Volume 2 No.2 December 1984

iale bulletin

International Association for Landscape Ecology

EDITORIAL

As in the last issue, we have published a provocative article to stimulate discussion within our young Association. It is useful to mention here that the opinions expressed in the signed contributions published in the Bulletin are those of the authors and not necessarily those of the Association. The article in this issue by De Groot and Udo de Haes, which deals with the "watershed between landscape ecology and environmental science" merits some comment. One of the objectives of IALE is to further interaction between scientists and planners. In the sense of the article by De Groot and Udo de Haes, one could express this objective as: to further interaction between "science" and "technology". Though a discussion about the differences between "science" and "technology" may be edifying, we would like to stress that one of the main reasons that IALE was established was to provide a platform where scientists and technologists can meet. Within IALE both "truth--finders" and "problem-solvers", insofar as they are concerned with landscapes, are welcome!

In conclusion, may we remind you that we welcome your comments.

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

IALE INFORMATION

FIRST INTERNATIONAL SEMINAR OF IALE

During the week of October 15-19, 1984 the first international meeting of the Association took place at the Roskilde University Centre in Denmark under the title "Methodology in landscape ecological research and planning". Some 150 people from 22 different countries participated at this seminar, which was organized by the Danish colleagues from the University of Roskilde. We owe much to this Danish team, headed by Jesper Brandt and Peder Agger, for the perfect organization and for the fact that they succeeded in publishing the Seminar Proceedings beforehand. Even the supplementary volume, with contributions that came in late, was issued and distributed during the seminar! (The proceedings of the Roskilde Seminar, consisting of five volumes, can be ordered through the publisher: see the announcement in this Bulletin).

After the pre-seminar excursions during the weekend, the seminar started on Monday with sessions on General Concepts. Subsequent days were - apart from the half-day excursions on Wednesday - dedicated to the discussion of the main theme of the Seminar: methodology. There were lectures, workshops and poster sessions on three fields of methodology in landscape ecology:

1. Methodology of inventory and survey (including field survey methods and remote sensing techniques).
2. Methodology of data analysis (including statistical methods and computer graphics).
3. Methodology of evaluation and synthesis of data (including application to physical planning).

At the closing session of the Seminar on Friday afternoon the President of IALE, Prof. I.S. Zonneveld, gave a lecture on conclusions and perspectives. We hope to be able to publish a summarized version of this lecture in a forthcoming Bulletin.

During the Seminar two official IALE meetings took place. After a meeting of the Executive Committee on Tuesday, the First General Assembly of IALE was held on Wednesday evening, 17 Octo-

ber 1984. A report of this meeting is given elsewhere in this issue.

Discussions during the General Assembly and in different Workshops led to the establishment of several IALE Working Groups. The names of these Working Groups and of the preliminary contact persons are given below.

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

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FIRST MEETING OF THE IALE GENERAL ASSEMBLY

The first meeting of the G.A. was held during the first IALE seminar in Roskilde, Denmark, on 17 October 1984.

After the opening by IALE president Prof. Zonneveld, the Secretary-General gave an overview of IALE membership and of the state of organization on landscape ecology in general in the various regions/countries. The contribution on landscape ecology during the fourth Intecol congress in Syracuse (USA) was discussed. The IALE secretariat has been invited by Intecol to provide a whole day (plenary sessions and workshops) on landscape ecology. It was decided that in plenary sessions papers will be presented on:

- General review and concepts on landscape ecology.
- Items on the methodology (analysis and synthesis).
- Items on applied landscape ecology (planning, management and decision-making).
- Examples of current research on landscape ecology.

In the afternoon, workshops will be organized by Risser (USA) and Forman (USA) on different topics of research on landscape ecology. Naveh suggested that the lectures should be published in book form before the congress.

Ruziska (CSSR) mentioned the VIIe International Symposium on Problems of Landscape Ecological Research in Czechoslovakia, to be held in co-operation with IALE and the M.A.B. programme of

UNESCO.

Schreiber (FRG) drew attention to a small workshop entitled: Landscape ecological research and problems in extreme environments. Israel, Ste Boker (Negev), July 1985.

Several proposals for Working Groups were made. Visser (NL) stated that landscape ecology also encompasses research on aquatic ecology in the zone between sea and land. He proposed that a working group on COASTAL MANAGEMENT be set up.

