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Volume 4 No.1 Mei 1986

**bulletin****International Association for Landscape Ecology**

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**EDITORIAL**

Although the International Secretariat of IALE did, regretfully, not succeed in issuing a second Bulletin in 1985, there has been quite a lot of activity within our association. A IALE-meeting took place during the VIIth International Landscape Ecology Symposium in Czechoslovakia, new IALE-Regions were officially established and plans for future IALE-meetings in several parts of the world evolved.

The pace in which our Working Groups are developing is not very fast yet. Nevertheless you will find two contributions in this issue and we hope that more will follow soon.

This Bulletin features an article by

K.-F. Schreiber, dealing with the term landscape ecology. The ideas of Arthur Veen on the divergence between theoretical and empirical streams in Landscape Ecology, which he expressed in the last Bulletin, provoked a reaction by I.S. Zonneveld.

As said earlier, one of the main aims of the IALE Bulletin is to promote interaction between landscape ecologists. Therefore, we welcome any comments, ideas or other contributions. Only when there is response from many parts of the world this Bulletin can become truly international and your editors will be able to publish more regularly.

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

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**IALE INFORMATION****IALE MEETING IN CZECHOSLOVAKIA**

Plenary meeting of IALE on 23 October 1985 during the VIIth International Symposium on Problems of Landscape Ecological Research in the CSSR

In his opening speech, IALE president

Prof. Zonneveld, gave a brief history of IALE (which was founded in the CSSR during the VIth Symposium), the IALE seminar in Roskilde in 1984 and the special relations with the CSSR concentrated in a series of triennial Symposia.

Next, new regional developments since the Roskilde Seminar were reported by regional representatives. These will be reported in more detail in the next Bulletin.

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Finally, some remarks were made about the membership rules and the subscription. These are included in this bulletin.

F. Saris

#### FUTURE IALE MEETINGS

##### International IALE Seminar in Münster (FRG)

The IALE Region in the Federal Republic of Germany will organize the next IALE Seminar at the University of Münster, the seat of our Vice President Prof. Schreiber. This one-week meeting, which in general will have the same set-up as the Roskilde seminar, will be held during the second half of July 1987. Information about the theme of this seminar and the exact date will be provided as soon as possible.

##### International conference in Kashmir (India)

The University of Kashmir has offered to host an international IALE conference in the near future. We are very happy about this opportunity to hold the first IALE meeting in Asia and hope to be able to give more information in the next Bulletin.

##### IALE IN THAILAND

The President of IALE has been officially invited to attend a seminar on "Landscape Ecology for and relation to development in Thailand", which will be

held in May 1986. During this Seminar, the IALE Region for Thailand, organized by Mrs. Parida Kunepong, will be formed.

##### IALE IN THE USA

##### Report on the Formation of a USA Region of the International Association for Landscape Ecology

It gives me great pleasure to announce the formation of a USA Region of the International Association for Landscape Ecology. A symposium on The Role of Landscape heterogeneity on the Spread of Disturbances was held at the University of Georgia in January and attracted ecologists, geographers, landscape architects, foresters, soil scientists, and others from across North America.

During this symposium an announced meeting organized by Frank Golley (interim Chairman for a USA Region of IALE) and Richard Forman (Vice President, IALE) was held on January 16, 1986 to consider forming a USA Region of IALE. David Sharpe described the 1981 Veldhoven Congress, Frank Golley the 1983 Bratisla Symposium, Paul Risser the 1984 Allerton Park, Illinois Workshop, Vernon Meentemeyer the 1984 Roskilde Symposium, Gary Barrett the National Science Foundation's interest in Landscape Ecology, and Richard Forman described the international Association for Landscape Ecology.

The ca. 70 participants at this organizational meeting voted unanimously to

form a USA Region of IALE. David M. Sharpe (Professor, Department of Geography, Southern Illinois University, Carbondale, Illinois 62901, USA) was elected as Chairman. A five member Council was then elected: Jerry F. Franklin, Joan Nassauer, Paul G. Risser, William H. Romme, and Monica G. Turner.

The initial objectives of the USA Region include (a) developing linkages with the Secretariat and others involved in IALE, (b) developing by-laws, (c) attracting members to IALE, and (d) planning for a future meeting. Considerable interest in IALE, and especially in the field of landscape ecology, emerged at this symposium.

