

# MONITORING FOR FIRE MANAGEMENT IN NATURAL AREAS IN WESTERN AUSTRALIA

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## SUMMARY

This paper provides a brief outline of key aspects of the monitoring program soon to be implemented within the Department of Conservation and Land Management. This program is designed to provide for gradual improvement in management of Departmental lands by improving the knowledge base on which decisions are made. It is anticipated that monitoring will be an important part of fire management in the future.

## INTRODUCTION

The rationale for a monitoring program within a land management agency such as the Department of Conservation and Land Management has been provided in earlier papers presented at this National Workshop. Three important, contributing factors can be summarised thus:

- 1 There is a dearth of reliable information about the effects of fire on most of the species of plants and animals, and communities and ecosystems that we manage. Further, it is unlikely that research resources will be sufficient to remedy this situation in the foreseeable future.
- 2 At the same time there is a need to make decisions on the management of the biota, particularly in relation to the use of fire on conservation lands, because of concerns about protection. Decisions not to burn (ie the do-nothing option) are included here.
- 3 There is, therefore, an urgent need to establish a mechanism whereby the knowledge base can be improved through the process of management - to learn from successes and mistakes and to ensure that mistakes are not repeated.

These sorts of considerations are equally relevant to virtually every type of management issue on natural lands.

It was the recognition of the need to develop a mechanism or process whereby management could be improved by systematically recording effects of ongoing management that led the Department of Conservation and Land Management, in February 1988, to adopt a policy on monitoring. This policy is now in the process of being implemented through the establishment of a monitoring program within

the Department and through the development of pilot projects throughout the State.

The monitoring policy deals with all aspects of management including planning and development of management policy. However, it is likely that, in the process of implementing the policy, fire will feature prominently amongst the pilot projects because of its pre-eminence as a management issue in Western Australia.

Here I discuss some key aspects of the policy and program in order to introduce them. A more detailed description is given in Hopkins (in press).

### **Objectives of the Monitoring Program**

As noted above, the monitoring program is seen as an important vehicle leading to improved management of Departmental lands (and waters) and of the State's biota. The improvement will be a consequence of the following:

- Monitoring increases the level of knowledge about the resources being managed.
- The program provides a framework for making better management decisions based on the ever-improving knowledge base and on regular review.
- The implementation of management decisions becomes more accountable and will improve as a consequence.
- The monitoring program provides a focus for co-operative activity throughout the Department and with the wider community; this leads to more effective and efficient use of Departmental resources.

The specific objectives of the monitoring program are to maintain up-to-date records of the distribution and status of the State's biota, the management decisions that are made about that biota and Departmental lands and the consequences of those decisions, and to provide a mechanism for systematically reviewing management policies and programs in the light of new information.

### **Key Features of the Monitoring Program**

Because monitoring is essentially a field based activity associated with management, there is a tendency to focus on procedures to be used in the field. However, it is important to recognise that the field component cannot function in isolation; the monitoring program has to embrace a range of activities from data management through to review of results, policies and management programs. In designing the program to meet the objectives outlined above and to cover the wide range of activities necessary, particular attention was also paid to generating strong user interest in order to ensure long-term continuity of observations. Cost effectiveness was also a major consideration.

## **Data Management**

In order to learn from past decisions and actions it is necessary to maintain adequate records of those decisions and actions. The first essential function, therefore, is archival. Secondly, it is necessary to have a streamlined method for dealing with field data. The automated data processing system should incorporate a user-feedback component with two types of prompts. Prior to the sampling time falling due there should be a reminder about the need for sampling which may include a request to observe particular features. Once the new data are input a hard copy record should be sent to the observer with a thank you and a comment on the new data.

## **Field Recording**

All observations are based around fixed points each of which has a unique identity. The most basic level of recording involves standardised photographs. However, there are some very serious limitations to the use of photographs. In particular, photographs do not readily yield quantitative data. It may be possible to overcome this drawback through the use of stereo-photography. The Department is currently evaluating a Micro-photogrammetric System (MPS-2) which can accept 35 mm slides and which is computerised; the system could be used in some circumstances to produce quantitative data from monitoring sites.

An early step in implementing the monitoring program will be the preparation of a Field Monitoring Procedures Manual. This will outline in detail the actual steps to be taken to establish a monitoring site and to record appropriate information at that site. A question and answer type key to aid in the selection of methods is also envisaged.

One critical aspect of each monitoring project will be the clear definition of objectives. In many cases the objective will be stated as an hypothesis to be tested. The importance of the clearly stated objective is three-fold. Firstly, it is essential for communication - new observers must be able to readily understand what it is that they are contributing to. Secondly, it facilitates selection of field sampling methods. Thirdly, it provides a more scientific basis for each project and the program as a whole; thus, monitoring can be seen to be a legitimate scientific activity.

Responsibility for doing the actual field recording will lie with local management staff. This makes sense from the efficiency point of view since these are the people on-site; it also fosters a sense of ownership. The local management staff may choose to liaise with specialist staff (eg research) when setting up a new site or project but prime responsibility will be with managers. The only clear exception will be in the case of those sites to be surveyed comprehensively on a regular (if infrequent) basis as biological benchmarks. This comprehensive survey will be done by specialist survey staff.

## **Management Planning**

During the course of preparing management plans for natural areas, planning staff invariably identify areas of uncertainty or critical gaps in knowledge. Where a monitoring program exists, planners can move beyond mere identification of problem areas. They can allocate priorities for information gathering and should

collaborate with research and management staff to design monitoring projects to address gaps.

### **Review**

It is essential that the data, once collected, are put to best use. The monitoring program provides for regular review of results from each monitoring project and publication of the outcome of the review. By bringing the results to the attention of decision-makers in this way it is expected that review of management policy, strategies and programs will flow more or less automatically.

### **CONCLUDING REMARKS**

The Departmental Monitoring Program which I have outlined briefly in this paper is an important innovation in the management of natural lands because it provides an economic means to gradually improve the quality of management. It will be used to improve fire management, particularly in those biomes that have been little-studied to date, because of the pre-eminence of fire as a management issue throughout the State.

The Monitoring Program is still in its infancy. As it stands at present, it is the result of several years of reading and discussion and small scale trials. There are many aspects yet to be developed in detail; then the program has to be put into practice on a reasonable scale. Undoubtedly there will be some changes in the course of implementation; as problems come to light then corrective action will be taken. It is for this reason that the approach being taken is one of gradual implementation.

### **REFERENCES**

Hopkins, A.J.M. (in press). Establishment of a Departmental Monitoring Program. Department of Conservation and Land Management. Technical Report.