice President: P. Bridgewater (Australia)  
Vice President: W. Haber (Fed. Rep. Germany)  
Vice President: M. Husain (India)  
Vice President: M. Ruzicka (CSSR)  
Vice President: I. S. Zonneveld (Netherlands)  
Secretary-General: J. Brandt (Denmark)  
Deputy Secretary-General: P. Agger (Denmark)  
Treasurer: M. J. McDonnell (USA)

The IALE BULLETIN is published 4 times yearly. News items, articles, comments and suggestions are welcomed.

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**GREETINGS TO ALL MEMBERS OF IALE**

As part of a successful meeting hosted by the new Eastern European Region in Zemplinska Sirava, Czechoslovakia, your newly elected executive officers were installed and the retiring members were thanked. To help me execute my new duties, I was made steward of a marvelous gavel, made of good Netherlands beech and bearing a new brass plate. The inscription traces this gavel from its service with the WLO, The Netherlands Association of Landscape Ecologists to its affiliation with IALE. This symbolism is very appropriate because IALE certainly set significant roots in Veldhoven with WLO and we thank WLO for vital support and nurture during our early years. It also was appropriate that all these events took place in Czechoslovakia where IALE also set early roots and where we have strong ties to good friends and strong pioneers in landscape ecology.

With more help from good friends like these everywhere in the world we now must grow and diversify and mature scientifically and culturally. Many processes have begun. We now have Regions in the Nordic countries, in East Europe, in India and in the United Kingdom. We have two new journals, an inter-

national one, Landscape Ecology, under the guidance of Frank Golley and the Indian Journal, Indale, under the leadership of M. Husain. Our individual membership has risen dramatically, most recently when the WLO legislated all of their members (over 1000) into IALE and the USA Region did the same. Our global membership is now estimated to be over 2000. I say estimated because some regional associations have not communicated their membership numbers to IALE.

Communications are a problem that we are addressing. We elected Peder Agger as Bulletin Editor to give more emphasis to this important link. We are establishing executive communications by electronic mail and we would like to receive e-mail addresses for all members and regional executives. Please send your e-mail address to IALE@MEZA.RUC.DK or Jesper Brandt personally at BRANDT@MEZA.RUC.DK (internet-address). You may also contact me at F61MERRP@CARLETON.NETNORTH or by FAX at (Canada Code) (613) 788 4389 or by TELEX at 0534232.

Thanks to Priscilla and Frank Golley, we now have a complete listing of all participants in recent IALE international and regional meetings and a list of all WLO members. The Canadian Society has offered to put all the IALE members

executive officers for each region. Can regional secretaries please each compile those two lists for their region and send it to the IALE e-mail address above or, lacking e-mail connections, send the best quality print-out available to Jesper Brandt or to me. Please be sure to include all the communication channels you can in addition to a postal address.

In addition to improving communications, your executive needs to stabilize the funding base of IALE. To avoid unstable dependence on irregular funding available to members of the executive, we must establish mechanisms to fund IALE from the memberships. In doing this we must avoid demands for hard currency on those who do not have it. Some bartering may be needed and some understanding of sliding scales certainly will be needed. The memberships of over 1000 WLO members and over 300 USA members certainly are welcome signs of generosity and understanding. As soon as your executive obtains cost estimates for operations of the secretariat and other minimum IALE costs, we will open funding negotiations with the regional executives.

One of our first preparatory activities for the 1991 IALE Congress in Ottawa, Canada has arisen from the insight and

generosity of Jim Thorne (USA) who suggested that we start a fund to aid our colleagues who wish to attend the Congress but lack hard currency. Jim demonstrated a solution by pledging \$ 100 to start the fund and challenged each of us who can to make similar contributions. I have asked Jim to manage the fund and set out mechanisms for applications to and awards from the fund. The U.S. Region has approved a checkoff on their dues application to allow contributions to this fund. You may make contributions to the IALE Congress Currency Fund, c/o Dr. James Thorne, University of Pennsylvania, Philadelphia. If groups of colleagues of IALE Regions wish to avoid the large handling charges that will be levied by banks at Jim's end, you might pool contributions and send a single larger amount. As additional support for this same cause, the Ottawa local arrangements committee will seek institutional sources of additional travel/exchange funds.

Gray Merriam

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**SWEDISH CONSERVATION RESEARCH WITH A  
LANDSCAPE APPROACH**

The Scandinavian landscape is rapidly changing. Agricultural overproduction causes abandonment of cropland and often plantation of coniferous forests while modern forestry creates large clearcuts and subsequent managed forest stands. More original habitats for flora and fauna, as virgin forests, wetlands, unimproved hay meadows etc, are diminishing to small "remnant biotopes" or disappear completely. This has caused considerable concern in both naturalists and recreationists and the Swedish Nature Conservation Board has started a rather large research project on "Remnant biotopes in production landscapes".

In this project we have a landscape approach in trying to explain causal mechanisms behind dwindling or disappearing populations and communities, when either original mosaics are destroyed or originally extensive habitats are fragmented. We both look at the remaining plants or animals from a metapopulation point of view and as victims for factors emanating from the landscape matrix, viz. new habitat types between the remnant small patches. Generally matrix-patch interactions (e.g. predation) seem to provide more understanding than metapopulation dynamics, where we

to a large extent have to rely on stochastic processes. However, in very few and very small patches chance events may dominate.

We try to concentrate our research on species which either provide a very general understanding or are some kind of keystone species in the original habitats and thus affect a number of other plant and animal species. Spruce trees certainly constitute a keystone species in virgin spruce forests and we have studied the natural dynamics of this species in fire refugia (a threatened habitat), including windthrow and seedling establishment on new bare ground (at naturally felled trees) in experimental forest patches of various sizes. This may be a population or metapopulation approach. A plant study involving original mosaics includes pollinators, which are dependent on nectar resources occurring only in large habitat areas and thus provide little pollination and diminished seed setting to certain plants in small patches. Obvious matrix effects are caused by predators from clearcuts entering mature forest habitats and affecting the recruitment of e.g. passerine birds. Modern habitat mosaics consisting of both coniferous and deciduous forests affect species composition of molluscs, carabid beetles and birds in separate habitats.