Richard T.T. Forman  
PAES Professor of Landscape Ecology  
and  
Vice President, IALE

#### IALE IN POLAND

Report on the constituting assembly of Polish Section of the International Association for Landscape Ecology in Poznań, 10 and 11 October 1985.

The constituting assembly of the Polish section of IALE in Poznań was preceded by a three-day bilateral Polish-German scientific conference on the theme "Urban Geosystems", which was held in the Institute of Physical Geography of the Adam Mickiewicz University in Poznań on 7 and 8 October (session) and 9 October (excursion).

The meeting of the IALE working group "Urban Ecology" planned for 11 and 12 October was cancelled because of the very unsatisfactory number of intending participants: it has been postponed until a better time (1987?). On 10 and 11 October a "constituting" assembly of the Polish IALE was convened by the IALE contact person for Poland. The justification for convening this assembly was that over 90 requests for IALE membership had been collected. These persons, represented in the Poznań assembly by participants from all scientific centres of Poland, were declared to be an "initiating group" of the Polish IALE and considered as a voting body.

The first day's proceedings concerned:

- a) a discussion about the working definition of landscape ecology that should be accepted by the Polish IALE, and on which the establishment and the postulated goals of the IALE work in Poland as envisaged, could be based.
- b) a discussion about the statutes for the Polish IALE and about its national organization.

The second day's proceedings were concerned with the election of the bodies of the Polish IALE Section.

The first topic (a) of the first day's discussion will be presented in a separate report. The second (b) topic of the discussion resulted in the existing text of the statutes of IALE as accepted at the symposium in Piestany in 1982 being adopted without any changes but with the addition of a concluding statement regarding the election of the Executive Committee and of the Council of the Polish IALE.

The meeting on 11 October was opened by a contribution from prof. K.F. Schreiber from Münster, one of the vice presidents of IALE, who participated in the conference on Urban Geosystems during the preceding three-day meeting. His report concerned:

- 1) a theme "The amelioration of water budget and of phytomass production in arid lands by means of utilization of runoff".
- 2) introductory statement on the notion of landscape ecology, referring to the previous day's discussion and the forthcoming organization of IALE in Poland.

After this opening the assembly proceeded to elect both the bodies of the Polish IALE national "government", namely the Council and the Executive Committee. Elected were:

the EXECUTIVE COMMITTEE, in the persons of: prof. Tadeusz Bartkowski, a physical geographer, from Poznań, the president; dr. Daniela Solowiej, a physical geographer, the secretary; dr. Andrzej Mizgajski, a physical geographer - the treasurer - both from Poznań

the COUNCIL, in the persons of: prof. dr. hab. Zbigniew T. Wierzbicki a sociologist, from Toruń; ass. prof. dr. Mieczysław Górny, ecologist from Warsaw; Dr. Tadeusz Jan Chmielewski, biologist, from Lublin; dr. Zbigniew Rinke, geomorphologist-physiographer from Wrocław; dr. Wojciech Widacki, a physical geographer, from Kraków.

It was agreed that the seat of the Executive Committee would be the Institute of Physical Geography of the Adam

Mickiewicz University in Poznań, ul. Fredry 10, 61-701, tel. 506-94. Finally, it was decided to organize a national symposium in 1987 on the theme "Landscape ecology in Poland - actual state and perspectives", during which a new, full-time Council and Executive Committee would be elected for 4 years.

During the first sitting of the Executive Committee on 17 October it was decided to enlarge the Committee by co-opting of prof. Ryszard Domański, an economist and geographer from Poznań, order to have a vice-president.

This fourth member of the Executive Committee will greatly further the Committee's activities. For this reason the Committee will ask the Council to approve this co-optation. Assuming this approval is forthcoming, the Council of the Polish IALE will comprise 9 persons: 4 in the Executive Committee and 5 in the remaining body of the Council (the representatives from other centres).

Poznań, 18 October 1985

prof. Tadeusz Bartkowski

#### IALE MEMBERSHIP DUES

Please remit your membership dues for 1986 to the regional or international IALE Secretariat. Annual membership dues are US \$ 5 for individuals and US \$ 30 for institutions or libraries.  
(See forms in this bulletin).

