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**DATABASES AND THEIR APPLICATION
TO MANAGEMENT PLANNING**

by

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CONTENTS PAGE

SUMMARY	1
1. INTRODUCTION	1
2. THE BIOLOGICAL RESOURCES CENTRE	2
3. MANAGEMENT PLANNING NEEDS OF DOC	2
4. DIFFERENT TYPES OF EXISTING DATABASES	3
5. THE KINDS OF INFORMATION DOC NEEDS	3
6. ECOLOGICAL REGIONS AND DISTRICTS	4
7. ECOLOGICAL DISTRICTS AS A FRAMEWORK FOR MANAGEMENT STRATEGIES	5
8. RANKING SITES	5
9. CONCLUSIONS	5

DATABASES AND THEIR APPLICATION TO MANAGEMENT PLANNING

Discussion paper prepared for the Department of Conservation Seminar on Management Planning (7-9 March 1990)

by

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SUMMARY

1. DOC management planning should build on the experience of the Biological Resources Centre.
2. DOC needs scientific information of several types:
 - a. purpose-designed conservation advocacy databases;
 - b. uninterpreted databases of distributions of species, archaeological sites etc;
 - c. condensed descriptions summarising the ecological character of the area in question, written in a style which is readily understood by managers and the general public.
3. Ecological districts or suites of districts can be used as a framework for management strategies or plans.
4. Within a suite of ecological districts natural areas should be ranked for various conservation values, using different sets of criteria for wildlife habitat values, botanical values etc.

1. INTRODUCTION

It has often been stated that good resource information is an essential component of good use decision-making. In the late 70's and early 80's, scientists, on the one hand, and planners, on the other, were conscious that while large amounts of information about New Zealand's natural resources existed, it was not being incorporated into land-use planning. This was understood to be because the information was not available in a form that could be readily used in planning.

Decisions affecting the future of New Zealand's natural resources, and particularly its indigenous resources, were being made daily with little information to guide or assist them, in spite of the fact that such information did exist in scientific publications and scientists' heads.

2. THE BIOLOGICAL RESOURCES CENTRE

In an attempt to address this problem the New Zealand Biological Resource's Centre (BRC) was established in 1981, jointly funded by DSIR and several government departments involved in land management. The main objective of the BRC was:

to improve the flow of information on the nation's biological resources into planning processes in order to achieve effective conservation of New Zealand's natural environment.

(Fifth Annual Report, Advisory Committee, New Zealand Biological Resources Centre 1986.)

While BRC research concentrated on statutory planning activities and their requirements for biological resource information, many of the Centre's findings and outputs are just as relevant to management planning in DOC. For instance, it was found to be a great advantage to have planners working alongside scientists so that the database systems being designed by scientists and information systems specialists provided scientific information in a form that was readily useable by planners, without the need for much additional interpretation. In other words the databases were being designed to be purpose-built for use in conservation advocacy, rather than being simply collections of uninterpreted scientific facts.

The BRC was transferred to DOC's Science and Research Directorate (now Division) in April 1987 and a year later was disestablished, its information handling functions remaining in the S&R Division in what is now known as the Information Unit (previously the Conservation Sciences Information Group). At the same time the planning advocacy functions of the BRC were transferred to regional (conservancy) planners.

3. MANAGEMENT PLANNING NEEDS OF DOC

From my reading of Mark Neeson's paper "Management Planning in New Zealand: New Directions", given to the CONCOM National Workshop on Park Management Planning in Australia, November 1989, I understand that the type of scientific information that is going to be needed by DOC planners in the future is very different from that which was often used in past management plans. In particular, Mark emphasised in his paper that data collection in the past was "sometimes over emphasised and poorly related to end-use". The new-look Strategic Management Planning must, by necessity, be much more succinct than was the case in past management plans.

What is not going to be needed, especially in the proposed management strategies, is vast screeds of computer printout from databases of complex scientific information such as, for example, the DSIR (formerly MWD) or New Zealand Land Resource Inventory (NZLRI). Possibly even our own Wetlands Inventory (WERI) is too detailed for the purposes of management strategies, even though it was designed specifically for use in conservation advocacy. On the other hand, information from WERI should be ideal for more detailed management plans of specific parts of the DOC estate, and information from the NZLRI can be carefully interpreted and condensed for use in either management strategies or detailed plans.

4. DIFFERENT TYPES OF EXISTING DATABASES

One thing which I think it is very important to emphasise is that there exists in DOC, and also in some of the agencies from which DOC is currently purchasing its scientific information (the transfer funded agencies), a number of different kinds of databases. Different databases were set up for different end uses and it is important that we do not try to use the information in ways for which the databases were not designed. Only certain "purpose-designed" databases, which were set up specifically for use in conservation advocacy, should be used directly by planners (without the need for further scientific interpretation) for the purpose of management planning and in statutory planning processes. Examples of these "purpose-designed" databases are the Wetlands Inventory (WERI), the Sites of Special Wildlife Interest Register (SSWI, so far not computerised), the Geopreservation Inventory and the developing Coastal Resources Inventory and Islands Status Register.

Many other databases exist which were developed solely as research tools or as computerised directories to more extensive hard-copy information systems. It is most important that information from these systems is not used in any kind of management plans unless it has been specifically interpreted by appropriate experts for the purpose. Examples of these databases include the Archaeological Sites database, the National Distribution of Blue Duck etc.

5. THE KINDS OF INFORMATION DOC NEEDS

It appears to me that what DOC needs are several distinct types of scientific information for use in different areas.