These are a few of the topics treated by some ten ecologists working as sub-project leaders. Results are used to e.g. decide the amount of wet forest necessary to provide grouse in managed coniferous forests with food for their young and the minimum size of old forest patches necessary to protect complete lichen floras from desiccation and disappearance. We hope that more comprehensive management recommendations will be possible in the future. The studies have been under way for almost five years but the total program is now restructured and will probably cover one large experimental study in northern Sweden and a landscape gradient in southcentral Sweden. People working in this research program are also eager to get contact with others, working with similar problems or in similar environments. Further information can be obtained from Research Secretariat, Swedish Nature Conservation Board, P.O. Box 1302, S-171 25 SOLNA, Sweden.

Lennart Hansson

#### LANDSCAPE ECOLOGY AND MANAGEMENT

Edited by MICHAEL R. MOSS

Proceedings of the First Symposium of the Canadian Society for Landscape Ecology and Management: May 1987.  
Context: 23 papers grouped under the following headings:

**Part One:**

The Concept of Landscape Ecology and its Canadian dimension.

**Part Two:**

Global Environmental Issues:  
Implications for Canadian Landscape Management.

**Part Three:**

Analysis and Management of Canadian Landscape Systems.

A. Habitat and Wildlife in Agricultural Systems.

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C. Resource Analysis, Impact and Development.

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## IALE-MEETINGS

### VIIIth INTERNATIONAL SYMPOSIUM ON PROBLEMS OF LANDSCAPE ECOLOGICAL RESEARCH

October 3-7, 1988 CSSR

#### FINAL RECOMMENDATIONS

The VIIIth International Symposium on Problems of Landscape Ecological Research organized by the Institute of Experimental Biology and Ecology of the Centre of Biological and Ecological Sciences of the Slovak Academy of Sciences and the Secretariat of the East European Region of the International Association of Landscape Ecology (IALE) at Zemplinska Sirava during October 3-7, 1988 was focused on spatial and functional relationships in landscape ecology. Twenty-two countries participated in the preparation of its programme by sending their papers, and representatives from eighteen countries took part at the symposium (Europe - fourteen countries, North America - two, Asia - one, Australia - one). There were 177 participants among them 82 were from abroad. Problems involved in 24 main papers, 89 papers and 52 posters were discussed during the symposium. Most of the papers were available for the parti-

cipants in a full scope in a two-volume Proceedings having 800 pages.

The main topics of the symposium were as follows:

1. Spatial relationships in landscape ecology
  - 1.1 Present problems on landscape - ecological research
  - 1.2 Spatial flows of energy, matter, and organism in the landscape
  - 1.3 Spatial structure of landscapes
2. Functions of biotic components in landscape
  - 2.1 Formation of territorial systems of ecological landscape stability
  - 2.2 Evaluation of spatial, qualitative, and dynamic characteristics of biotic landscape components
  - 2.3 Conservation of nature, natural resources and ecological monitoring.

Except the above specified topics there was one more for posters entitled Ecological Principles of Landscape Utilization.

Within the framework of the symposium a professional field trip through the East Slovakian Lowland was organized; its aim was to make the participants of the symposium more familiar with the problems of its ecologically optimum utilization solved within the framework of the land-

scape ecological plan - Bioproject of the East Slovakian Lowland, and within the target-printed project of the basic research "Ecological Optimization of the East Slovakian Lowland Utilization". A detailed guide book and a special block of papers made the participants familiar with the general problems, which in turn were documented by concrete problems of chosen localities.

For those who attended the participants a special programme was prepared. After the symposium a field trip to such territories of Slovakia was held (October 7-10, 1988) where 30 participants could become acquainted with the result of elaborated ecological studies (Zamagurie, Liptov, Demänovská dolina, Hnustá-Hacava, Klenovec, Banská Stiavnica), as well as with the beauty, national heritage, and development of Slovakia.

Within the symposium a session of the new Executive Committee of IALE was held on October 3rd, 1988, as well as General Assembly of IALE headed by Prof., Dr. H.G. Merriam, president (Canada) in the presence of vice-presidents Prof., Dr. I.S. Zonneveld (the Netherlands), RNDR. M. Ruzicka (Csc. CSSR), Dr. J. Brandt, secretary-general (Denmark), and Dr. P. Agger, secretary (Denmark). A temporary Council of IALE has been established as

the chief managing unit which should control the work of the Executive Committee. A session of the representatives of the East European Region of IALE (the region including Bulgaria, CSSR, Hungary, Poland and the USSR) was held; within the framework of this session a temporary council of the region has been established, and both the council and its Executive Committee, headed by RNDR M. Ruzicka, CSc. CSSR, adopted a number of concrete measures. At the session a proposal for establishment of a working group of IALE "Landscape-Ecological Planning" was also discussed. Following this session also a session of the CMEA Member Countries III.2.1 "Improvement of the methods of utilization of landscape and ecological materials in planning" was held, where the methods of interlinking of their activity with that of IALE were discussed.

IALE was established six years ago; during these six years a turning point in the development of landscape ecology and IALE was recorded at the IVth International Ecological Congress in the USA in 1986. A lot of new institutions from many countries applied for participation in IALE with the aim to solve the problems of landscape ecology. This was also evident during this symposium with the highest number of participants, and



where also the highest number of papers was given when compared to the symposia held till now.

#### I. PROBLEMS OF COMPREHENSIVE LANDSCAPE-ECOLOGICAL RESEARCH

The turning point and changes in the development of the landscape ecology are mostly quantitative till now which was also evident from the contents and course of the symposium. Discussion of opinions on spatial and functional relationships in ecology has shown that there are many approaches, aims and views. This results from differentiated understanding of the scientific content of the landscape ecology, as well as from different aims and possibilities of its application in practice.

1. Therefore, an urgent need of gradual unification and crystallization of philosophical and theoretical principles of landscape ecology is emerging. At the same time, the question of the search for ways and forms of application of knowledge and results of landscape-ecological research in the solution of general problems of the environment is highly topical.

2. Great emphasis within the landscape ecological research works is laid on the solution of all important social targets

and, at the same time of protection of nature and natural resources. Attention is paid to the relationship between economy and ecology. With regard to this also the contribution of the Czechoslovak Landscape Ecological School and LANDEP-method whose concrete example of application was the solution of ecologically optimum utilization of the East Slovakian Lowland is appreciated.