## SYMPOSIUM ON LANDSCAPE ECOLOGY

organized by  
the International Association for Landscape Ecology  
to be held during the 4th Congress of Ecology  
at Syracuse, New York, August 1986.

1. Introduction by the President of IALE, Prof. I.S. Zonneveld, Chairman of the symposium.
2. R.T.T. Forman (USA): Shapes and flows in a landscape.
3. P.G. Risser (USA): Landscape pattern and the distribution of materials, nutrients, and energy.
4. H.G. Merriam (Canada): The study of ecological processes in farmland mosaics.
5. P.F.M. Opdam & W.B. Harms (NL): Biogeographical impacts of changing the ecological infrastructure of the dutch landscape.
6. W. Haber (FRG): Using landscape ecology in planning and management.
7. M. Ruzicka (CSSR): Basic premises in landscape ecological planning.

## IALE WORKING GROUPS

## IALE WORKING GROUP "COASTAL MANAGEMENT"

The first note from the working group; a confession by the coordinator

During the IALE seminar in Roskilde this working group was initiated to focus on the significance of integrated research on ecosystems and landscapes in coastal areas (land and water), as well as the application of the research results to coastal planning and management.

When the editors of the IALE Bulletin asked for a contribution about the activities of the working group, I had to confess: "nothing to report". At least, nothing to report about concrete activ-

ities. Until now the activities have been limited to me thinking and asking myself several times "what should be done and how should this new working group be started.

The request for a contribution to the Bulletin is a good motive for me to write down my opinions about the working group, and, by so doing, to stimulate a response from IALE members, including the members of the working group.

So this note contains my own preliminary ideas. Ideas, which are by no means complete, but which are meant to give a clearer picture of the goals and aims of the working group, and of its tasks and organization.

### Philosophical basis

In coastal management three aspects play a basic role, namely:

1. natural structure and processes in landscape and ecosystem;
2. functional uses of the coast for society, and
3. policy-making, management and planning.

Each of these aspects is a broad and complex field, and concerns many institutions and interest groups, and a variety of governmental and non-governmental responsibilities.

Nevertheless, when talking about coastal management these three aspects have to be kept in mind - in particular their interrelationship. This links up with one of the goals of IALE: to promote communication between scientists and planners.

In my opinion, landscape ecology not only has to deal with these interactions within the ecosystem or landscape itself, but also with the interactions between these natural systems and society. The resulting know-how has to be applied in order to improve the policy-making and management of coastal areas. In this sense, landscape-ecological research does not only serve the interests of nature conservation, but also all forms of use of natural resources.

In a geographical sense, coastal management concerns a coastal zone consisting of land and water (sea).

How to define the limits inland and on the seaward side, is a perpetual question.

Within the scope of IALE, the basic goals for coastal management may be described as follows:

to provide society with the know-how, tools and advice that enable better policy, planning and management of the coastal zone. Here, "better" means keeping the coastal zone as a multi-functional area with good possibilities for developing present and future uses without producing undesirable side-effects for the natural environment either within the area or outside.

### Tasks

Coastal management, as the term already suggests, requires applied landscape-ecological research. In order to fulfil the basic goals, research on different aspects is necessary:

- a. research on the structure and processes of coastal ecosystems and landscapes and on the relations with adjacent systems.
- b. research on actual and potential uses of the coastal zone and adjacent areas.
- c. research on the mutual relations between a and b.
- d. research on long-term changes (i.e. space and time) of the coastal environment and their implications for planning and social development, to enable predictions to be made.

The task of the working group, which in the first place serves as a platform for people working or interested in this field, might be summarized as follows.

- to promote the kind of research mentioned above;

- to exchange experience;
- to promote the application of research results in planning and management;
- to develop new research topics;
- to promote international cooperation.

A good start might be to make an overview of the actual state of the art for each country (or parts of it; I have to realize that most countries are larger than The Netherlands) concerning coastal management, with respect to the three aspects mentioned earlier. Members of the Working Group and other IALE-members are invited to send me appropriate information.

#### Organization

An interesting question is how to realize the tasks of the working group. What kind of organization and means do we need?

Some suggestions are:

- newsletter
- workshops
- one central point (person or institute) per country (or part of a country).

I hope this note will serve to stimulate an active Working Group, through which more attention will be given to the coastal zone, which is under increasing human pressure almost all over the world.