Bartkowski (Poland) emphasized the interest of URBAN ECOLOGY and mentioned a conference on this subject to be held in the autumn of 1985 in Poland in co-operation with the German Democratic Republic. He agreed to set up a working group for this topic. He also suggested another working group on LANDSCAPE PERCEPTION.

V.d. Klundert (NL) proposed a working group on ECOLOGICAL INFRASTRUCTURE i.e. research on hedges, woodlots, hedgerows, connectivity and isolation, etc.

Jongman (NL) made proposals for working groups on GEOGRAPHICAL INFORMATION SYSTEMS (G.I.S.) and the RHINE CATCHMENT AREA.

Finally, some remarks and suggestions were made to improve communication within the IALE and to promote IALE in those countries that are not yet active in landscape ecology.

The next G.A. will be held during the VIIe International Symposium on Problems of Landscape Ecological Research in the CSSR, October 1985.

REGIONAL CONTACTS OF IALE

We include in this Bulletin the names and addresses of IALE contacts or regional secretariats in different countries.

New regional developments since the Roskilde Seminar will be reported in the next Bulletin.

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FEATURES

LANDSCAPE ECOLOGY AND ENVIRONMENTAL SCIENCE: PARADIGMS IN THE SCIENCE/-TECHNOLOGY DICHOTOMY

In The Netherlands, landscape ecology and environmental science took shape in the 1970's. In 1983 a discussion developed in the Dutch landscape ecology journal concerning the objectives, premises and aspirations of the two disciplines. This paper summarizes this discussion, focussing on the common theme of the discussion participants: a search for the watershed between landscape ecology and environmental science.

The English reader should note that this paper stems from a continental, European tradition and that therefore inherently vague terms such as "science", "design", "ecology", "normative", "environment" may have unfamiliar connotations.

"Science" and "technology"

The discussion took place in six papers, three of landscape-ecological origin (Zonneveld, 1983; Van der Aart, 1983 and Schroevers, 1983) and three originating from environmental science (De Groot and Udo de Haes, 1983; Bouwer and Gersie, 1983 and Tellegen, 1983).

De Groot and Udo de Haes characterize the objective of environmental science as indicating ways of solving environmental problems, whereas landscape ecology aims at providing insight into the landscape system. Zonneveld states in his contribution to the discussion: the objective of landscape ecology is knowledge about the landscape; environmental science is problem-oriented. Van der Aart characterizes environmental science as normative and problem-solving. Bouwer and Gersie state: environmental science uses information in order to solve environmental problems *), not in order to fathom the secrets of the environment. Schroevers closely links up with this: landscape ecology seeks truth, whereas environmental science seeks solutions. This consensus, albeit formulated in slightly different terms, seems to be the key that enable the standpoints of the two disciplines to be clearly identified. Below, we will elaborate this principle.

The Table below displays the general duality of thruth-oriented and solution-oriented thinking. Many key words in this Table will be self-explanatory. The following points need further elaboration.

(1) In this paper, we denote the activities in the two columns as "science" and "technology", respectively. The examples in the second column make it clear why we have used the quotation marks: "technology" denotes much more than the technical, engineering technologies. For example, in law and medical science the final aim is also to produce results that are proper in normative terms: the right decision, the right treatment etc. Hence, these are also "technologies" in our sense. Likewise, this holds for the solution-oriented and therapeutic brances of the social sciences, such as clinical psychology and management science in spite of their different vocabularies and different emphases, the research methodology of all these "technologies" is similar: diagnosis of the problem - analysis of the problem situation - design of alternative solutions (plan design) - plan evaluation. In environmental science, plan evaluation often takes the form of an Environmental Impact Assessment. This "technological" research phasing is the counterpart of the "scientific" empirical cycle.