3. Based on the project of ecologically optimum utilization of the East Slovakian Lowland it is highly topical to elaborate and implement proposals for a network of protected areas and a project for the Protected Landscape Area of the Latorica Lowland.

4. Further development of landscape ecology would require more detailed knowledge of natural spatial-time structures, as well as of anthropogenic and technogenic parts of landscape. To mediate the dynamic properties of these structures semi-stationary and stationary observations and measurements are unavoidable, since these enable both quantitative evaluation of phenomena and processes in the landscape in question.

5. Research and implementation experiments from different parts of the world emphasize the landscape-ecological importance of the landscape verdure, par-

ticularly of the line biotopes such as shrubs, grass land and plantations of trees along streams and rivers, roads, etc. They satisfy not only the function of biocorridors, but also other soil- and water protection as well as landscape formation functions. Therefore, it is necessary to develop not only the research in this direction, but also to look for new ways for application of this knowledge to the improvement of a cultivated landscape structure.

6. Following the conclusions of the VIIth International Symposium on the needs to pay more attention to the unification of the principal used terms, it seems to be useful to establish a "terminological group" within IALE, which would take care of the initiative as for issuing chosen scientific concepts with thorough explanation of their meaning.

## II. SCIENTIFIC AND ORGANISATIONAL PROBLEMS OF INTERNATIONAL COOPERATION

The symposia on problems of landscape ecological research organized in the CSSR are part of the IALE activity organized by the Secretariat of the East European Region. They satisfy an important role in the field of exchange of experience and knowledge between East European and other regions of IALE, but

also in the development of the scientific basis of landscape ecology.

1. Based on the conclusions from discussions it is recommended that during the IXth International Symposium on Problems of Landscape and Ecological Research, attention should be paid to the following problems:

- essential philosophical and theoretical principles of landscape ecology, i.e. the question "What does landscape ecology mean"?

- the methods of application of the results of landscape ecological research to practice, i.e. the question "What and how to offer for practice?"

To deal within the working groups with other questions such as:

- ecological landscape homeostasis
- ecological crisis and disaster
- balance between socio-economic and nature protecting development of the territory.

2. The programme of the symposium has approached the recommendations involved in the conclusions of the previous symposium, but in spite of narrowing the topics it was impossible to limit the number of papers and thus to have more space for discussion. Based on the critical re-evaluation of the ways of organization of symposia with regard to

their targets and aims the following items are recommended:

- to include maximum two main topics in the programme of a symposium
- for each topic
  - to ask early enough for papers as a basis for invited papers
  - to nominate 1 or 2 officers who would elaborate essential papers critically evaluating the results submitted at the symposium
  - to nominate 1 or 2 chief officers who would elaborate essential papers resulting from the current state and prospects of the development of knowledge of the problems in question
- main and invited papers together with other papers sent before, should be available for the participants in the form of proceedings
- only the main and invited papers will be given, and the substantial part will consist in discussion (floor debate)
- posters will follow the main topics as a basis for free discussion
- to include 2-4 working groups into the programme which would solve special problems and which would meet in parallel on one half-day
- to include into the programme one all-day field trip following the problems of symposium

- in agreement with the programme of the symposium also organize field trips after the end of the symposium.

3. To continue in increased attention to education in the field of landscape ecology in individual countries, and within the frame of IALE also at the international level (summer schools, special courses, scholarships, etc.).

4. A symposium held "under one roof" remote from large settlements has a character which contributes not only to the professional level but also to social life since it enables permanent discussions in a friendly and informal atmosphere. It is an occasion for establishment and intensification of working and personal contacts.

This symposium has significantly contributed to the development of landscape ecology and international cooperation within IALE.

Symposium participants

**FOURTH ANNUAL US-IALE LANDSCAPE ECOLOGY SYMPOSIUM**

Report Submitted by Monica G. Turner

The United States Regional Association of IALE held its Fourth Annual Symposium March 15-18, 1989, at Colorado State University, Fort Collins, Colorado. The theme of the symposium was "Linking Landscape Structure to Ecosystem Processes", and the local host was Dr. Ingrid C. Burke. Almost 200 ecologists, geographers, landscape architects, resource managers attended the symposium, and we were pleased to have three members of the newly formed Italian Regional Association of IALE join us. A total of 90 papers and posters were presented. Symposium activities also included a field trip to the Central Plains Experimental Range, a long-term research site focusing on the dynamics of the short-grass prairie landscape; a field trip through the altitudinal zones of the Rocky Mountains; and a one-day workshop on geographic information systems. Five plenary papers provided a diverse perspective on landscape pattern and ecosystem processes. Dr. Samuel J. McNaughton (Syracuse University) discussed the landscape ecology of African Grazing systems, focusing on the spatial

interactions among large migratory ungulates and the patterns of primary productivity, nutrient cycling, and forage quality in the Serengeti. An entertaining and informative overview of applications of geographic information systems in resource management was presented by Dr. Joseph K. Berry (Colorado State University), who emphasized the conceptualization of maps as data. Interactions between landscape structure and local and regional climate were the subject of an address by Dr. Roger A. Pielke (Colorado State University), with interesting examples of how surface conditions and their alteration by humans (e.g., by irrigation) substantially influence the atmosphere above the surface. Professor Anne W. Spirn (University of Pennsylvania) gave an insightful and thought-provoking address in which she developed the concept of "deep structure" and its application to the design of urban landscapes. Deep structure of the landscape reflects essential ecosystem processes in a particular place and is differentiated from "landscape structure", which is ephemeral. The final plenary address was presented by Dr. John A. Wiens (Colorado State University) and addressed the characterization of boundaries or ecotones in landscapes, their effects on the flow of organisms or materials, and how these functional effects are influenced by the scale of observation.

A wide range of topics was covered among the contributed papers and posters. A large proportion of the research presented at the symposium described studies actually conducted at the landscape scale, demonstrating a gradual maturing of landscape-level research in the US. Presentations focused on such diverse subjects as: the integration of social and ecological processes by nomadic pastoralists in Africa; the selection of spatial units for studying forest ecosystem processes at the regional scale; problems of panda conservation in China; flows of material and energy across an agricultural landscape in Spain; the influence of spatial and temporal scale on landscape dynamics; landscape controls over atmosphere-biosphere exchanges; linking structure and process for landscape management; development of ecologically sustainable landscapes; regional assessment of ecological risk; and the design of bird habitat in anthropogenic landscapes.