I would be glad to receive any comments or suggestions about these ideas or about the Working Group in general.

Drs. J. Visser  
Rijkswaterstaat  
Tidal Waters Division  
P.O. Box 8039  
4330 KA Middelburg  
The Netherlands

#### IALE WORKING GROUP "RHINE CATCHMENT AREA"

This working group is starting up. At the end of 1985, several researchers and research groups in The Netherlands and in Germany were contacted and asked whether they considered a working group would be useful, whether they would participate, and what they see as important issues for the working group. Most of them reacted positively: they thought such a working group could be useful, though whether they participate depends largely on the working programme. Many gave good suggestions for a working paper.

Based on the ideas developed in Roskilde and the other suggestions received, the objectives of this working group will be outlined and sent for comment to those people who reacted to our earlier exploratory letter. Other interested parties who would also like to comment should write to the address below. The revised objectives will be published in a future IALE Bulletin.

#### Working group on the ecology of the Rhine catchment area

Preliminary contact person:

drs. R.H.G. Jongman  
Dept of Physical Planning,  
Agricultural University  
Gen. Foulkesweg 13  
6703 BJ Wageningen  
The Netherlands

#### IALE WORKING GROUPS

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

##### 1. ECOLOGICAL INFRASTRUCTURE

Preliminary contact person:

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

##### 2. LANDSCAPE ECOLOGICAL ASPECTS OF AGRO-ECOSYSTEMS

Preliminary contact person:

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

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

Preliminary contact person:

Drs. R.H.G. Jongman  
Dept. of Urban and Regional Planning,  
Agricultural University,  
Gen. Foulkesweg 13,

6703 BH Wageningen,  
The Netherlands.

##### 4. COASTAL MANAGEMENT

Preliminary contact person:

Drs. J. Visser  
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The Netherlands.

##### 5. URBAN ECOLOGY

Preliminary contact person:

Prof. T. Bartkowski  
Institute of Physical Geography,  
A. Mickiewicz University,  
ul. Dolna Wilda 34 A.m. 9,  
61552 Poznan,  
Poland.

##### 6. GEOGRAPHICAL INFORMATION SYSTEMS

Preliminary contact person:

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England.

## FEATURES

### WHAT IS LANDSCAPE ECOLOGY?

by K.-F. Schreiber

Not everybody considers landscape-ecology to be the same thing. Especially discussions about the word-pair landscape-ecology and geo-ecology, originally employed as synonyms, make it appear necessary to come up with some considerations. The Anglo-American reader is kindly requested to reflect these con-

siderations against the background of a European tradition of landscape-ecology of about 50 years.

Ecology today - a biological sub-discipline?

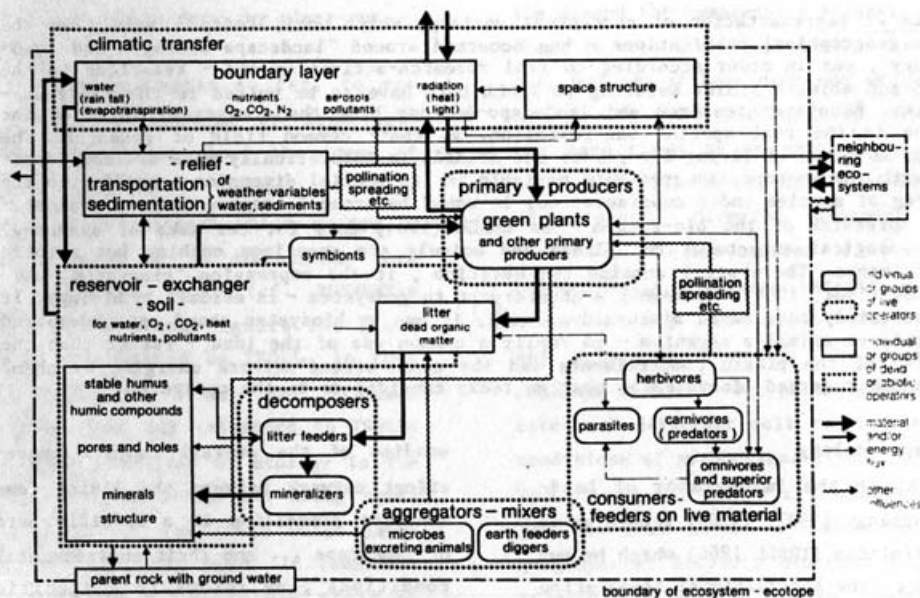
No one will disagree that ecology has been adopted from biology (HAECKEL 1866, 1879). Doubts, however, may be permitted, whether it can still be characterized as a sub-discipline, as is being done very often yet. It was already