(2) Plan design is the "technological" counterpart of inductive "scientific" theory building. The starting point is that an environmental problem encompasses a number of conflicting interests and also a number of separate potential plan elements, i.e., all actions that could be taken in order to satisfy one or more interests. The art of plan design is to integrate plan elements in such a way that the resulting system as a whole satisfies all interests as far as possible. The starting point of inductive theory-building is that there is a specified need for a theory and also a number of separate facts (the dataset). The art of induction is from these facts to build one theory that meets the need for theory as far as possible. The same analogy holds for the test of results of induction. In "science", hypotheses are tested for their conformity with facts, i.e., their degree of truth. In "technology", plans are tested

Table 1 Keywords in the "science"-"technology" dichotomy

names used here:	"science"	"technology"
types of knowledge :	descriptive knowledge objective knowledge	prescriptive knowledge normative knowledge
final aim :	to find what is true	to achieve what is proper
core elements :	facts	values, needs, norms
source of questions :	primarily theory	primarily society
inductive activity :	theory building	plan design
deductive activity :	testing of hypotheses	evaluation of plans
final justification :	inquisitiveness and possible application in a "technology"	morality and public interests
examples :	landscape ecology and all other classic natural and social sciences	environmental science, medicine, law, agricultural sciences, planning sciences, managerial science, systems analysis, education, and all classic engineering technologies

for their conformity with values, i.e., their degree of correctness. This analogy is also apparent in the ontological status of "scientific" and "technological" results. Both the results of "scientific" induction and "technological" design are inherently contingent, whereas the results of "scientific" testing and "technological" evaluation are not.

(3) The term "applied science" was deliberately not included in the Table. In our opinion, every "science" has its applied questions and every "technology" has its fundamental questions. Applied science may be defined as "science" prepared to be incorporated in a "technology". In this sense, some "sciences" may be applied science by their very objective; in The Netherlands this is the case for environmental biology. More often, relations between a "science" and a "technology" are of more ad hoc character. The maps of ecological quality produced in The Netherlands are a well-known example: they are products of landscape ecology, prepared for application in "technological" problems (for example, those of environmental science, but also those of town or highway planning). These maps of ecological quality gave rise to heated argument in The Netherlands a decade ago. It was said: "ecologists mark precisely where the landscape is allowed to be destroyed. This is an example of the inherently risky character of any result of applied science: it is defenceless against use and misuse in "technologies". Only in these "technologies" do values and interests become explicit, even constituting their very backbone. In "technological" research, the phenomenon that different weights attributed to values result in different solutions is an integral part of a controlled methodology (if the "technology" lives up to its task).

Landscape ecology and environmental science

In this section we will return to the discussion between landscape ecology and environmental science, focussing on

some mutual allegations concerning the roll of the respective disciplines in society.

In Schroever's contribution to the discussion, the distinction between "science" and "technology" was used to accuse environmental science of having false aspirations. Environmental science was accused of posing as a science able to design solutions for environmental problems. A clear contradiction! In our opinion, this accusation stems from a misunderstanding. Environmental science does not aspire to be a "science" in the fundamental sense explained above. It is a science in the broader sense of every day speech, in which it means something on the lines of basing itself, accountably and without prejudice, on the best knowledge available. It shares this aspiration with all "technologies", be they called medical science, civil engineering, systems analysis or any other common name.

Naturally, a reflection on the degree to which a "ecology" lives up to this aspiration is of the utmost importance. Schoever's allegation, however, is more basic; namely, that environmental science suffers from an inevitable, intrinsic reductionism. This conclusion reached when a "technology" is analysed with concepts fit for analysing a "science". We quote from Schoever's paper: "In environmental science, environmental problems are reduced to problems of ecology, social psychology, economics and engineering. But the problems are not like that. They are problems of society, problems of power and alienation, problems of conflicting public interests ....".
Indeed, this is exactly the way things are. That is why in "technologies" such as environmental science, conflicting public interests are operationalized in terms of goal variables, evalution criteria, profiles of alternatives, potential plan elements, guiding principles for design etc., which, as mentioned earlier, form the backbone of their methodology. Reductions may take plaçe in this operationalization, but no reduction to "scientific" disciplines.
"Scientific" information is used, in addition to "technological" information, if it is relevant to the given problem. The maps of ecological quality mentioned above are one example of this; the use of biogeographic design principles in the operationalization of the nature conservation interest is another.

