VIEWPOINT/STANDPUNT

A FRAMEWORK FOR THE COORDINATION OF ENVIRONMENTAL INFORMATION

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The rapid physical growth and population increase in South Africa are two major factors contributing to unco-ordinated development, over-utilization and excessive modification of the country's natural resources. This is leading to the depletion and degradation of the natural resource base.

Rational development planning is therefore needed to ensure protection, conservation and sustained utilization of the country's renewable and non-renewable resources. This would minimize the abuse of our life supporting systems, maintain a balance of nature and contribute to a better quality of life.

Rational development planning implies a planning strategy which accounts for the environment as a whole by considering the complex biotic and abiotic relationships. It presupposes a knowledge of resource characteristics, their distribution and extent and the understanding of ecological associations present in the different biomes. In the presence of such information and with the aid of comprehensive guidelines, decisions may be taken which direct development proposals to ensure the preservation of the resource amenity, whilst seeking the optimum resource development.

Unfortunately ecologically orientated guidelines based on reliable scientific data are often not employed during planning. This apparent lack of necessary information may stem from research deficiencies, unawareness of data availability or 'neglect' on the part of the planner/developer, who resists the inclusion of environmental considerations.

The problem of information deficiencies is aggravated by the resistance of the natural scientist to release research results and make them available in a form understandable to the planner. Furthermore there is a general lack of meaningful communication between planner and researcher and both are often unaware of the other's needs. This has led to distrust which further hampers effective communication and is detrimental to a rational use of the environment.

Consequently steps to mitigate adverse effects on the environment are not based on an holistic environmental approach. Development proposals are instead examined within a constrained framework controlled by the professional biases of the decision-maker.

A firm commitment is therefore required to improve environmental awareness in planning by disseminating information and presenting scientifically sound data to all those concerned with land use developments and resource management.

The National Atlas of Critical Environmental Components (NACEC) was formulated in response to the above-mentioned needs. The project aims at providing a series of resource component maps which will form the basis for guidelines for ecologically orientated planning. In its entirety, the project establishes a framework for the co-ordination of environmental information.

The NACEC Project will provide

- an environmental information service that enables professionals and other interested groups, access to relevant sources of information in their areas of enquiry;
- a list of expertise in related fields of enquiry;
- a set of map overlays, which will serve as a reference for environmentally orientated planning particularly at the national and regional level;
- information essential for the identification of conservation worthy sites required for the NAKOR, National Plan for Nature Conservation.

How does NACEC operate?

The project comprises two interlinked systems: *an environmental information referral system* and *a set of overlay maps.*

To facilitate the access of information in specific areas. NACEC was designed to fit within the grid unit co-ordinates used in the SA Topocadastral series at 1 : 250 000. Both systems operate independently, linked to these grid co-ordinates, but interface through a series of alphanumeric codes.

Who Is Involved?

The Chief Directorate of Environmental Conservation of the Department of Environment Affairs is responsible for the co-ordination of environmental conservation at the national level. This Directorate does not, however, undertake research.

Participation and co-operation in the project has been requested from:

- member organisations of the National Committee for Nature Conservation (NAKOR); (This includes all official organisations directly or indirectly involved in conservation.)
- various other central, provincial and local governmental bodies;
- research institutions and universities;
- private consultants in engineering, architecture, landscape architecture, planning and others in related fields;

- environmental conservation interest groups.

The Environmental Information Referral System

The Environmental Information Referral System will not record raw data *per se.* It will be primarily a bibliographic service providing information on *Who* has the data, the *Type, Availability, Extent* and *Accessibility* of that data for a given area/region.

A retrieval system operates by recalling the grid co-ordinates as shown in Fig. 1, and/or by recalling a cross-referencing keyword index. Material available within the geographic area of designated co-ordinates may be further accessed by keyword, (Fig. 2).

It is envisaged that the Referral System will provide the following information:

- List of research/surveys/studies/reports, available within specific geographical locations.
- The name, status and affiliation of the company/institution/department housing the required material.
- Name the expert, field of expertise and georaphic area of expertise.
- The type, accessibility, extent, restrictions and format of data available. (This includes availability of maps, aerial and satellite coverage of an area and respective resolution.)
- Brief description of computer and other output facilities.
- A separate list of *experts/specialists* in relevant fields and/or areas.