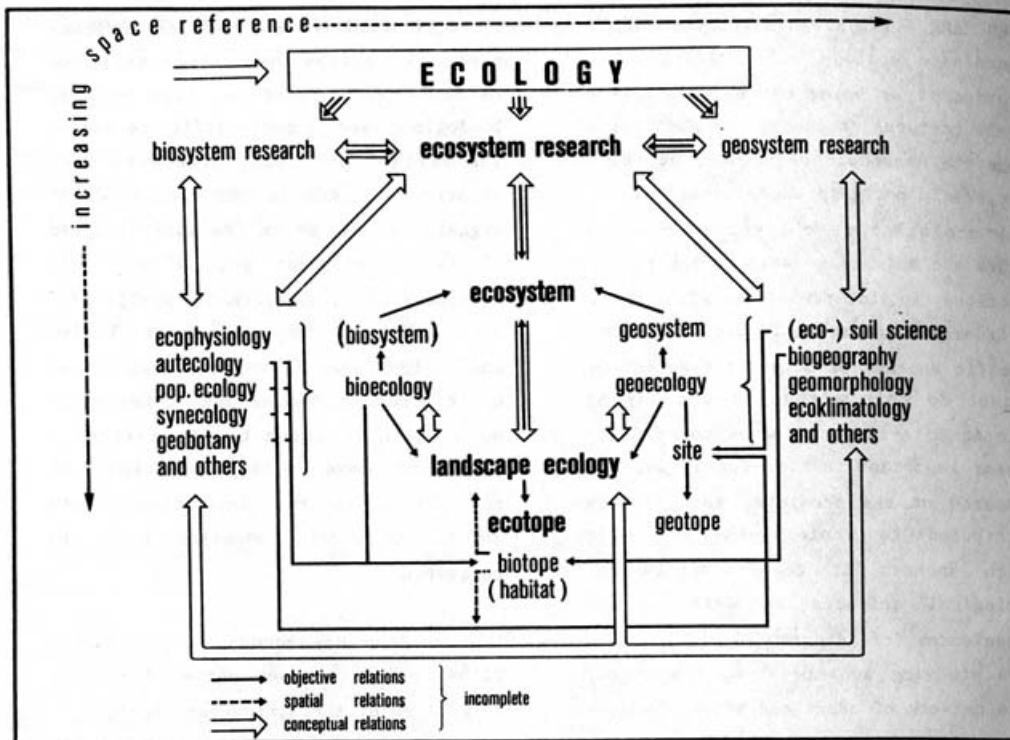
THIENEMANN (1941), who attempted not to subordinate ecology under biology, but regarded it as being the headdiscipline of all (natural) sciences, as discipline about the household of nature; he, however, could not gain acceptance. Each ecologist is obliged to examine plants and animals as well as their reactions in interrelation with their environment, unless he is occupied with specific aspects of only one species. He cannot do this without the study of abiotic site-factors (parameters) which appear important to him. But it was the research on the ecosystem that finally attributed to ecology the dimension which anchors it deeply within the biological sciences as well as the geosciences (cf. diagram 1). When studying an ecosystem, the intricate network of cause and effect between

living communities and abiotic environment, it happens very often that one cannot draw a clear-cut line between biological and geoscientific research. The merging of living processes with abiotic processes in the metabolism of organic substances in the soil (diagram 1) is an eloquent example for this fuzzyness. This specifically applies for the studies of complete element cycles and energy flow, in which the substance under consideration or the energy accumulated in it often has to perform a change of phases during migration from the living to the dead state, from abiotic to biotic compartments in the ecosystem.

Thus ecology has become an interdisciplinary, which combines parts of biology as well as of the single geosciences.



Diagr. 1: Functional diagram of a terrestrial ecosystem. According to ELLENBERG (1978), in a balanced manner accounting for abiotic compartments.