One of the dangers of reductionism in "technologics" concerns extent to which a complex of public conflicts can be revealed by means of a number of separate criteria. Another typically "technological" problem concerns the degree to which sufficiently fundamental solutions are generated in the planning process. Both Schroevers (a landscape ecologist) and Tellegen (an environmental scientist) refer to this problem in their contribution to the discussion. One states rhetorically: "Does environmental science prefer to occupy itself with the technical solutions of superficial problems only? Then it is a part of the very system that destroys the world ...". The other, however, opines that landscape ecology and environmental science do not necessarily differ in their degree of radicalization: "If the environmental scientist, in his analysis of the background of environmental problems runs up against the same fundamental factor persistently, he may well decide to tackle this factor, instead of designing partial solutions over and over again. For example, this may concern the European agricultural policy, the private car or the private ownership of industry ...". This participant refers to a dimension that lies within every "technology". One may think of the debates concerning alternative agriculture, the criticism of our smugly bourgeois architecture and our class justice, of Illich's iatrogenesis and anti-pedagogy and Laing's anti-psychiatry: it is the same dimension, discussed within different "technologies". Tellegen has drawn a sharp boundary between these "technological" radicalisms and the radicalisms based on "science". The latter he characterized as being Utopian and dangerous.

The above "technological" radicalism do not challenge the raison d'être of their respective "technologies"". The criticism is not that values are operationalized in "technology", but rather that the wrong values are operationalized, or are operationalized superficially. Hence, despite the radicalism, these discussions take place within the framework of the respective "technology" and they can be made fertile in a conceptually clear process. This is contrary to the Utopian radicalisms from "science", e.g., the claim that ecology, from its search for the truth about natural succession and stability, can postulate the principles for a natural and just society. This implies a jump from facts to values,

which is fundamentally more problematic than any critique of values made from the standpoint of less radical or more radical values.

It may be speculated that in the United States the dichotomy between facts and values is traditionally felt as less fundamental. In the States, strong positivist tendencies, in which it is claimed that knowledge of the facts will automatically reveal and achieve the principles for a meaningful society, have always been apparent. At the same time, the United States is the home base of Pragmatism, in which philosophy it has been stated by James: "truth is in the making", i.e., truth is in "technology". In European eyes, this american audacity in jumping from facts to values is as dangerous as it is fascinating. For example, consider the interpretation of the energy concept in systems ecology. Developed from H.T. Odum's elegant studies on the succession in wetland communities, this concept it has been magically elevated to the level of values for society, as demonstrated by Gilliland and Risser (1979), who claim that the energy unit permits quantification of a project's total impact. In their paper, this total negative impact turns out to be a decrease of 1% in the primary production. In The Netherlands, it is an excess of primary production that often threatens nature conservation!

Regarding (landscape) ecology, we draw the following conclusion. It is relevant and stimulating for ecology to try to become as applied as possible, e.g., by proposing guiding principles for planning and engineering. However, just as "technologies" cannot claim to find what is true, ecology cannot claim to find what is proper. Design principles are one type of the relations that exist across the rift between facts and values. One can use these to bridge the rift. One can also try to jump over this rift, for example by showing nature's beautiful networks and functions directly to the public and decision makers. However, to attempt to walk across as if some continuity does exist is to invite disaster.

Towards an unburdened relationship

A recent issue of the Dutch landscape ecological journal (WLO-Mededelingen, 1983, nr. 4) was dedicated to the island theory of biogeography. This issue shows everything that makes "science" fascinating and relevant: competing hypotheses, spontaneous computer simulations, a worldwide forum, field research with testing power, as well as spin-offs for applied science in the shape of guiding principles for landscape design, - which are directly subjected to empirical scepticism within the same "science". It seems to us that the reason for this progress and happiness is that here "science" is doing what it can do and should do: seek truth and postulate applications. There is no noticeable magic premise or misty groping for definitions that mars many a paper on landscape ecology, especially where landscape ecology, maintaining its "scientific" paradigm and aspiration tries to be a "technology".

In the discussion between the Dutch landscape ecologist and environmental scientists, the concept of "self-ordening" was put forward as an example of a possibly fertile notion in a "scientific" context, but as a useless normative concept in a "technological" setting. Above, we treated the energy concept analoguously. The concept of the functions-of-nature, still alive in Dutch landscape ecology after a decade of non-functionality, may also fall into this category, especially when used as a straightjacket to deal with public interests.

Pseudo-"technology" is a burden for landscape ecology, just as pseudo-"science" is a burden for environmental science. Paradigmatic clarity is necessary if the relationship is to be free and fertile.