The cumulative output of this information will facilitate communication and dialogue between user, expert and information source. It is hoped that it will create a better information flow among organisations with a concern for the environment.

Furthermore the system provides guidelines for the identification of research requirements.

The Map Overlays

The information to be mapped is derived from existing research or other sources. This information (normally mapped at 1 : 50 000 or finer scales) is checked and analysed to produce an edited map at 1 : 250 000 scale.

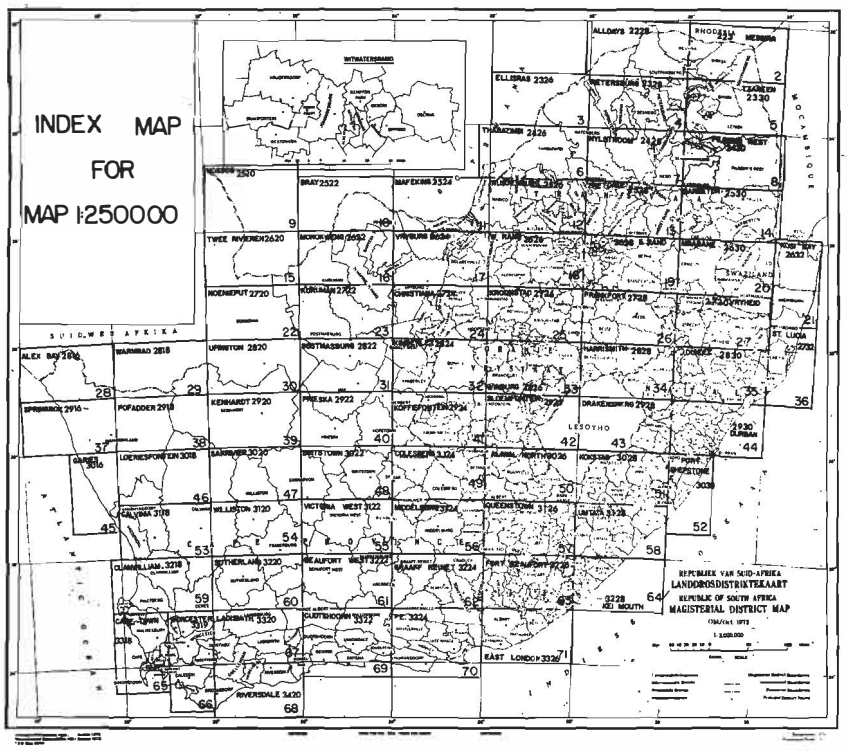

FIGURE 1

These maps attempt to coalesce *selected* critical and/or significant environmental components in order to achieve a more complete visual distribution of these resources.

The 1 : 250 000 scale was selected as the most appropriate for national and regional planning. This scale also corresponds to existing resource maps such as: SATI: recreation potential, maps, geological, grazing capacity and land-type series.

The Aims of the Overlays are to:

- provide planning guidelines for the NAKOR, National Plan for Nature Conservation;
- *alert* the user of *known* critical/significant sites or features that should be taken into consideration during preliminary planning;
- provide an information system linked to the Referral System, which permits the user to request more detailed information (if available) in the field and geographical area of enquiry.
- identify at national and regional level areas requiring research.

The Map Overlays is a tool to be used in Land-Use Planning and must not be used in Isolation.

What Information is Mapped?

A land-use category overlay will map:

(i) state-owned conserved areas;
(ii) private conserved areas;
(iii) areas transformed by development *such as:* mining, croplands, urban and industrial development and plantations;
(iv) areas in a semi-natural state;
(v) important natural systems *such as:* indigenous forests, catchment areas, wetlands, estuaries, dune systems and others.

The critical and significant component overlays will locate and document:

(i) threatened plant and animal species;
(ii) representative examples of biological communities;
(iii) other resources that are of particular interest because they are exemplary, unique or endangered on a national basis.

Symbol notation is the main mapping medium in this overlay. *Fig. 3* provides an index key to this overlay and *Fig. 4* shows a cartographic example.

These map overlays will not be published in an "Atlas" format. They will be available at request, in loose sheets to allow for rapid updating and for easy use.

How is the Information for NACEC Collected?

By questionnaires, personal communication and literature searchers.