**Diagram 2:** Representation of conceptual variety, which until today - mainly in the German geographical publications - has occurred around "landscape-ecology" and "geo-ecology", put in order according to real research-activities and - relations in the biotic and abiotic field. Referring to TROLL both have to be united in the landscape-ecology. Ecosystem research and landscape-ecology have the ecosystem, of which the ecotope is the real spatial manifestation, as their common field of research. The biotope as place of living for plants and animals is theoretically more or less identical with the ecotope, however very variable in its spatial dimension according to the grouping of species under consideration; it would be wrong to regard it as a real spatial expression of the bio-system - as LESER (1984) does for the sake of symmetry. Some biological structures for plants and animals are sometimes nothing but abiotic compartments. There still remains the question, if the expression "biosystem" use by LESER (1981, 1984) - somewhat a counterpart to geosystem - is assumed by biology. It will certainly have to be discussed as well, if one by biosystem should not understand a plant's or animal's organism - so really a common use of the idea - rather than the totality of the biotic compartments and the cause-effect-network emerging by them. THIENEMANN regarded biosystem as what we today consider to be the ecosystem.

**Landscape ecology**

C. TROLL is the inaugurator of landscape-ecology (1937, 1950). According to the definition (TROLL 1966) which he put forward to the International Association for Vegetational Sciences in 1963, landscape-ecology is occupied "With the

studies of the overall complex cause-effect network between the living communities prevailing in a specific part of landscape ... and their environmental conditions"; he refers to a specific spatial pattern of dispersion of these interrelations which all make up the so-

called landscape household. This definition may be regarded as known and accepted at least in Europe.

ELLENBERG (1973) defined the ecosystem along the lines with TANSLEY (1935) as "a cause-effect network constituted by living-beings and their anorganic environment, which mainly regulates itself." The conceptual relation to the above-mentioned definition of TROLL is so close, that one can regard the ecosystem as being a common object of research of ecosystem research and landscape-ecology (diagram 2). On the one hand, however, the research on cycles, metabolisms and processes within a system are in the foreground, whereas on the other hand mainly functional-spatial aspects and the system of interrelations between the ecosystems play a role - in theory, this without anyone being able nor obliged (!) to draw any clear-cut lines.

No one has attempted so far, to re-determine the contents of landscape-ecology by arguing about the ideas of TROLL. There are, however, other conceptual definitions which emerge in the literature or in discussions more than a decade later (cf. ZONNEVELD 1982), which simply ignore the facts stated and created by TROLL. In this sense REICHHOLF (1983) for instance states without any reference to TROLL: "... The application of ecology in the practice of designing and using space constitutes ... the field which landscape-ecology works upon. It considerably includes Man into its field of research." With this, he only refers to a direction concerning application

and practice; the whole field of landscape-ecology is by no means fully characterized. To define landscape-ecology as a "mediatory science" does not fully account for the works running under this title. It can be as much oriented to fundamental research as other sciences (cf. definition).

The ecotope is the space-temporal manifestation of a specific real cause-effect-network between living communities and their abiotic environment, of a specific ecosystem in natural or cultural landscape; it defines an ecologically mostly homogeneous cut-out of the global sphere (TROLL 1950). The homogeneity, however, will mainly refer to the abiotic factors but even those are subjected (occasionally typical) to change, often in small spaces, especially if one considers the soilconditions. The demand for homogeneity in an ecotope then, is more a convention based on theory, and can at best mean one of quasi-homogeneity. With reference to ecological conditions in an ecotope we very often have gradients, centripetally or centrifugally directed dynamic processes. In a slope ecotope we even find predominantly processes running in one direction, e.g. air-mass-turnover, water and substance transport and - often combined with it - a typical sequence, a catena of different soil conditions and conditions of production.

TROLL has never spoken of a minimal size for the area of an ecotope. Various geographers, however, demanded a "geographically relevant" size. Sometimes one gets the impression that this only happens in order to stand out against

other geosciences with "sub-geographical" work on smaller spaces (cf. SCHREIBER 1985).

TROLL on the contrary often used the expression "standort" (=site, stand, habitat) which prevails in the agricultural sciences and forestry, soil science and geobotanics and is often understood on a small scale. He often uses it even for a more comprehensive definition of the ecotope (TROLL 1950).