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Note

*) This is in close agreement with a formulation from Denmark: "It is the aim of environmental science to interconnect all knowledge required to solve environmental problems" (Jørgensen and Johnson, 1981, p. 2). In this way, environmental science is defined as a truly interdisciplinary "technology", the object of which is formed by the characteristics of the

own systems level of environmental problems - not by the separate elements contained therein. This implies that environmental science does not include environmental specialisms (e.g. environmental chemistry or environmental law), but uses these specialisms, integrating them to analyse and solve the environmental problem as a whole. This line is also apparant in the new Dutch text book of environmental science (Boersema et al. (eds.), 1984). A separate section in this book deals with the principles of the methodology of "technological", solution-oriented integration.

References

Boersema, J.J., J.W. Copius Peereboom and W.T. de Groot (red.), 1984: Basisboek Milieukunde ("Textbook of Environmental Science"). Boom, Meppel, 503 pp.

Bouwer, K. and Gersie, J. (1981): Landschapsecologie en milieukunde: pretenties en relaties ("Landscape Ecology and Environmental Science: Pretentions and Relations"). WLO-Mededelingen 10, 79-80.

Groot, W.T. de, and H.A. Udo de Haes (1983): Enige discussiepunten over de relatie tussen landschapsecologie en milieukunde ("Some Remarks on the Relation between Landscape Ecology and Environmental Science"). WLO-Mededelingen 10, 74-75.

Gilliland, M.W. en P.G. Risser (1979). The use of System Diagrams for Environmental Impact Assessment. Ecological Modelling 3, 183-209.

Jørgensen, S.E.; and I. Johnson, (1981). Principles of Environmental Science and Technology. Elsevier Scientific Publ., Amsterdam.

Schroevers, P.J. (1983): Milieukunde is best nuttig, maar geen wetenschap ("Environmental Science may be useful, a Science it is not"). WLO-Mededelingen 10, 145-146.

Tellegen, E. (1983): Ecologie, milieukunde en maatschappijvisie ("Ecology, Environmental Science and Political View") WLO-Mededelingen 10, 144-145.

Aart, P.J.M. van der (1983): De relatie tussen landschapsecologie en milieukunde ("The Relation between Landscape Ecology and Environmental Science"). WLO-Mededelingen 10, 78.

Zonneveld, J.I.S. (1983): Aantekeningen over Landschapsecologie en milieukunde: ("Notes on Landscape Ecology and Environmental Science"). WLO-Mededelingen, 10, 76-77.

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

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

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BOOKREVIEW

LANDSCAPE ECOLOGY
Theory and Application
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With a Foreword by Schultz, A.M.
With an Epilogue by Egler, F.E.
Springer Series on Environmental Management. Series Editor: DeSanto, R.S.
1984. 77 figs. XVIII, 356 pages,
785 g. Cloth DM 108,=; approx. US $ 40.
Berlin-Heidelberg-New York-Tokyo:
Springer-Verlag.
ISBN 3-540-90849-8.

The publication of a handbook on the theory and application of landscape ecology in the English language is an important event. For the subject of landscape ecology as such, and in the format as presented, it is also a courageous undertaking. The authors' aim is nothing less than to "channel ..... scientific and philosophical streams into a broad riverbed of transdisciplinary paradigms of landscape ecology" (see p. xii) and to lead the way "toward a new paradigm of human ecosystemology and landscape ecology" (p. 73).

The authors consider landscape ecology in a broad sense, consistent with the congress in Veldhoven (The Netherlands, 1981), as both an integrated science and a state of mind. Landscape-ecological thinking and activity are present in various sciences concerned with the features of the earth's surface. Landscape ecology, according to the authors, brings together the vertical thinking of biologists and the horizontal thinking of geographers, although in the book a clear treatment of the difference between - and importance of - topological (vertical) and chorological (horizontal) relationships and processes is unfortunately lacking. The authors consider landscape ecology as the basic science and basic philosophy for land use planning in general, not only for aesthetic landscape architecture or as a tool mainly for nature protectionists, but also for reclamation engineers, farmers and foresters.