The annual business meeting of US-IALE was held during the symposium, and elections were held for the executive committee positions that are replaced during odd-numbered years. The following new officers were elected for terms of two years: Dr. James F. Thorne (University of Pennsylvania), Program Chair, Dr.

Bruce T. Milne (University of New Mexico), Treasurer; Dr. Thomas R. Crowe (USDA-Forest Service, Wisconsin), Councillor-at-large; and Dr. Robert V. O'Neill (Oak Ridge National Laboratory), Councillor-at-large. Plans were also announced for the Fifth Annual Symposium which will be held March 21-25, 1990, at Miami University, Oxford, Ohio. This symposium will focus on "The Role of Landscape Ecology in Public Policy-Making and Land-Use Management", and the local host will be Dr. John L. Vankat.

#### MEETING OF THE OLD AND NEW IALE EXECUTIVE COMMITTEE

A short meeting between the old and the new Executive Committee was held on October 2nd in Zemplinska Sirava, CSSR. From the former Executive Committee I.S. Zonneveld, M. Ruzicka. S. ten Houte de Lange and P. Saris were present, from the new H.G. Merriam, I.S. Zonneveld, M. Ruzicka, J. Brandt and P. Agger.

At this meeting the General Assembly was planned. The former secretary general had received letters from the new elected vice-president P. Bridgewater, W. Haber and M. Husain, who could not join the seminar, but all were looking for-



ward to be active in the work of the new Executive Committee.

The new Executive Committee expressed its anxiety concerning the financial situation. Until now few regions have really collected the fee and still fewer have transferred a part of this to the main secretariate. The secretariat function and the IALE bulletin have actually been depending on money from institutes. Two auditors were proposed for the General Assembly and it was decided, that the former secretary general should prepare a realistic budget for the IALE bulletin.

#### IALE GENERAL ASSEMBLY, OCTOBER 1988

The fourth General Assembly of IALE was held on October 3rd, 1988 in Zimplinska Sirava, CSSR.

After the opening speech by the president of IALE, Dr. I.S. Zonneveld, the secretary general Dr. ten Houte de Lange gave a historical view over the development of IALE with the following highlights:

1981: Decision on preparing IALE in connection with The Landscape Ecological Congress in Veldhoven, the Netherlands.

1982: Official formation of IALE and election of a preliminary executive committee in connection with the Vith International Symposium on Problems of Landscape Ecological Research in Piestany, CSSR.

1983: One number of IALE bulletin, planned to be issued twice a year.

1984: 1st International Seminar on Methodology in Landscape Ecological Research and Planning, held in Roskilde, Denmark. 1st meeting of the General Assembly. Formation of working groups within IALE.

1985: Meeting of The Executive Committee in Münster, FRG.

1986: IALE-symposium held during the 4th Congress of Ecology at Syracuse, N.Y., USA. New regions within IALE were formed: Thailand, USA, Canada.

1987: 2nd International Seminar on Connectivity in Landscape Ecology held in Münster, FRG. 2nd Meeting of the General Assembly.

1988: Formation of a preliminary Council of IALE, and election of a new Executive Committee to take over from October 1989. VIIIth International Symposium on Problems of Landscape Ecological Research held in Zemplinska Sirava, CSSR, arranged by the East European Region of IALE.

The treasurer of IALE, Frank Saris, made

his report on the financial situation of IALE. Two members, M. Moss, Canada, and H.-J. Mader, FRG, were elected as auditors, and received the report from the treasure for investigation.

Representatives of the different regions of Iale reported on recent developments. The situation is very different from region to region. A growing activity on formalizing the IALE activities within Eastern Europe and a high activity in North America are the most important new tendencies. Still there are rather big problems with the formalization of regions, preparation of by-laws and with the finances side of the regions. The new secretariat will try to produce an overview for one of the next issues of IALE bulletin.

The General Assembly approved the procedure used for the election of the new Executive Committee, and the new Executive Committee was then installed:

**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 The Netherlands

In the following address of the new president of IALE, Dr.H.G. Merriam, he stressed the new conditions for the organizational work of IALE, which need to be faced in the near future:

We can not rely on personal meetings, but have to get used to communication by on telex, telefax and electronic mail. Nor can we continue to depend on the institutes of our Executive to pay our bills. We must plan our activities realistically, based on a calculation of supposed incomes and expenditures.

But money is not the only thing we need and not the only resource we have: Our goal can be supported through a lot of other contributions. We now have to rely on the work of regional groups, not just on the main secretariate.

One possible new development for the future could be the formation of IALE-courses. There is need for training courses in landscape ecology. We have

the talents. Possibly IALE volunteer experts could offer courses in regions rich on money but needing landscape ecological expertise. Proceeds could be used to offer courses in low income developing countries.

#### Proposals and decisions

The next General Assembly will be in late summer 1991 during the World Congress of IALE in Ottawa, Canada.

Two other important meetings are planned for summer 1991; The Ecological Society of America on Hawaii, is planned for August 1991, and the IXth International Symposium on Problems of Landscape Ecological Research in CSSR will be in October. We must coordinate timing of these meetings.

The relation between IALE and the new International Journal *Landscape Ecology* was discussed. *Landscape Ecology* is not owned by IALE, but we should have the closest relationship possible. Members of IALE get a discount on the journal. The editor, Dr. Frank Golley, stressed the importance of advocating that all members of IALE should subscribe to *Landscape Ecology*. This would also add to the influence of IALE upon the journal.

I.S. Zonneveld proposed "a royal approval" from IALE to the journal to allow the name of IALE to appear in the journal. This would be a matter for the next General Assembly and should be discussed by the Executive beforehand.

The planned publication from the Syracuse meeting had not yet appeared. The General Assembly decided to cancel the edition if it could not be ready before January 1st 1989.

A proposal of nominating the following initiators of IALE for honorary members of IALE: I.S. Zonneveld (the Netherlands), R.T.T. Forman (USA), K.F. Schreiber (FRG), M. Ruzicka (CSSR), S.M. ten Houte de Lange (the Netherlands), F. Golley (USA), Z. Naveh (Israel) and T. Bartkowski (Poland), was set aside until statute C1, is revised to include a procedure for election of honorary members.

It was also approved that statute F1 be revised to include the Past President (to ensure continuity), and a new position for Bulletin editor.