Are landscape-ecology and geo-ecology identical?

By creating the synonym "geo-ecology" TROLL (e.g. 1972) intended to render the conception of "landscape-ecology" more understandable for the Anglo-American tongue. This synonym, however, did not gain acceptance in contrast to landscape-ecology. It began to lead a somewhat own life in many cases in the recent 10-15 years. A part of the geographers nevertheless still understands geo-ecology in TROLL's sense. One soon discovered as a matter of force the opposite "bio-ecology" and "biosystem" (cf. a.o. LESER 1981; diagram 2) - which had to be feared from the beginning and which was somewhat inherent to the unlucky choice of words. Thus a polarity was created in the geographical discussion, which is clearly in contrast with TROLL's definition of landscape-ecology (diagram 2). By isolating the biological conception from the idea of geo-ecology a further step - not intended by TROLL - was done to a one-sided geoscientific view on geoecology, which finally amounted to the conceptual

manifestation by LESER (1984).

This development can hardly be made undone; it seems to be so much established within geography that one simply has to take note of the conceptual differences between both terms, as shown in diagram 2, without necessarily adopting the other notions given there.

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## LETTERS TO THE EDITOR

A ACTION TO ARTHUR VEEN'S PAPER IN IALE BULLETIN VOL 3 NO. 1.

Arthur Veen is afraid that there is a divergence between the theoretical and empirical streams of landscape-ecological research.

This is a valid concern. In a sound science there should be a convergence between theory and practical applications.

His most crucial remarks are:

- 1) - ... one ought to be wary about holism as a philosophical basis for landscape ecology ...
- 2) - ... "wholes", as used by former geographers such as Ritter, cannot be defined. Furthermore, wholes in this sense are not systems, and therefore are beyond scientific research.
- 3) - "Gestalt", according to Veen, is not a whole, but less, and should be used on ... "a rather primitive level, and its function in interpretation or synthetic landscape ecology is a modest one" (e.g. as a starting point).

These statements are meant as a warning to those landscape ecologists who con-

sider holism, or at least a holistic attitude, to be a keystone for landscape ecology. I am one of these. Nevertheless, I do not have many objections to what Veen has written in his article, except for his description of holism as dealing with a whole as vague undefinable something. The reason I object is because much of my income has resulted from defining wholes such as soil types, vegetation types etc., which were not so very vague. On the contrary, in several cases substantial rural development could be based on those data.

I do agree that one should be wary of any basic philosophy, especially one such as holism that may lead to misunderstanding.

For me, holism as a basic philosophy for landscape ecology means the awareness that the universe is a system (a set of related things including the relations as such) and that, moreover the universe is composed (as we know by empirical observation) of various systems ranked hierarchically. This latter point was also made by Smuts, who was the first to present a polished concept of holism, and by other authors on general systems theory. My wholes, apparently, are more synonymous with "Gestalt" in Veen's terminology. Translated into practical

science, the philosophy I have adopted not only leads to awareness of relations in the universe; it also provides a base for "taxonomy". Anybody who uses species in the plant and animal kingdoms, or soil and vegetation types as classification units and the hierarchy based on that, is a holist. Any surveyor making maps showing soil, or vegetation, or landform or land units (systems), etc. is a holist, a describer of "black boxes".

This type of taxonomy is a base for inventory, structural descriptions and evaluation. It is a method using the "Gestalt". I fully agree that this stage of landscape-ecological work is a "primitive" part of Gestalt, in the sense of the indispensable original base that should be followed by more intense study. But do we not agree, that landscape ecology knows 5 main divisions?:

- landscape morphology,
- landscape chorology,
- landscape chronology,
- landscape ecology (= a study of relations) sensu stricto.

The great achievements of biological application in medical science and agronomy are due to the holistic approach to species.

Even without knowing what life is, people have studied the relations between input and output, without (even until the present day!) knowing exactly what is in the black boxes.