After giving a very valuable outline of the history based on a wide spectrum of literature, in which German and Dutch literature dominate and French literature is, amazingly, about (from these authors I had expected at least some citations of Emberger, Long and Tricard), in the second subdivision (chapter?) of the first part of the book the authors give a very valuable survey of a "conceptual and theoretical basis of landscape ecology as a human ecosystem science" (80 pages long). They state that the conceptual and epistemological framework of landscape ecology is derived from the following closely related scientific theories: general systems theory (Miller), biocybernetics (Wiener, Ashby) and ecosystemology (the total human ecosystem, developed by the authors making use of the concepts of, among many others, Egler and Jantsch). An important aspect is the idea of selforganizing systems, dealing with the central concept of considerations of a holistic ecosystem: homeostasis. These chapters are a welcome source of information for those students who want to try to find the scientific philosophy (epistemology) that provides the background to landscape ecology. It will be necessary to go back to the wellcited sources themselves, because there is no discussion in the book about the validity of background concepts, such as homeostasis at landscape scale.

The second part of the book (Section II) is called "Applications of Landscape Ecology" and consists of subdivisions (chapters?) 3 and 4. The fourth subdivisions deals with "Dynamic Conservation Management of Mediterranean Landscapes" and is indeed purely a story of applied science, focussed fully on management. Subdivision 3, however, is a rather inclear mixture of methodology, methods, tools and fields of application. It contains a wealth of information, but probably too many innecessary details.

In addition to the mixing up of methodology and applications, the authors have landed in the pitfall of remote sensing literature. They are quite correct in describing aerial photo interpretation and other more advanced remote sensing techniques as a main subject of landscape ecology methodology. If however, one tries to treat this subject by extensively citing the literature which, for insiders, is well known as a mixture of science, science fiction, wishful thinking and futurology, created by technologists working with all kinds of new systems and equipment that are still in experimental stages, both technologically and economically, one may be led astray. It must be said that the most futuristic things are wisely left out. Still, the chapter is full of unnecessary details and citations that are not of much import-

ance fot the active landscape ecologist. Much of it, moreover, can be found in existing remote sensing handbooks, probably presented more systematically. Sometimes even the wrong impression is created. For example, contrary to what is said about the use of orthophotographs as base maps, FAO certainly does not use these maps as a general rule (see page 135), because they are usually far too expensive. Despite this criticism, readers who have little access to remote sensing literature can doubtless find some useful information and relevant literature.

This subdivision in pure methodology is followed by another methodological chapter, the "Untermain sensivity model as an aid for holistic land use planning", then a chapter on "methodologies of land capability analysis", "regional planning", etc., and then (to any reader's surprise after all these procedures and methodologies) a new chapter follows, plainly titled: "procedures and methodologies" (page 213). It appears to deal with various interesting examples of land resource analysis in the United States, The Netherlands and Australia, ranging from field analysis to evaluation and planning.

An important omission, in spite of all kinds of detailed information on local land evaluation methods, is the most generally applicable system - the "FAO framework of land evaluation" that is ideed generally applied in FAO surveys for development. Another aspect of subdivision 3 is that such different methodologies as classification and survey of land units, land resource analysis (as a separate item) and land appraisal (based on such analysis) and planning are jumbled together. Certain critics of holism will certainly take this and other unsystematic aspects as characteristics of a "holistic" way of thinking that in their eyes is synonymous with "an undifferentiated mix".

Nevertheless, the reader may be stimulated by all this information. He has to find the main lines himself and preferably read the cited literature in order to judge its usefulness for his own purposes.

It is to the credit of the authors that they bring many otherwise unknown practices to the attention of an international audience.

The last division (4) deals with "dynamic conservation management of Mediterranean landscape". It shows that the authors have a keen understanding of the Mediterranean area, especially the so-called "SFZ". An acronym not explained in the index and only once in the text (page 256), which is confusing for quick readers, but stands for Sclerophyl Forest Zone. This part of the book contains a wealth of landscape ecology data on Mediterranean landscapes, of both natural and cultural character. Comparisons are made with European, American and Australian areas.

The authors describe the evolution and degradation caused by physicobiological factors and also the influence of human hunters-gatherers during the Pleistocene, the agropastoral human influences during the Holocene and the neo-technical influences of recent centuries, the latter being mainly degradational. There is some feedback to the first "chapters" on basic theory in the form of figurative models of processes in landscape and also in planning. It demonstrates that if real quantitative of semi-quantitative application of systems theory and cybernetics at landscape scale were an ultimate goal of landscape ecologists, it would be difficult to attain.