FIG. 2 EXAMPLES OF INFORMATION AVAILABLE

* Cross reference keyword

INDEX WITH GRID-CO-ORDINATES CODES EG. 2732 (ST.LUCIA)

GENERAL KEYWORD INDEX

SPECIAL INFORMATION

	FORM OF INFORMATION	COST AND ACCESSIBILITY	INFORMATION CENTRE	PERSON IN CHARGE	EXPERT/ SPECIALIST	
2732 VEGETATION ..... WEISSER, PJ, 1978 A vegetation study of the Zululand* Dune* Areas Volume 38. ISBN 0909232083 Z 075/2732	REPORT	R3-30 Full	Natal Provincial Admin.Private Bag 9038. 3200 Pietermaritzburg Tel. 0331/57800 Telex 6-43666 SA			
TV TRANSVAAL TVV TRANSVAAL/VEGETATION ..... FOURIE, SP, 1980 Distribution Survey of Rare and Endangered plant taxa of the TVL. (Ongoing research project)TN 6/4/3/6 (Internal report) T157/Area Code	REPORT Maps: 1. Maps of TVL showing planned survey areas of high priority rated taxa. 1:250 000 2. Maps showing distribution of Rare and Endangered Taxa and centres of endemism. 1:250 000; 1:50 000	Subject to Approval	TRANSVAAL NATURE CONSERVATION DIVISION PRIVATE BAG X209 PRETORIA 0001 Tel. 280-2353 Telex:	Dr. SS du Plessis	SP Fourie (Plants of the TVL) 01823/2395	Detailed distribution of Rare and Endangered taxa. Analysis of habitat and other pressures. Checklist of Threatened plants (Restricted)
RIVERS ..... - , 1977 Keiskamma River Basin Study. (Prepared for the Ciskei Government by Hill, Kaplan, Scott & Partners, Consultants) C 520/Area Code	REPORTS: Vol I - General evaluation of study area Vol II - Data report. Inventory of natural resources and their potential for development Vol III - Development proposals. Emphasis on urban + irrigation water supply schemes. Vol IV - Maps: Geology, Soils, Climate, Vegetation, Soil Erosion, Present Land Use. 1:50 000 Water Resources 1:250 000 Vol V - Pastoral, Dryland Crop Irrigation and Forestry Potential. Recommended Land Use, Tribal locations: Development strategy, Proposed Water supply schemes.	Subject to Approval	Hill, Kaplan, Scott and Partners PO Box 3965 Tel. 73-7050 Telex: 57-20158	JS Gregg (Director)		A development plan for the efficient allocation of the limited natural resources within study area. To establish guidelines for the entire future development of the available water resources. Recommendations for the development of forestry, livestock and dryland arable crop production sectors.
PUBLIC PARTICIPATION IN ENVIRONMENTAL CONCERNS ..... SCHWEIZER, CD, 1983 Environmental and Related Interest groups in South Africa. Research Report No. 47 & No. 48. School of Environmental Studies University of Cape Town	List of Environmental Interest Groups in South Africa	R10-00 Full	School of Environmental Studies University of Cape Town Rondebosch 7700 Tel. 021/69-8531	Prof. R Fuggle		Identifies, lists and describes voluntary interest groups involved with the environment.

How will the User be kept in touch with new developments?

An extensive mailing list is being compiled with the objective of circulating a newsletter biannually , which will serve as a communication medium between the Atlas compilers and potential users. The newsletter will indicate which maps are available, which maps require updating, new developments, as well as requests for new inputs. A register of all map recipients will be maintained and individual notification of changes will be issued.

PROJECT DEVELOPMENT

Compilation of the following 1 : 250 000 maps will take place during 1985:

Pilgrim's Rest	2430	(Pilot Study)
Rustenburg	2526	
Pretoria	2528	
Barberton	2530	
West Rand	2626	
East Rand	2628	
Mbabane	2630	
Springbok	2916	
Cape Town	3318	(Pilot Study)
Worcester	3319	(Pilot Study)
Ladismith	3320	
Oudtshoorn	3322	
Port Elizabeth	3324	
East London	3326	
Kei Mouth	3228	

Conclusion

As a subsidiary project of the NAKOR: National Plan for Nature Conservation, the Atlas project aims to provide a forum for interaction between researcher and planner and to formulate a rapid environmental information system for data dissemination to all bodies concerned.

