

# MINIMUM REQUIREMENTS FOR THE PREPARATION OF FIRE MANAGEMENT PLANS FOR NATURE CONSERVATION LANDS

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## SUMMARY

Fire management plans are an important, if not essential device to provide guidance to and establish management practices for the estate manager. In new conservation areas or areas with a limited data base such plans are even more needed than on areas with well established practices. Conservation authorities can access sufficient data and expertise to prepare fire management plans even in the absence of detailed information specific to a conservation area. Experienced fire managers and researchers can extrapolate their knowledge of other areas sufficiently to set standards for most biogeographic regions and provide competent advice to the estate manager.

## INTRODUCTION

This paper is not intended as a prescriptive treatise, but rather as a consideration of the reasons for fire management planning and an attempt to arrive at those minimum requirements from which the end user, the estate manager in the field, can derive guidance and comfort.

There can be little doubt there is a need for fire management plans:

- (a) to structure planning for the purposes of funding;
- (b) for resource allocation including equipment and manpower;
- (c) to establish administrative guidelines including approvals and authorities;
- (d) in order that the land manager can be secure in operating within a defined ambit and is assured of organisational support within that ambit;
- (e) to ensure that the land manager, on behalf of the organisation, meets his legislative responsibilities under fire control legislation appropriate to the State, other land management legislation, and the conservation legislation of the parent body;
- (f) to indicate the desired action for land management staff with regard to fire;  
and

- (g) to ensure that the available knowledge base is utilised within the estate in the management of fire.

It is important to understand for whom the plan is designed. Fire management plans are action plans and should be directed at staff on the ground within the estate; in most cases the park manager. Although the organisation has a requirement to have such plans in place, the action officer is a different class of manager from corporate managers within an organisation. Accordingly, fire plans must be pragmatic and realistic, and relate to the actions desired rather than just a consideration of the options. These objectives are determined by the organisation in line with corporate goals.

The purpose of a fire management plan is to prescribe actions specific to the fire problems in that particular land management area. Fire management plans could be incorporated within plans of management. Management plans, however, are statutory documents prepared pursuant to legislation, and are consequently less amenable to frequent change. Such documents define the goals and objectives of a particular management area, and the organisations intent with regard to fire management within that area. A fire management plan, by contrast, needs to be a dynamic document containing detail specific to the circumstances of the place, the season and the resources available at the time. It is therefore better to have the fire management plan as a stand-alone document.

With the evolution of conservation organisations, fire management planning within those organisations no longer relates purely to parks and reserves. Increasingly it is applied to areas under alternative forms of tenure, management arrangements and resources and relates to land not under the direct management of the organisation.

## **CURRENT SITUATION**

Fire management outside urban areas has traditionally been the responsibility of land owners. In the past there have been two major organisational entities actively involved in fire management.

The "Bushfire Control Organisations" have had the objective of co-ordinating and enhancing the individual efforts of land owners, both on their own land and across districts. Their resources have been basically private and provided through volunteers acting as individuals, but aiming to liaise in some co-ordinated manner. The success of this approach throughout Australia has been quite remarkable.

The other main landowners with an active interest in fire management have been the "forestry organisations" whose significant blocks of public land have placed on them responsibilities to meet the objectives required of them; viz to protect the commercial values of public forest lands. As community expectations of the land use on those public lands has changed and developed, the forestry objectives have moved from purely commercial considerations to more ecologically directed considerations. The bulk of fire research in Australia has been carried out on these lands and this long history of research and development has provided the current information and methodology base used throughout the community.

Until recently park authorities did not particularly promote themselves as fire management entities. While there have been some remarkable exceptions (eg the Kosciusko Park), many National Park areas were considered by both the authorities and society as being an overall responsibility of the community rather than of the management authority. Unlike forestry lands there has been a background of confusion and a less clear understanding of the objectives for the land and its resources for society, it being often described as "for the use and enjoyment of the public".

It has taken the information explosion of the last fifteen years to put conservation management authorities in a position where they have been able to more clearly define management objectives for their estate and undertake management in accordance with those objectives. During this time the nature of the conservation estate also has changed. There is now less emphasis on providing ancillary facilities for cities and more on areas dedicated to the protection and management of representative examples of our natural history.

