MONITORING : IS IT OF USE IN INTEGRATIONOF RESEARCH AND MANAGEMENT?

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BACKGROUND

Monitoring, as applied in a land (and water) management agency embraces the whole process of keeping track of changesin the environment over time. The changes may be a direct result of a management decision or action or they may merely reflect the passage of time and the effects of local or regional events. A comprehensive monitoring program will have the components listed below.

1.A system of recording and maintaining records of management decisions and actions.

2.A program for the establishment and systematic resampling of sites designed to evaluate the consequences of those decisions and actions (preferably in an experimental management framework).

3.A program for the systematic resurvey of selected, representative (benchmark) sites to track general patterns of change across the landscape. These changes may be as a result of long-term climatic cycles, for example, or may merely be long-term successional effects.

4.A program for establishment and systematic resurvey of long-term study sites where the network of sites is specifically designed to test hypotheses about particular types of change across the landscape (i.e. monitoring as a research tool).

5.A system for systematic evaluation of the results of monitoring and subsequent review of management policies and actions.

Monitoring should become an integral part of management to provide for a gradual increase in knowledge about, and understanding of, the ecosystems and communities being managed. A process that would encourage integration of research, planning and management is indicated in Figure 1. This process would necessitate some changes in the roles of key personnel.

Planners typically collate existing information and interpret it in the light of policy to develop management plans. Planners are ideally situated to identify gaps in knowledge and areas of uncertainty. They should collaborate with researchers to write into their plans programs of experimental management that will fill these gaps; these programs should include detailed monitoring methods.

Managers normally interpret and implement management plans. They can also implement monitoring programs. Researchers should be involved in the establishment of monitoring sites and should provide training in sampling techniques. Subsequent resampling would be a component of ongoing management (inspired by feedback).

Researchers in this scenario would liaise with planners and managers in the formulation and implementation of management programs and would collaborate with managers in the interpretation of results from the monitoring programs. This liaison should make researchers increasingly responsive to the needs of managers.

INTEGRATION

In the light of this background, the response of the workshop members to the question posed

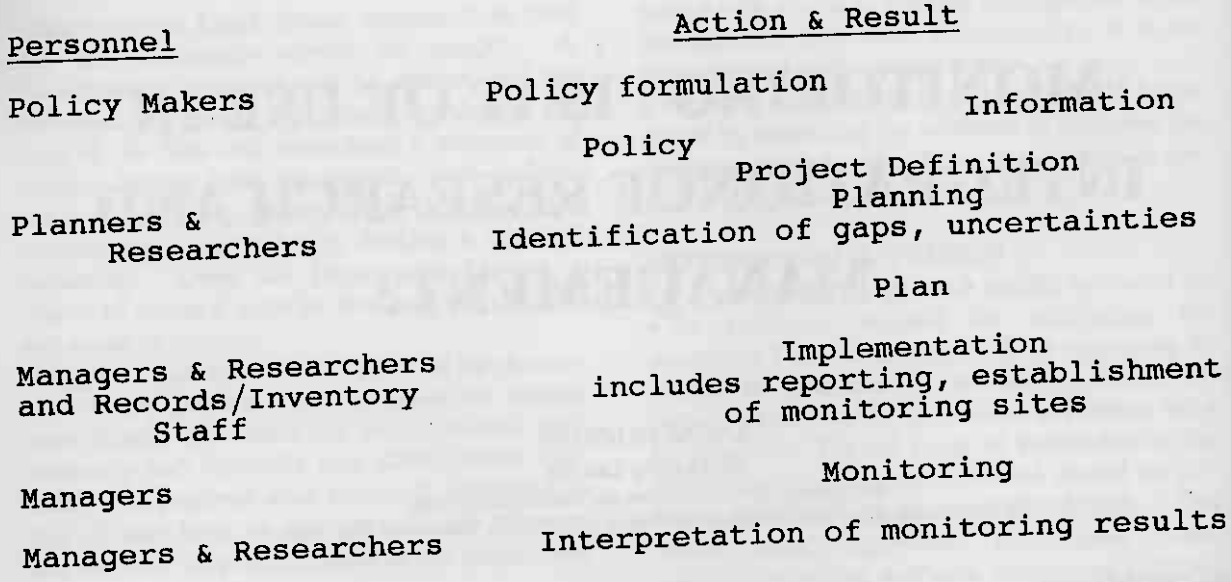

Fig. 1. A flow diagram of the planning and management process indicating how monitoring might become a focus for collaborative activity and lead to integration of research and management.

in the title was: "Ideally - yes but, realistically, probably no!". Managers, particularly, felt overcommitted and unable to take on further responsibilities despite the clear recognition of the importance of monitoring.

The next most immediate response was: "What is actually involved?" and "are additional resources to be provided?"

In the ensuing discussion, a number of points were made about the general concept of monitoring and its role in bringing together researchers and managers. Included were the following.

1.Monitoring must be cost-effective (can we monitor communities in a cost-effective way?) and must produce interpretable results. It is desirable to establish hypotheses which can be tested through a monitoring program as this will ensure that the program has clearly defined objectives and methods. Simple, standardised methods are important.

2.There is a need for clear objectives of any monitoring program. Among other things, this permits evaluation of costs and benefits.

3.There are already monitoring programs being undertaken by Department of Conservation and Land Management managers; examples cited were monitoring rare flora populations, wheatbelt recreation areas and impacts of human use in national parks.

4.Researchers should play a leading role in generating interest in an agency monitoring program by providing good examples of the values of such a program (e.g. the Noisy Scrubbird program, the Short-necked tortoise program, the Carnaby's Cockatoo program) and by designing studies that incorporate a potentially collaborative monitoring phase.

5.Because most monitoring is seen to be long-term (i.e. at least 30 years) then the program should be structured to ensure continuity. There should be a clear, unequivocal commitment from the organization to long-term monitoring before any major work is undertaken. A reporting system with regular feedback to the observers is important to encourage observer continuity.

6.Managers and researchers endorsed the concept of a pilot project (perhaps two per management district) and suggested the need for a full-time co-ordinator to get this (these) established.

7.Integration of research and management in the Department was being achieved to some degree through the establishment of multi-disciplinary teams such as those developing management plans. The collaborative approach to monitoring, as outlined above, was seen to be a positive step.

8.Monitoring was seen as essential to the

production of regular State of the Environment reports. However, some possible overlap with other agencies (especially the Environmental Protection Authority) was identified.

9.It is highly desirable that the public should become involved in any monitoring program. Firstly, users of Departmental lands should be required to monitor the effects of their uses (or to pay a levy for professional monitoring). Secondly, the public is a largely untapped labour force - the program could be made attractive to volunteers. (Note that any monitoring program involving voluntary observers would have to be carefully designed if the results are going to be reliable.) And finally, the involvement of the public would have considerable educative value. The monitoring program would cover a wide range of environments which people would come to appreciate and, at the same time they would become aware of the management issues and problems.