Through an interdisciplinary approach the compilers of the Atlas will liaise with numerous information sources and professional experts in relevant fields. Data inputs received wil be analysed, synthesized and finally transformed into a graphically interpretable format.

The NACEC project will be a *tool* to aid rational planning, it *will not* replace EIA's. It attempts to bridge the gap between conservation and development and its conceptualization is based on the IUCN World Conservation Strategy, (1980) and the White Paper on a National Policy Regarding Environmental Conservation, (1980).

"Conservation like development, is for people: while development aims to achieve human goals largely through the use of the biosphere, conservation aims to achieve them by ensuring that such use can continue . . .

Conservation is a process – to be applied cross-sectorally – not an activity sector in its own right . . ." (IUCN World Conservation Strategy 1980)

To succeed The NACEC Project needs your active participation

For more information contact:

Department of Environment Affairs
Environmental Conservation
Private Bag X447
PRETORIA
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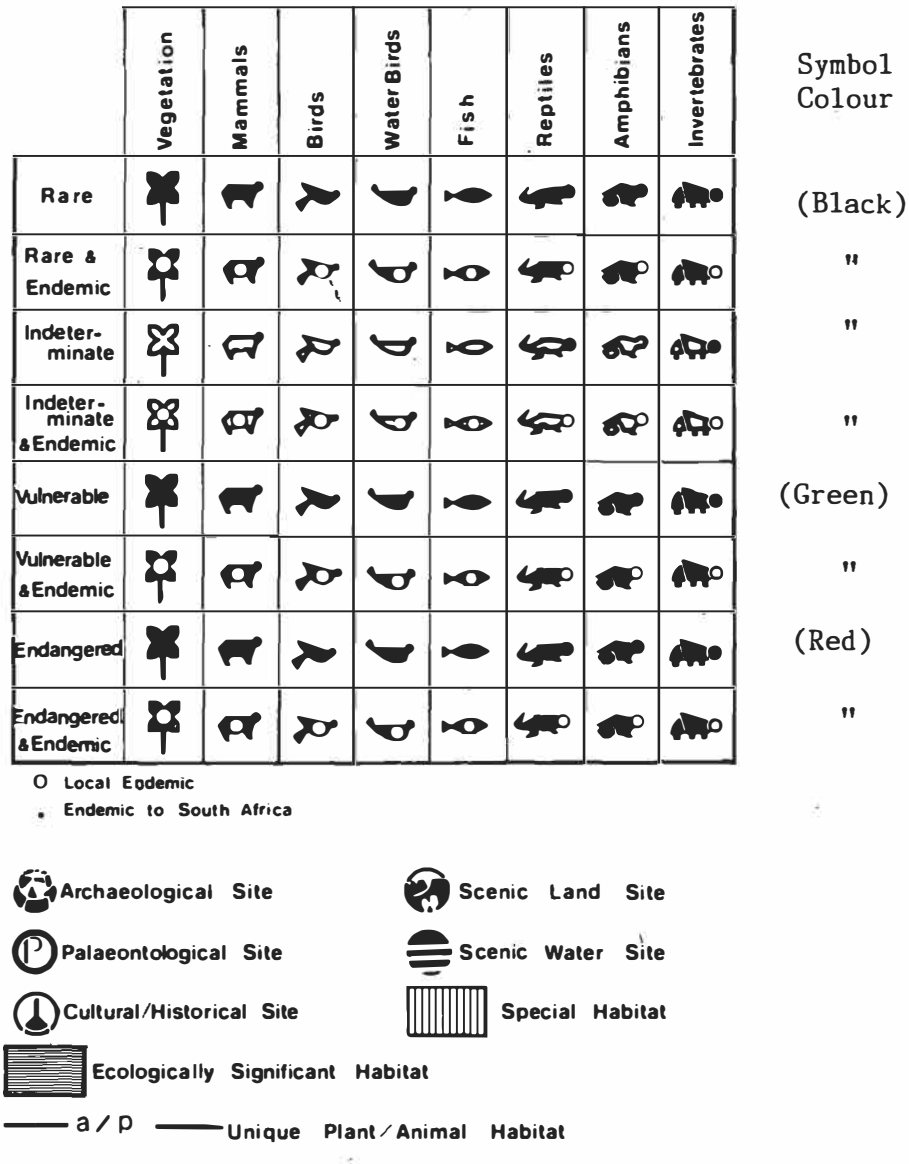
FIGURE 3