Within the conservation estate the approach also has changed away from the concept of a living museum towards more active management of identified species, communities and systems, and as a result management prescriptions have become more specific to real objectives. Many of these changes have taken place relatively recently. Management authorities now control a mix of parks which are well established and on which the management and use patterns have been cast, and an increasing number of newer parks and management units with no real established management practice or data base. It should be recognised that, particularly on the older more established parks, the intuitive ability of past managers has generally led to sensible practices which have at least maintained these parks, if not enhanced them.

For the conservation management authority an additional factor is the climatic and geographic variation across the State. Consequently, the policy guidelines and objectives for one area of the estate need not necessarily be applicable to other areas (eg southern Western Australia compared with northern and inland Western Australia).

## **OBJECTIVES**

The conservation authority should seek to set the fire management objectives for each individual area consistent with the plan of management for the area. With the increase in biological knowledge of species and communities, it becomes possible to start setting objectives for fire management aimed at sustaining habitat, communities and ecosystems. This then leads to drafting of prescriptions, zoning parts of the estate for intensive management, and monitoring the effectiveness with which the organisation achieves its stated objectives.

It is inevitable that, in the early stages, habitat definition may be coarse or may even be incorrect. However, with monitoring of more intensively managed areas, such oversights and omissions can be identified and prescriptions refined, without incurring an excessive risk to the target species. It should also be recognised that habitat description and definition is a relatively slow process. Studies tend to be based on individual species biology and as such are not holistic, and thus not necessarily integrated with total ecosystem management. As a result

of such uncertainty, managers tend to prescribe a variety of treatments as a device to keep options open.

When a conservation agency takes over management of an area there is an expectation that management of that area will, in some manner, be improved. The community, and particularly other land owners in the area, judge our performance on those aspects of management with which they are familiar. In rural Australia fire management is an area in which most established land owners have some experience and some opinion. New personnel with little fire management experience tend to be vociferous in their opinions.

In a new conservation area probably the earliest objective for that area is to meet the legislative obligations as a landholder and to satisfy obligations to neighbouring landholders; in particular, to stop fire emerging from the conservation estate onto other lands and to control fires which enter the estate.

The second objective, again imposed by the community, is the agency's obligation as a landholder to protect life and property. This obligation can become a major preoccupation for the manager on site, particularly in the more extensive parks. As an example, the responsibility of the manager to maintain and protect several hundred kilometres of fenceline is a significant drain on resources and tends not to be recognised within the structure and objectives set by the organisation.

The third objective is to protect those features for which the park is declared or management responsibility undertaken. This requires the identification of unique aspects of the area which need special treatment or protection, and at the least, to maintain those features. A subsidiary objective may be to manipulate, rehabilitate or enhance the ecosystems and habitat to ensure the conservation of the unique features of the area.

The fourth objective which can constrain freedom of action, is to manage the area according to the expectations of the public as users of the park. Public expectations usually do not include burnt areas as a part of the landscape. As a result, managers must go to some lengths to ensure that walking paths etc traverse unburnt examples of the ecosystems on display, and also maintain a high level of interpretive education, both to explain and to justify management activity with regard to fire. The second part of the public use aspect is that the public themselves are a source of ignition and potential damage to the estate.

### **The Minimum Requirements**

Given that the fire management plan is the action plan for the manager in the field, and given that in much of the estate staffing, funding and equipment are not well resourced, it is suggested that the following are the minima.

#### *1 Authority*

A policy statement from the conservation organisation that empowers the manager to act within a defined ambit and allows him to make decisions on action, the commitment of funds and resources, and the control of other peoples' activities within that ambit.

## *2 Objectives*

The organisation needs to provide a statement of the objectives for the estate and the implications with regard to fire management.

## *3 Fire Action Guidelines*

This stems from the statement of objectives and covers the organisations' intent in meeting those objectives; eg whether all fires should be controlled; whether only legal obligations should be met and whether there is sufficient information; establishing priorities for the assets of the estate such as vulnerable communities or species; and defining the special effort required in their management.

## *4 Resources*

The manager then requires a listing of his resources in the area, the region and external to the organisation, and the translation of these resources into phone numbers and addresses, duty rosters etc.

## *5 Management Cycles*

This is basically a seasonal cycle of performance requirements, such as fire break locations, management burning areas and priorities with regard to protection.

## *6 External Influences*

The management cycle must take into account other imposing factors, such as the local burning patterns within the district. In the more remote areas this could still be the late season fire that is allowed to burn through the district or, as in an increasing number of cases, the fire use and patterns of occurrence established by Aboriginal occupants of the area.