Jesper Brandt

## PROPOSALS FOR REVISION OF THE STATUTES

F1. The Executive Committee shall consist of the resident with a four year term or a term lasting until the next International Congress, and not re-electable for the following term; the past-president with a four-year term; not more than four vice-presidents with four year terms and subject to re-election; the secretary-general with a four year term and subject to re-election; the deputy secretary-general with a four year term and subject to re-election; the bulletin editor with a four year term and subject to re-election. The deputy secretary-general may concurrently serve as bulletin editor if necessary.

This proposed revision is recommended for motion for the next General Assembly in Ottawa in 1991.

As covered in the report from the General Assembly the president announced a proposal for a revision of Statute C1, part c, concerning honorary members. The proposal has the following text:

C1. (c) Honorary members. The Association may confer honorary membership upon distinguished Landscape Ecologists. Nominations shall be signed by two members of the Council and shall be presented in writing to all members of the Executive Committee at least three months before the next scheduled General Assembly. Honorary membership will be conferred if a simple majority of the Council approves the nomination.

If approved by members of the Executive Committee, this proposed revision will be moved at the next General Assembly in Ottawa in 1991.

## REGIONS

### BRIEF HISTORY AND PRESENT SITUATION IN THE EAST EUROPEAN REGION OF IALE/EER

Milan Ruzicka, Mária Kozová

During the Vth International Symposium of Problems of Landscape Ecological Research, Piestany 1982, the International Association for Landscape Ecology was founded. The participants from socialist countries - Bulgaria, CSSR, the GDR, Hungary, Poland and the USSR - who participated as observers at the establishing meeting, were interested in the establishment of a common East European Region of IALE. At the same time, the organizers of the Symposium - Institute of Experimental Biology and Ecology CBES SAS - were entitled to prepare a proposal of the Statutes the Region and the connections with the General Secretariat of IALE.

At the 1st International Seminar on Methodology in Landscape Ecological Research and Planning, Roskilde 1984, the Executive Committee of IALE has approved to establish the East European Region of IALE. At the same time the Executive Committee of IALE nominated M. Ruzicka as a representative of EER IALE. After discussing the questions of the payment

of the fees for the members of the EER Countries the following form of the fees has been proposed:

1. Regular publication of the IALE bulletin, at present to the ECOLOGY, CSSR, and regular publication of the Regional Information.
2. The costs for the activity of the regional secretariat will be paid by the organization where the secretariat will seat, e.g. at present by the Centre of Biological and Ecological Sciences of the Slovak Academy of Sciences, Bratislava.
3. For the IALE members an allowance will be provided for the registration fees to international symposia and other scientific events being held in the countries of the East European Region of IALE.
4. The membership fees will be paid via other services - material, publications and other scientific meetings.

Since 1984 the seat of the EER IALE Secretariat is in the Institute of the Experimental Biology and Ecology CBES SAS, which is approved by the Executive Committee of IALE. The aim of the Regional Secretariat is:

- to coordinate the IALE activity within the member countries
- to ensure the contact with the international IALE Secretariat



- to publish the IALE bulletin extended by a separated column with regional information.

At present it has been agreed that each member country will form its own national association of IALE, with which the Regional Secretariat would communicate.

During the VIIth International Symposium on Problems of Landscape Ecological Research, Pezinok 1985, favourable conditions for the preparation of further cooperation within the Region have been created. A survey of the participation of the countries the Region was made - Bulgaria, the GDR, Hungary, Poland, the USSR and CSSR are still interested in the membership of the Region. The Secretariat of the Region was in contact with the representatives of the EER member countries, 1985-1988, they also discussed the prerequisites of the Region as well as the current state of the IALE rules and the state of the creation of national sections - associations. In 1985 the Polish Section of IALE was established, last year, 1988, the establishment of the Czechoslovak Association of IALE has been discussed and the establishment of other national sections is prepared.

After considering the present state of

the Region and all recommendations from the individual member countries the Regional Secretariat submitted the following proposals, at the 1st meeting of the EER IALE, October 4th, 1988, which was held during the VIIIth International Symposium on Problems of Landscape Ecological Research, October 3rd-7th, 1988, Zemplinska Sirava, CSSR:

- a. Proposal of Statutes of the EER IALE
- b. Proposal for the establishment of the Preliminary Council of the EER IALE.
- c. Proposal of the Executive Committee of the EER IALE.

19 representatives from all member countries and Secretary-General of the new Executive Committee of IALE, J. Brandt, took part in the 1st meeting of the EER IALE. Discussions were focused on the submitted proposals and on the finding of forms of active communication and cooperation among members of the Region. A proposal for a new working group of IALE "Landscape Ecological Planning" was also discussed. The participants of the 1st meeting approved:

- a. The statutes of the East European Region of IALE, complete wording of the statutes will be published in the next EER IALE Regional Information in 1989.
- b. The Preliminary Council of the East European Region of IALE for the period from 1988 to 1990/1991.

Members:

Bulgaria: Ivan Ianchev, Centre for Ecology and Environmental Protection, Sofia.

CSSR: Aloiz Hynek, Department of Geography, Faculty of Natural Sciences, University of J.E.P., Brno.

GDR: Günter Haase, Institute of Geography and Geoecology, AS GDR, Leipzig.

Hungary: Péter Czorba, Geographical Institute, L.K. University, Debrecen.

Poland: Andrzej Richling, Warsaw University, Warszawa.

USSR: Nina Lebedeva, Institute of Geography AS USSR, Moscow.

c. The Executive Committee for the four-years period:

Chairman: Milan Ruzicka, Institute of Experimental Biology and Ecology CBES SAS, Bratislava, CSSR

Vice-chairman: Tadeusz Bartkowski, Institute of Physical Geography, A.M. University, Poznan, Poland.

Vice-chairman: Günter Haase, Institute of Geography and Geoecology, AS GDR, Leipzig, GDR

Vice-chairman: Tatiana D. Alexandrova, Institute of Geography AS USSR, Moscow, USSR.

Secretary: Mária Kozová, Institute of Experimental Biology and Ecology CBES SAS, Bratislava, CSSR.

Deputy Secretary: Tatiana Hrnčiarová, Institute of Experimental Biology and Ecology CBES SAS, Bratislava, CSSR.