- a) Firstly we need **form, purpose-designed conservation advocacy databases** such as WERI, the SSWI inventory, the Geopreservation Inventory, the Coastal Resources Inventory (CRI) and the Islands Status Register.

In these inventories a great deal of detailed but carefully chosen information is compiled in a standard format and managed, usually, as a readily accessible computer database. They have been designed for the express purpose of conservation advocacy.

- b) Added to these are **straight, non-interpreted inventories of species distributions** such as the NZ Amphibian and Reptile Distribution Scheme, the National Distribution of Blue Duck database, Botany Division's Threatened Plants Record Scheme, MAF Fisheries' Freshwater Fish database and so on.

The Archaeological Sites database also falls into this category of uninterpreted information about the distribution and location of plant and animal species and special sites of importance to the department.

- c) On the other hand, another extremely important requirement for DOC planners is for carefully interpreted scientific information, which sums up the ecological character of the area being described in a way which is readily understood by managers and members of the public alike.

Expanding on number three, information for management planning, and especially for management strategies for large areas, needs to be interpreted and condensed into generalised, but none-the-less accurate descriptions. It is not an easy task to write this kind of description, as you need to have a fairly good understanding of geology and land-form processes as well as plant and animal ecology and present land uses. We have a few people in DOC who are experts at this type of interpretation of the landscape; in particular, Les Molloy is superb at this, and Geoff Park has skills in landscape interpretation which include the element of human history as well as processes.

6. ECOLOGICAL REGIONS AND DISTRICTS

One of the major contributions made by BRC in its short history was the co-ordination of the Ecological Regions and Districts project. This involved scientists from several disciplines and from throughout the country, (mainly plant ecologists and earth scientists). It resulted in New Zealand being mapped into 268 ecological districts, grouped into 85 ecological regions. The project is ongoing and closely related to the Protected Natural Areas Programme. PNAP surveys are made on the basis of ecological districts and natural areas are for their representativeness of ecosystems typical of their ecological district.

The definition of an ecological district depends on a thorough understanding of the topography, geology, climate, soils, vegetation and human-induced modifications in the area. Thus an ecological district is a local part of New Zealand where the topographical, geological, climatic, soil and biological features, including the broad cultural pattern, produce a characteristic landscape and range of biological communities.

An aggregation of adjacent ecological districts with very closely related characteristics together form an ecological region. In some cases a single, very distinctive ecological district is given the status of ecological region to emphasise its uniqueness.

The BRC compiled and published, together with the third edition ecological regions and districts maps, brief ecological descriptions of each district (Ecological Regions and Districts of New Zealand, 3rd revised edition in four 1:50 000 maps, Department of Conservation, 1987). These descriptions are compilations of existing ecological information. They include a number of descriptive statements including:

A list of the criteria by which the district was defined in the first place. Usually this defines the way in which the district differs from its neighbouring districts. E.g. the topography, geology and climate may be unusual or the vegetation and soils.

Following this are brief descriptions of the geology, topography, climate, soils and vegetation, the latter usually distinguishing the present-day vegetation or land-use (referred to as "modifications"), from the original vegetation or that which was described by early European settlers.

Any known special features of the flora and fauna are also recorded.

These ecological descriptions are printed in books which accompany the maps, while condensed ecological prescriptions, which attempt to summarise the main features of the district, are printed on the surface of the map itself.

As compiler and editor of these descriptions I do not claim that they are ideally suitable in style for use in management strategies, but they should form a useful starting point and database for use in management strategies and plans.

7. ECOLOGICAL DISTRICTS AS A FRAMEWORK FOR MANAGEMENT STRATEGIES

In the former DOC Eastern Region, ecological districts have been grouped into suites as a framework for management planning strategies. The advantage of using ecological districts rather than straight administrative boundaries is that the former are defined using ecological principles. For this reason, other Conservancies would probably find that groups of ecological districts would make reasonable frameworks for their planning strategies as well.

Another advantage of this approach is that PNAP surveys are gradually yielding a great deal of information about the remaining unprotected natural areas in particular ecological districts, and this information can be used to define places with high conservation value.

8. RANKING SITES

Once suites of ecological districts have been defined within a Conservancy, the sites of special interest within each suite of districts should be identified in the strategy. These sites must then be evaluated by comparing them using an agreed set of criteria. A suitable set of evaluation criteria exists for ranking wildlife habitat sites (ex Wildlife Service), and in some parts of the country a set of criteria for ranking vegetation for botanical value is being used. (This is published by Willie Shaw, now Conservation Advisory Scientist, Bay of Plenty Conservancy, in Botanical Conservation Assessment of Crown Lands in the Urewera/Raukumara Planning Study Area.) I am aware that DOC must also plan for its other major functions, including the use of the estate for recreation, the identification and protection of important landscape values, archaeological and historic sites etc. Presumably each of these specialist areas requires the development of its own evaluation criteria.

9. CONCLUSION

DOC management planning should build on the experience and research of the Biological Resource Centre, which showed that the most valuable kinds of databases for use in conservation advocacy were those which were specifically designed for that purpose and which require the minimum specialist interpretation. On the other hand, Strategic Management Plans will need scientific information to be carefully interpreted and compiled into brief descriptions which sum up the ecological character of the area in question. A useful source of information for such summary descriptions is the third edition Ecological Regions and Districts of New Zealand maps and accompanying district descriptions.

Ecological districts or suites of districts may be used as the framework for strategic management planning, and within such an ecologically based framework, sites of special conservation interest should be identified and ranked in value according to sets of evaluation criteria which have been defined for different conservation values.