## *7 Obligatory Requirements*

Compulsory requirements such as legislation, including requirements at the shire level, the need for permits, advice to neighbours and so on, should be detailed.

## *8 Standards*

Depending on the quality of the data base, an agreed set of standards with regard to fire use should be set. These can be quite simplistic in the absence of a good data base; eg in savannah an interim standard based on a maximum flame height for management burns, recommended season of burns, time of day and so on. These standards can be fairly easily produced over most vegetation types by an experienced fire manager.

## *9 Basic Data*

The basic climatic data for an area is usually readily available. The important factors are temperature, rainfall, humidity and wind patterns. Added to this some

record of basic fuel characteristics is required, which in an unknown area may be as simple as "grass" or "litter" together with observed characteristics.

### *10 Mapping*

Maps showing access, assets to be protected, vegetation types, and areas requiring specific response are a basic requirement in the new park; these may initially be no more than hand drawn "mud maps".

All of the above data sets can be provided in the absence of more detailed information specific to that estate.

In this section I have attempted to demonstrate the level of simplicity needed to establish fire management. With increased input to the data base the effectiveness of the plan can be upgraded. However, the action plan must remain at a simple level based on the practical requirements of the park manager. A manager faced with a fire problem does not have the time or the inclination to read the basis for his recommended actions.

### **Improving on the Minimum**

In order to upgrade fire management, it is necessary to develop an understanding and a data base relating to the effects of various fire regimes on communities and habitat, and through a knowledge of fire behaviour, determine how these effects can be manipulated to maintain or rehabilitate communities and habitat. The two areas of fire effects and fire behaviour have been the subject of considerable research in various communities and methodologies are developing which relate those findings to management practice.

In assessing the natural characteristics of the estate the first phase of management is logically to seek to maintain the status quo. This relies on an understanding of the systems that have been inherited in the estate and of the fire patterns which have operated on that system. A large amount of this phase relates to observation of the existing system. It would be reasonable to state that for most biogeographic regions, experience from elsewhere can be extrapolated with regard to the type of fire behaviour that will, if nothing else, maintain the status quo rather than allow further degradation.

The second phase of management would be to seek to set directions for management to encourage diversity of communities within systems, enhance their structural development and floristic richness. This issue depends very strongly on the objectives set for the estate, whether for single species or for multiple species within communities. In general, management directed to individual species would take place at a more sophisticated level of management where the phase one and phase two management strategies have been successfully put in place.

Within nature conservation lands the long-term objective should be not simply that of protecting a resource, but of managing the biological entities that make up that resource. The question thus arises - how do we translate a research effort into a management prescription, specific to a park area? There are a number of ways of achieving this.

The organisation must be active in spreading its research personnel to establish personal contact with individual park managers, for the benefit of that park. As previously stated, much of the basic data required can be provided "off the top of the head" by an experienced fire manager. In the long run an active research program within the park is the most positive method of transferring knowledge into management practice. Given the limited research resources within any organisation, the more remote areas will continue to suffer. The park manager can, however, improve his data base by maintaining fire records, establishing monitoring plots and by intelligent observation. The organisation through its researchers should seek to advise and educate the manager so that his "ad-hoc" information can be effectively integrated into practice.

In a new park, the managers preoccupations are at a more pragmatic level than a fully resourced and developed park. His ability to apply more intensive and sophisticated methodology is usually constrained. The organisation therefore can satisfy the needs for management planning on an area with a limited data base by arranging for visits by researchers, and the transmission of their experience to the park at a reconnaissance level of observations until the second phase of enhanced management evolves. Other speakers will touch on methodology such as "the expert system" whereby the transmission of this data is formalised.

## CONCLUSION

This paper has attempted to define the ambit of a minimal data set. I have attempted to demonstrate that there is sufficient in-house knowledge in each State authority to create a minimal data set. For the benefit of the organisation and for the benefit of the manager of each area of the estate, a fire management plan is necessary to both demonstrate and guide management.

I have attempted to separate the fire management plan, which is an action plan, from the plan of management which is a document purporting to set management procedures for a significant period. I have also attempted to establish a basis from which professional planners and researchers can build on the local knowledge developed by the estate manager.

And finally I have attempted to indicate that even with a poor data base there is sufficient information readily available to establish fire management planning, and in fact, it is under such circumstances that a fire management plan is most needed.