Treasurer: Pavel Nováček, Institute of Experimental Biology and Ecology CBES SAS, Nitra, CSSR.

If you are interested in more details about the membership of EER IALE please apply to the members of the Preliminary Council of EER IALE or directly to the Regional Secretariat of EER IALE:

Institute of Experimental Biology and Ecology CBES SAS, Obrancov mieru 3, 814 34 Bratislava, CSSR.

**FRENCH IALE GROUP**

On January 26th the first official meeting of the French IALE group was held in Paris. Forty participants worked on the theme: "Methods in Landscape Ecology." Five different points of view were presented: landscape architects, geographers, river ecologists, agroecologists and terrestrial ecologists. The different methods were discussed and four main features of landscape analysis emerged: cartography, visual aspect, historical dimension and exchanges among elements.

## REGIONAL CONTACTS OF IALE

## AUSTRALIA

Dr. P. Bridgewater  
Bureau of Flora and Fauna  
GPO Box 1383  
Canberra, ACT 2601  
(Eastern Australia)

Dr. G.W. Arnold  
CSIRO Division of Wildlife  
and Rangelands Research  
Locked Bag, P.O. no. 4  
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## AUSTRIA

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Institut für Landschaftsplanung  
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## BELGIUM

Drs. G. Larnoe  
Laboratorium voor Regionale Geografie  
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Krijgslaan 281 S8-A1  
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## BULGARIA

Dr. Jekaterina Pavlova  
Naucnyj centr po ochrane prirodnej  
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## CANADA

Canadian Society for Landscape Ecology  
and Management  
Interim Secretariat  
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## CHILE

Dr. E.R. Fuentes  
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## CHINA

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## CZECHOSLOVAKIA

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Institute of Experimental Biology  
and Ecology  
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81 434 Bratislava.

## DENMARK

Dr. J. Brandt  
Roskilde University Centre  
House 19.2  
P.O. Box 260  
DK-4000 Roskilde.

## FINLAND

Doc. Dr. Osmo Kontturi  
Finnish Association for  
Landscape Ecology r.y.  
P.O. Box 381  
SF-80 101 Joensuu.

## FEDERAL REPUBLIC OF GERMANY (FRG)

Prof. Dr. K.F. Schreiber  
Institut für Geographie der  
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Robert Kochstrasse 26  
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## FRANCE

Dr. H. Décamps  
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29 Rue Jeanne Marvig  
F-31 055 Toulouse.

Dr. Françoise Burel  
CERESA  
Le Champ Niguel  
F-35 170 Bruz.

## GERMAN DEMOCRATIC REPUBLIC

Prof. Dr. G. Haase  
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Dimitroffplatz 1  
7010 Leipzig.

## GUATEMALA

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## THE NETHERLANDS

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## UNITED KINGDOM

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## UNITED STATES OF AMERICA

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## IALE SECRETARIAT

Dr. Jesper Brandt  
Roskilde University Centre  
P.O.Box 260  
DK-4000 Roskilde  
DENMARK

## WORKING GROUPS

### IALE-GIS: THE IALE WORKING GROUP ON GEO INFORMATION SYSTEMS

#### SHORT HISTORY OF THE WORKING GROUP

At the first international IALE Seminar in Roskilde 1984 Bob Bunce took the initiative to start a working group on geo information systems within the IALE and several persons enlisted.

At the Second International IALE Seminar in Münster 1987 a group of interested people sat together and brainstormed about how to activate this working group and it was decided to have a small workshop organized by Bob Bunce.

A short report of this workshop, in Grange-over-Sands in the UK, in 1988 was given in the IALE bulletin of August 1988. The IALE members among the participants at this workshop further discussed the functioning of the working group and the conclusions of this discussion were presented at the VIIIth International Symposium of Landscape Ecological Research in Zemplinska Sirava, Czechoslovakia 1988. This resulted in an extension of the list of people interested in the working group.

A small group of IALE members was also among the participants in a workshop on Landscape Ecology and Spatial Information Systems in Nottingham, UK, early 1989. At the end of this workshop Bob Bunce transferred the leadership of the IALE-GIS working group to Dick van der Zee. The workshop was also significant in that it saw the long-overdue formation of the UK chapter of IALE.

#### ORGANIZATION OF THE IALE-GIS WORKING GROUP

So far the working group as such has not met. Only occasional regional meetings of small groups of (potential) members have taken place. Because of the wide geographical distribution of the (potential) members workshops with a participation by a fair representation of the total group of members cannot be relied on.

Therefore it has been suggested that the working group in the first place should be a platform for the exchange of experiences and ideas with respect to GIS for Landecology, by creating a network of contacts. This network of contacts can be created by distributing among all members the list with names and addresses, and fields of interest and experience, and encourage interested parties to contact directly colleagues that are



working on the same themes, topics, or with the same systems, and exchange experiences and papers, etc.

Small sub-groups concentrated on a certain theme or topic or organized by regional proximity may be the result.

Small workshops organized on such thematic and/or regional basis could be initiated by such sub-groups, but preferably also announced to all other working group members.

The working group may also be an instrument in organizing a GIS sub-programme at official IALE and other seminars.

For communications and announcements concerning all working group members the IALE bulletin can be used and in addition whenever thought necessary special working group newsletters may be issued.

#### JOINING THE WORKING GROUP

If you are interested in the activities of the working group and apparently are not yet on its mailing list, please contact: Drs. D. van der Zee, Landecology group, ITC, P.O. box 6, NL-7500 AA, Enschede, The Netherlands.

#### PROPOSAL FOR A NEW WORKING GROUP "LANDSCAPE ECOLOGICAL PLANNING"

During the VIIth International Symposium on Problems of Landscape Ecological Research, October 3rd-7th 1988, Zemplinska Sirava, CSSR, a new working group within IALE was initiated to focus on the landscape ecological planning.

Some introductory notes at the start of the working group:

#### 1. MAIN TARGETS OF THE GROUP

At present, there is a lot of knowledge in the sphere of landscape ecological research which can be used to solve important ecological problems of the landscape via target-oriented synthesis and interpretation. However, the synthesis and interpretation of this knowledge requires a special approach and methods which could be applied to a particular part of the landscape and a specific ecological problem.