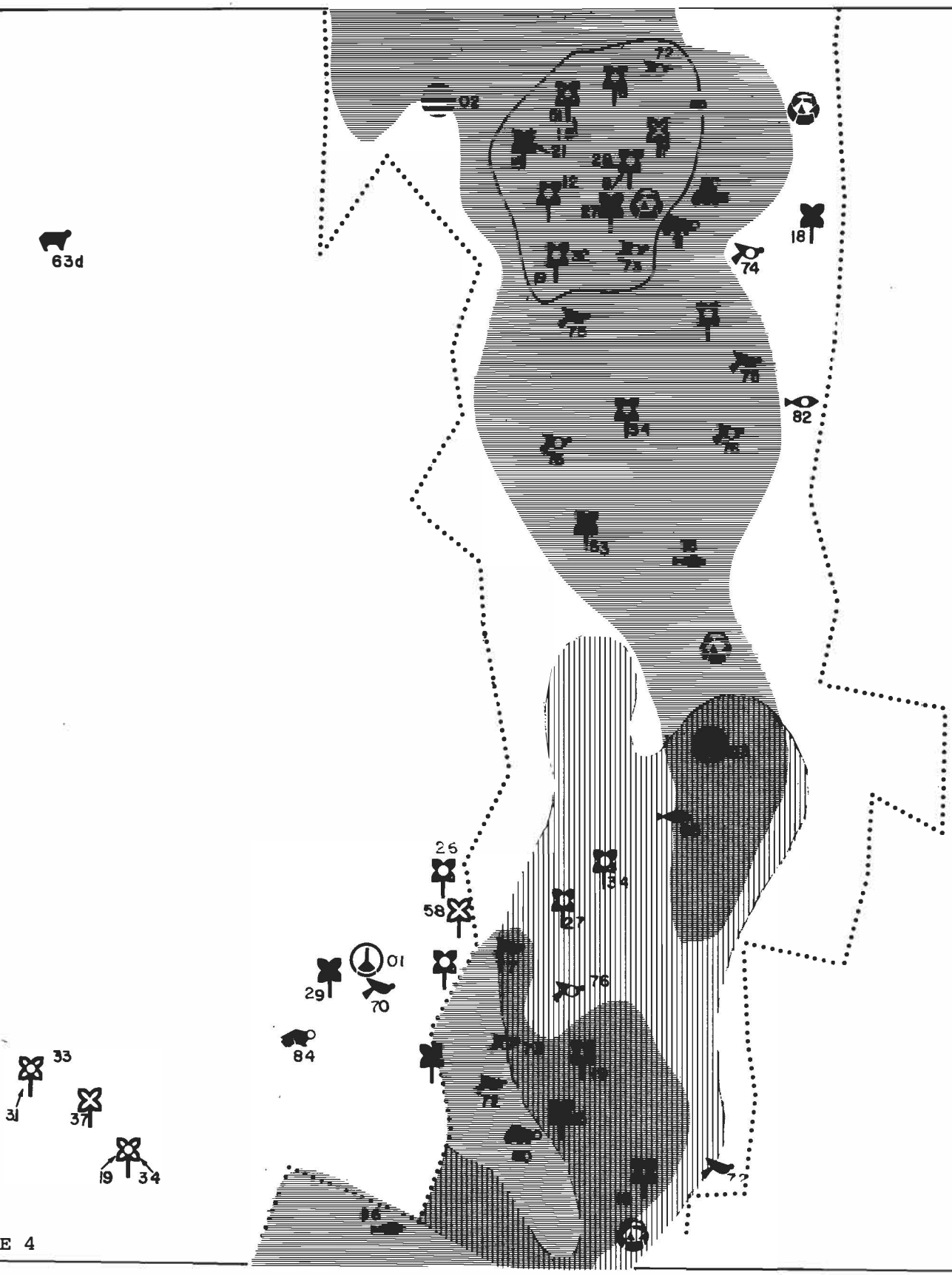


FIGURE 4

NACEC

NATIONAL ATLAS OF CRITICAL ENVIRONMENTAL COMPONENTS