PRIORITIES OF RESEARCH AND MANAGEMENT AND THE SETTING OF OBJECTIVES

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INTRODUCTION

Basic objectives for a nature conservation agency are often set out in enabling legislation and the agency's corporate objectives. These can be translated into policies and strategies by the corporate executive. The policies and strategies may then provide the basis for deriving the objectives and setting the priorities of research and management programs. There are three problem areas in effectively deriving the objectives and priorities for research and management. There must be means of getting maximum input from staff and outsiders during the initial information gathering and evaluation phase, prior to executive decision. There must be regular review and avenues for feedback from staff to ensure a flexible approach. There must be capacity for change inherent within the system so that policies and priorities can be improved as experience grows.

RESPONSIVENESS TO CHANGE

Good research requires a high degree of specialization but this can compromise flexibility. By definition, a research specialist is seldom capable of changing the nature of his or her work without risking loss of quality. A research unit built upon individual speciality i.e. scientific discipline or biological taxon, has an in-built tendency for inflexibility when change of direction is required. The most flexible research unit would be one staffed by generalists who can turn their hand to anything, but standards may then suffer. This lack of depth of expertise may mean that there are no quick solutions to specific problems. This problem is confounded by the need for security of tenure for research staff. The world's foremost expert on dugong reproduction, for example, might play an extremely important role until management has enough information to effectively manage the dugong populations - what does he or she do then? And who should determine the cut-off point where a specialized project, while continuing to contribute valuable science may have reached the limit of practical use for management?

For many research units the principle opportunity for changing research directions occurs when a scientist resigns or retires!

After discussion the group concluded that the staffing strategy for staff in research units in the nature conservation field should seek a blend of long-term tenured positions, with short-term contract positions, and that greater opportunity for exchange of scientists between government and other agencies is essential. The group also identified rigid financial management and a variety of industrial problems as contributers to inflexibility in conduct of both research and field management programs.

EVALUATION AND REVIEW

Although initial evaluation and objective setting on the one hand and review and re-setting on the other, are different phases of the process, they should be based upon the same principles and were considered together for our purposes. As an exercise the group decided to consider one of the primary objectives of the Department of Conservation and Land Management's Corporate Plan, viz. "management of land to maintain

species and genetic diversity". A series of critical decisions were envisaged in implementation of this objective.

Definition. It is essential that the meaning of the objective is widely understood. In this case there must be consensus on the meaning of the terms "species and genetic diversity", and the action verb "maintain".

How? When the intention of the primary objective is agreed, the question arises, how do we manage land to maintain species and genetic diversity?

In this exercise we can assume that the land in question is a series of reserves already selected for their representativeness of species and genetic diversity - our objective is to maintain it. We are led to a consideration of those ecological processes which maintain diversity, those which mitigate against it, and of the impact of human activity. On the basis of this evaluation we must decide whether direct action to enhance diversity is necessary, or whether it is sufficient to prevent or contain those natural processes and human activities which mitigate against it.

Are existing knowledge and techniques adequate? Clearly this particular corporate objective presupposes a sound knowledge of the ecological principles involved? Is the current theory capable of being translated into practical management? If not, what is lacking?

These questions lead directly to research objectives and priorities.

The discussion group then considered, briefly, the question of the relative importance to the objective of autecological versus synecological (in-depth single species studies versus community) studies. It was recognised that this is a matter needing urgent consideration and resolution in the context of setting departmental research priorities.

What can be done with existing knowledge and techniques? Some broad principles about diversity are known. For example, environmental heterogeneity (in both space and time) is an essential factor in creating and maintaining species diversity (richness). Periodic or episodic disturbance of certain types is often necessary.

It is known for example, that fire is one important disturbance element in Australian terrestrial environments. It can be used as a management tool to maintain species diversity in some circumstances. It is also known that introduction of exotic species may have flow-on ecological effects leading to loss of native species. Therefore control of exotic species can be an important component of management programs.

The group concluded that existing knowledge of this kind can be used, cautiously, in reserve management programs, while research continues; this combination will result in better understanding and better techniques.

Experimental management. The group discussed the notion that, in the absence of relevant detailed ecological knowledge, a deliberately experimental approach to land management could be an important complement to research.

This approach requires sufficient resources for monitoring results of management, and the forging of links between field management staff and research staff, in order to maximize its effectiveness.

The group noted that experimental management incurs greater risk taking. It implies a greater frequency of failure but the offsetting likely benefits were considered to justify the extra risks.

Costs and benefits. What are the costs and benefits of each increment of diversity to be protected? Any extra money should be spent where the benefit is likely to be greatest. What are the criteria for selection of reserves for priority management or research? High diversity, presence of rare species, low cost, degree of current detrimental pressures are all potential criteria to be taken into account.

Once again there is a need for information. Which are the high diversity areas? Where are the rare species? Biological survey is an essential prerequisite for establishing priorities.

Public pressure. There are some areas where incorrect public perceptions create pressures resulting in allocation of resources to matters which might not otherwise be given high priority, e.g. kangaroo management. The group acknowledged this problem as being a fact of democratic life.

CONCLUSIONS

The discussion group did not attempt to deal with the organizational aspects of objective and priority setting. However, from the exercise whereby one of the agency's corporate objectives was worked through, a number of points were made.

1.Program objectives and priorities must derive originally from the agency's corporate objectives.

2.Wide discussion of the meanings and purposes of the corporate objectives is essential if

middle-management is to be effective in setting program objectives and priorities. Holding workshop sessions on key issues is one way of achieving this.

3.Some of the agency's most important corporate objectives relate to matters where current knowledge is deficient as a basis for effective action (e.g. distribution of species and communities, ecological community function). While immediate management action is necessary, well-directed research is an investment for future improvement, and the two functions are inextricably linked.

4.Both field operations staff and research staff must be involved in the information gathering and evaluation phase, prior to objective and priority decision making.

5.Management objectives and priorities must be set after cost-benefit analysis, particularly when there is limited knowledge.

6.Research objectives and priorities must reflect management objectives, setting out to provide necessary knowledge currently lacking in critical areas.

7.Experimental management, though requiring extra resource allocation and incorporating greater risk of failure, is a worthwhile investment to complement research.

8.All objectives and priorities must be subject to regular review and up-dated in the light of experience and results from research, as well as in response to new circumstances.

9.Management, in particular financial and staffing decisions, must be deliberately designed to accommodate change following review of corporate objectives and reviews of program objectives and priorities.