The establishment of the working group should meet the following targets:

- to stimulate the effort of the landscape ecologists, planners and managers working in this field, to support better personal contacts,
- to create the basis for applying the methods of landscape ecological plan-

ning developed by one country on the territory of another one, to eventually develop common methods, ecological studies, or projects,

- to organize regular meetings of the working group within the framework of international symposia (e.g. within the framework of the International Symposia on Problems of Landscape Ecological Research held in the CSSR every three year), and eventually within the framework of other international seminars or regional meetings.

## 2. BASIC FORMS OF THE WORKING GROUP ACTIVITY.

- a. Target-oriented analysis, synthesis and interpretation of the abiotic geosystem complexes - e.g. new methods of evaluation of the substratum - soil - water complex; evaluation of slope dynamics; erodibility of soils; suitability of soil to tillage; availability, waterlogging, dryness and trophism of soils; movement of agricultural chemicals with respect to contamination of water resources, etc.; and utilization of these methods in the solution of practical roles,
- b. functional interpretations of the biotic geosystem complexes - evaluation of the spatial effect of the biotic components from the viewpoint of the optimum landscape utilization, methods for forming territorial systems of ecological stability (ecological infrastructure), utility functions of the biota, etc.,
- c. ecological evaluation of the encounter of interests of different branches (e.g. agriculture, industry, recreation, etc.) within the landscape-spatial ecological problems of the production branches, problems of the environment in connection with the development of different branches, etc.,
- d. methods of ecologically optimum organization and landscape utilization and proposals of measures - system arrangement of analytical and synthetic knowledge into map form which enables decision making on ecological and economic optimal landscape utilization for different national economy branches - with an emphasis on nature conservation, conservation of nature resources and the environment,
- e. methods for the transfer of the results of ecological studies into practice, decision-making and projecting activities - ecological planning of the landscape in regional, territorial and branch planning. Practical methods, organization of the transfer of results, preparation of experts for practice.

### 3. INTERCONNECTION WITHIN IALE

The working group has a synthesizing character, therefore, we propose mutual interconnection with other working groups.

We would suggest that chairmen of the working groups prepare brief reports on the results of their activities, thus ensuring a close communication between the researchers. The main emphasis would be on personal contacts within the framework of common working meetings. Also cooperation within the framework of the CMEA member countries is supposed (concerning common topics).

### 4. ORGANIZATION

The Institute of Experimental Biology and Ecology of the Centre of Biological and Ecological Sciences of The Slovak Academy of Sciences which has prepared the establishment of the working group has worked with problems of landscape ecological planning for more than 15 years. At present there are more than 100 examples of how to use the method of landscape ecological planning (LANDEP) within ecological studies at the scales 1:2 000 through 1: 000 000 not only in the CSSR, but also in Bulgaria, the GDR; we also cooperative with the USSR, Hungary, Poland, Vietnam, etc.

All IALE members who are interested in

these problems, please, contact us. Your participation will be most welcome.

Looking forward to our cooperation,

Contact persons:

Ladislav Miklos, chairman  
Mária Kozová, secretary  
Institute of Experimental Biology and Ecology, CBES SAS, Obrancov mieru 3,  
814 34 Bratislava, CSSR.

### IALE WORKING GROUPS

IALE members interested in joining a working group should write directly to the contact person.

#### 1. ECOLOGICAL INFRASTRUCTURE

Dr. P.F.M. Opdam  
Research Institute for  
Nature Management  
P.O. Box 46  
3956 ZR Leersum  
The Netherlands.

Drs. A.F. van de Klundert  
Rijksplanologische Dienst  
Willem Witsenplein 6  
2594 BK Den Haag  
The Netherlands.

#### 2. LANDSCAPE ECOLOGY OF AGRO-ECOSYSTEMS

Dr. H. Gulinck  
Universiteit Leuven  
Faculteit der Landbouwwetenschappen  
Kardinaal Mercierlaan 92  
3030 Leuven  
Belgium.

#### 3. ECOLOGY OF THE RHINE CATCHMENT AREA

Drs. R.H.G. Jongman  
Dept. of Urban and Regional Planning  
Agricultural University  
Gen. Foulkesweg 13  
6703 BJ Wageningen  
The Netherlands.

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**4. COASTAL MANAGEMENT**

Drs. J. Visser  
Rijkswaterstaat Deltadienst  
Environmental Division  
Postbus 439  
4330 AK Middelburg  
The Netherlands.

**5. URBAN ECOLOGY**

Prof. T. Bartkowski  
Institute of Physical Geography  
A. Mickiewicz University  
ul. Dolna Wilda 34 A.m. 9  
61 552 Poznan  
Poland.

**6. GEOGRAPHICAL INFORMATION SYSTEMS**

Dr. Dick van der Zee  
ITC  
350 Boulevard 1945  
P.O. Box 6  
7500 AA Enschede  
The Netherlands.

**7. ECOLOGY OF THE DANUBIAN CATCHMENT AREA**

Prof. H. Marinov  
Danubian Laboratory and Laboratory  
of Ecology  
HIFE "D.A. Tsenov" - 5250 Svishtov  
Bulgaria.

**8. DESERT ECOLOGY**

Dr. Linda Olsvig-Whittaker  
Mitrani Center of Desert Research  
Ben Gurion University of the Negev  
Sde Boqer Campus  
Israel 84 990.

**9. CULTURAL ECOLOGY**

Hanna Svobodova  
Prof. Dr. J. Fanta  
Department of Landscape Ecology  
University of Amsterdam  
Dapperstraat 115  
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The Netherlands.

EUROPEAN CONFERENCE ON THE LANDSCAPE  
ECOLOGICAL IMPACT OF CLIMATIC CHANGE

Assessing the potential effects of a future climatic change on terrestrial ecosystems and landscapes in Europe

As a contribution to the UNEP-WMO-ICSU World Climatic Impact Assessment Programme and within the framework of the ICSU International Geosphere-Biosphere Programme (IGBP) and Climatology and Natural Hazards Research Programme (EPOCH) of the EC, a European Conference will be held in Lunteren (near Wageningen), The Netherlands, on the Landscape Ecological Impact of Climatic Change (LICC).

BACKGROUND

There is a consensus amongst most scientists that the global temperature will rise from 1.5-4.5°C within the next 100 years due to an increase of atmospheric carbon dioxide and other "greenhouse gases". This will possibly lead to a global climate warming larger and more rapid than at any time within the last 100,000 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.