It would be stupid not to try also to make the black boxes more transparent. The present possibilities offered by computer modelling are a magnificent tool, especially for studying one of the

system's relations: chorological connectivity (even though we should realize that a model of a system is not the reality itself but is just a vague artificial image). But still the doctor and the farmer work successfully with their patients and animals without first wanting to know all details, and they use "primitive" methods in practice. Landscape ecology is still largely in that primitive stage and will need methods adapted to that stage for an unforeseeable period. We need trials to make the black boxes. Veen, and others he mentioned, are, fortunately, doing such research. We need both approaches, however. Starting out from the basic elements to study a complex whole ("Gestalt") is, for a complex system, very tricky and extremely costly, if not impossible. What would present-day applied soil science, geology, vegetation science (not to mention biology) be without taxonomy (typology) into taxa such as rock, soil, vegetation types, into species, orders, classes, etc.? We need these taxa as a base for detecting relations between these types, and to study the functional processes inside the bodies characterized by these types. This does not, however, mean that all studies should be based on taxa. From some studies especially in soil, vegetation and landscape science, we know that often there are continuous transitions between units, which require special methods of study. Writing this, I realize that nothing under the sun is new in science.

Everywhere in sociology, vegetation science and soil science there seems to be a natural antagonism between the scien-

tists who provide the basic tools and those who work in limited areas, diving for deeper truths and details. However, the one cannot work without the other; nevertheless, sometimes they do underestimate each other's contribution.

In landscape ecology, where integrated action is even more necessary than elsewhere in the scientific world, we should

avoid wasting energy by such misunderstanding. Therefore it is good that Veen has pointed to this important aspect. The definition of holism is crucial here. Real philosophers among us (I am not one) may go deeper into this subject.

Izak. S. Zonneveld

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**LITERATURE**

Forman, R.T.T. & M. Godron, 1986:  
LANDSCAPE ECOLOGY  
John Wiley & Sons, Inc., New York.  
619 pages.

The contents of this important handbook for all who are in any way concerned with landscapes comprise the following chapters:

Overview

1 Landscape and Principles

2 Ecological concepts in brief

Landscape structure

3 Patches

4 Corridors

5 Matrix and network

6 Overall structure

Landscape dynamics

7 Natural processes in landscape development

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9 Flows between adjacent landscape elements

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11 Landscape functioning

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13 Heterogeneity and typology

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**DIARY**

29 June/ International meeting on The

7 July Cultural Landscape

1986 - Past, Present and Future.  
Enq.: University of Bergen  
p.o. Box 12 N-5014 Bergen  
Norway.

6-19 7th International Seminar on  
July Environmental Impact Assess-  
1986 ment. WHO; University of  
Aberdeen.

Enq.: Sandra M. Ralston/Pearl  
Allan CEMP, Dep. of Geogra-  
phy, University of Aberdeen,  
Old Aberdeen AB9 2UF,  
Scotland, UK.

10-16 4th Congress of the  
Aug. International Association for  
1986 Ecologists.

SYRACUSE, NY USA.  
Enq.: prof. F.B. Golley,  
Institute of Ecology, Univ.

of Georgia, Athens,  
GA 30602 USA.

13-20 13th International Congress  
Aug. of Soil Science (ISSS)  
1986 Hamburg FRG.

Enq.: ISSS Secretariat,  
International Soil Museum,  
9 Duivendaal, P.O.B. 353,  
6700 AJ Wageningen,  
The Netherlands.

8-12 4th European Ecology  
Sept. Symposium  
1986 Ecological Implications of  
Contemporary Agriculture.  
Enq.: International Agri-  
cultural Centre, P.O.B. 88,  
6700 AB Wageningen,  
The Netherlands.

29 Sept./ Annual Meeting of Gesell-  
3 Oct. schaft für Ökologie.  
1986 Giessen, FRG.



	Enq.: Gesellschaft für Ökologie, Lehrgebiet Geobotanik. D-8050 Freising-Weiherstephan, FRG.	1987	Campus, Israel. Enq.: prof. U. Safriel, The Blaustein Inst. for Desert Research Sede Boqer Campus, Israel.
Nov. ? 1986	Final International Symposium on Ecology of Biological Invasions (SCOPE). Stellenbosch, South Africa. Enq.: Secretariat, 51 Bd. de Montmorency, 75016 Paris, France.	May ? 1987	International Conference on Technological and Economical Problems of Environment SVIECO '87. Svishtov, Bulgaria. Enq.: Prof. H. Marinov, SVIECO '87. Higher Inst. of Economics and Finance, 5240 Svishtov, Bulgaria.
16-22 April	International Workshop on Desert Ecology. Sede Boqer		

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