The authors claim that, in contrast to the ideas of certain one-sided ecologists, stability does not require natural vegetation. Cultural landscape, provided they are managed well, can be stable and livable: a sound landscape ecology statement indeed.

Among the conclusions, they state that a "red book of threatened Mediterranean landscapes" should be produced. Land professionals and decision makers, etc., should be trained by "interdisciplinary ecosystem education". They indicate how a general conservation strategy for protection and dynamic conservation could be designed, as well as "multi-purpose management strategies" for semi-agricultural ecotopes. The authors (and Egler in his epilogue accentuates this) make a plea for having natural areas within the man-induced landscape as places to study processes of landscape. The resulting knowledge is of educational, scientific, and practical value, in addition to the cultural and aesthetic values of such areas in themselves. This part of the book radiates a deep concern with the part of the world described.

Ideal books do not exist. Beside content, the form is also important. After reading from beginning to end, one gets the impression that a main criterion for a handbook, i.e. clear, logical

structure, is not fulfilled. The (sub?) chapters are not numbered, but arranged in four subdivisions (chapters?), within two large "sections" (a new fashion?). Not all those unnumbered chapters (subsections), which are mentioned in the Table of Contents and are therefore difficult to find again (see e.g. Environmental Impact Assessment etc. on page 199). The mixing up of "methodology" and "application" has been mentioned already.

This publication is not a complete handbook from which students could learn landscape ecology, but it is stimulating, mainly via the cited literature, the discussion of the philosophy of the basic background, as well as direct application, and especially the connection between both, and it helps define the scope of this quickly developing complex field of science. Therefore the endeavour of authors and editors is to be praised.

The price is about $ 40,-; not cheap, but bearable.

I.S. Zonneveld.

DIARY

9-15 June	5th World Congress on Water Resources - Water Resources for Rural Areas and their Communities. Enq.: 5th World Congress of Water Resources - IWRA, Brussels International Conference Centre, Parc des Expositions - B-1020 Brussels, Belgium.
14-27 July 1985	6th International Seminar on Environmental Impact Assessment (EIA) University of Aberdeen. Enq.: The Centre for Environmental Management and Planning Ltd. Department of Geography University of Aberdeen Old Aberdeen AB9 2UF, Scotland, UK Telephone: (0224) 40241 Telex: 73458 UNIABN G
Oct. 1985	Polish-German Bilateral Conference Halle-Poznan on theme "Geosystems of towns". Enq.: Prof. T. Bartkowski. Inst. of Physical Geography, A. Mickiewicz University, Dolna Wilda 34 61552 POZNAN, Poland.
21-26 Oct. 1985	VIIth International symposium on the problem of landscape ecological research. Enq.: Dr. Milan Ružička, Institute of experimental biology and ecology, Obrancov mieru no. 3, 81434 Bratislava CSSR.
May/June 1986 (3 weeks)	International Training Course in Landscape Ecology. Enq.: Academy of Sciences of the German Democratic Republik. Institute of Geography and Geoecology (IGG) DDR - 7010 Leipzig, Georgi-Dimitroff-Platz 1.
10-16 Aug. 1986	4th Congress of the International Association for Ecologists. SYRACUSE, NY USA. Enq.: Prof. F.B. Golley, Institute of Ecology, Univ. of Georgia, Athens, GA 30602 USA.
13-20 Aug. 1986	13th International 1986 Congress of Soil Science (ISSS). HAMBURG, FRG. Enq.: ISSS Secretariat, International Soil Museum, 9, Duivendaal, POB 353, 6700 AJ Wageningen, The Netherlands.
17-22 Aug. 1986	13th International Conference on Water Pollution Research and Control (IAWPRC). RIO DE JANERIO, BRAZIL. Enq.: IAWPR Secretariat, Alliance House, 29-30 High Holborn, London WC1V 6BA, UK
7-12 Sept. 1986	European Ecological Symposium: Ecological implications of modern agriculture. Enq.: International Agricultural Centre, P.O. Box 88, 6700 AB Wageningen, The Netherlands.