It will be an important task for the environmental sciences to stimulate co-operative research on the main climate-sensitive abiotic and biotic processes operating in natural and semi-natural ecosystems and landscapes in order to assess the potential impact of climatic change and to develop adaptive strategies.

SCIENTIFIC PREPARATION

The scientific preparations of the LICC-Conference are taking place within six international case study groups concentrating on respectively: 1) Alpine regions, 2) The Fennoscandian region, 3) The Mediterranean region, 4) Fluvial systems, 5) Wetlands and 6) Coastal dunes. Within each case study group scientists focus on: a) the availability of existing knowledge and data, which could be used to assess the potential impact of climatic change on (semi-) natural ecosystems and landscapes in Europe, b) methodologies and techniques that may be applied in impact assessment studies, and c) the formulation of recommendations for future research programs and policy decision making.

## CONFERENCE ELEMENTS

During the first 2 1/2 days of the conference the result of the six case studies will be discussed in parallel workshop sessions. In the second half of the conference the final findings of the workshop sessions will be presented and will set in a broader context through plenary presentations on climate modeling, past climatic changes, the effects of climatic change on resp. geomorphological, pedological, hydrological and ecological processes, the effects on vegetation patterns and biological diversity, the methodological aspects of climate impact assessment, the socio-economic effects and hazards, and the policy implications of climatic change.

## ORGANISATION/REGISTRATION

The scientific preparation and technical organisation of the LICC-Conference is being co-ordinated in The Netherlands at the Physical Geography Departments of the Universities of Amsterdam and Utrecht, and the Nature Conservation Department of the Agricultural University of Wageningen. For more information or registration, please contact the LICC-Conference Secretariat (Matthias M. Boer or Rudolf S. De Groot), Department of Nature Conservation, Agricultural University, Wageningen, Ritzema Bosweg 32a, 6703 AZ Wageningen, The Netherlands. Tel: 31-8370-82247, Fax: 31-8370-84731, Telex: 45015 bluwg.

## DIARY

Jerusalem, Israel  
June, 1989

Israel Society for Ecology and Environmental Quality 4 - 8 Sciences. Fourth International Conference: Environmental Quality and Ecosystem Stability. The Centre has suggested inclusion of the report on the agenda and has offered to supply background information.

Contact: Prof. Menachem Luria, Dept. of Environmental Sciences. The Hebrew University, Givat Ram, Jerusalem, Israel 91904; phone: 02 - 22 42 18

Montreal, Canada  
June 1989

International Association for Impact Assessment. Eighth Annual Meeting with the theme "Impact Assessment in an Age of Transformation: New Imperatives, New Approaches. The Centre is a co-sponsor and is providing background materials, a suggested list of speakers and other materials as requested.

Contact: Ms. A. Armour, Faculty of Environmental Studies, York University, 4700 Keele St., North York, Ontario, Canada M3J 1P3.



- Hull, Canada  
July 1989
- University of Hull: First International Congress on Biogeography and Protection of the Physical and Biological Environment.
- Contact: Dr. David Watts, Chairman, Organizing Committee, Dept. of Geography, University of Hull, Hull, Canada.
- Aberdeen Scotland  
22 July 1989
- University of Aberdeen, Centre for Environmental Management and 9-Planning: 10th International Seminar on Environmental Impact Assessment.
- Contact: CEMP, 48 College Bounds, Old Aberdeen AB9 1FX, Scotland, UK; phone 0224 - 27 24 80, telex 73458 UNIABN G; telefax 0224 4871658.
- Busselton,  
Australia  
11-15 Sept. 1989
- CSIRO Division of Wildlife and Ecology, W.A. Dept. Conserv. Land Management, WA, Main Roads Dept. and W.A. Roadside Conserv. Comm.: "Nature Conservation - the Role of Corridors". A conference/ workshop.
- Contact: Miss Penny Hussey, Nature Conservation Conference, P.O. Box 104, COMO Western Australia 6152.  
Phone 09 - 367 0333; Telefax: 09 - 367 0466.
- Crete, Greece  
Oct. 1989
- Centre for Environmental Management and Planning, Aberdeen University. "Environment, Tourism and Development" - a workshop to consider tourism in the context of strategies for sustainable development.
- Contact: CEMP, 48 College Bounds, Old Aberdeen AB9 1FX, Scotland, UK; phone 0224 - 27 24 80, telex 73458 UNIABN G; telefax 0224 4871658.
- London, UK  
8-9 Nov. 1989
- The Landscape Institute: 60th Anniversary Annual Conference under "Landscapes to live in - a new Vision".
- Contact: The Landscape Institute, 12 Carlton House Terrace, London SW1Y 5AH, UK; phone 01 - 839-4044.
- Luntenen, NL  
Dec. 1989
- European Conference on Landscape Ecological Impact of Climatic 3-7 Change.
- Contact: Dr. R. de Groot or Dr. F. Eybergen, Dept. of Nature Conservation Agricultural University of Wageningen, Ritzewa Bosweg 32 A, 6703 AZ Wageningen, the Netherlands.
- Aberdeen, UK  
8-21 July 1990
- Centre for Environmental Management and Planning, Aberdeen University: 11th International Seminar on Environmental Impact Assessment.
- Contact: CEMP, 48 College Bounds, Old Aberdeen AB9 1FX, Scotland, UK; phone 0224 - 27 24 80, telex 73458 UNIABN G; telefax 0224 4871658.
- Hangzhou, China  
5-9 Sept. 1990  
(prov.)
- Chinese Research Academy of Environmental Sciences (CRAES) and International Lake Environmental Committee Foundation: Fourth International Conference on the Conservation and Management of Lakes "Hangzhou '90", co-sponsored by UNEP, Environment Protection Agency of China and International Water Resources Association.
- Contact: "Hangzhou '90". Preparatory Committee, Foreign Affairs Office, CRAES, Beiyuan, Anwai, Beijing, People's Republic of China; phone 421 1025, telex 22505 BOOTH CN.
- CSSR  
1990
- International Symposium on Landscape Synthesis, IGU, Smolenice Castle, CSSR.
- Contact: Prof., Dr. E. Mazur or Prof., Dr. M.. Moss, University of Qelph, Dept. of Geography, Ontario, N16 2Wq, Canada.

**REGIONAL INFORMATION**

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**International Association for Landscape Ecology**