

# FIRE PROTECTION PLANNING FOR PUBLIC FORESTED LAND IN VICTORIA TO INTEGRATE PROTECTION, MANAGEMENT AND CONSERVATION OBJECTIVES

*J. B. Johnston*

Department of Conservation, Forests and Lands  
GPO Box 4018 Melbourne Victoria 3000

## INTRODUCTION

The Department of Conservation, Forests and Lands (CFL) was established in 1983 and given the responsibility for managing all public land in Victoria - approximately 40 per cent of the State's land area. The Department incorporates all or part of several previous natural resource management agencies (the State Forests Department, Crown Lands and Survey, National Parks Service, Fisheries and Wildlife Division and Soil Conservation Authority) which for many years had operated independently. CFL has an integrated approach to the management of public land and resources and one of its legal responsibilities is to protect these lands and resources from wildfire.

This is a particularly important responsibility in Victoria where, because of geography, vegetation, climate and type and extent of settlement the State is prone to frequent economic and physical damage from wildfire in its public forest areas. According to Luke and McArthur (1978) "During the last 150 years probably as much as half of the economic damage caused by bushfires in Australia has occurred in Victoria though it occupies only about three per cent of the total land surface". Loss of life has also been a regular event (see Table 1).

**Table 1**  
**Loss Of Life In Victorian Bushfires**

Year	Lives Lost	Year	Lives Lost
1918	-	1962	14
1926	60	1965	7
1932	20	1967	-
1939	71	1969	23
1944	49	1977	5
1952	SEVERAL	1978	3
1955	-	1980	-
1958	-	1983	47
1959	-	1985	5

## Fire Protection Planning

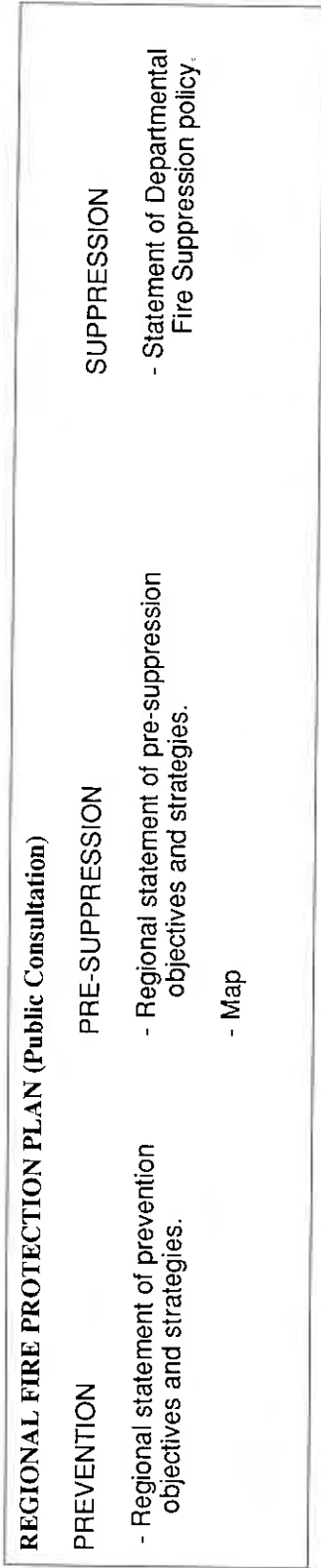
The CFL fire protection planning process recognises three levels of planning: strategic, operation and emergency. At the strategic level a Regional Fire Protection Plan is prepared as a public document in accord with Statewide standards developed by the Chief Fire Officer. At the operational level a Regional Fire Protection works program is prepared internally and approved by the Regional Manager. The works program details all the works and activities needed to implement the strategies outlined in the Regional Fire Protection Plan. It is prepared annually and describes the works and activities proposed for the next three years. At the emergency level the Fire Control Plan is an internal, short term action plan prepared as required by the Regional Fire Controller. It outlines the suppression strategies and actions considered appropriate to control and extinguish the wildfire. Figure 1 shows the relationship between these levels of planning and a description of the components of each level.

### Principles

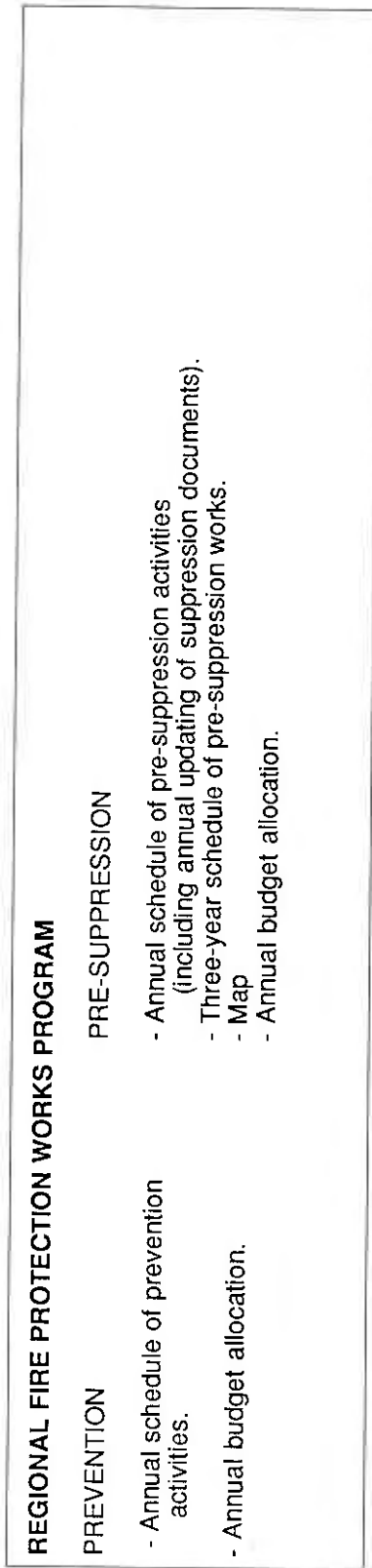
This paper deals with the process of arriving at a Strategy Plan. It is based on the following principles.

- 1 The plan is regionally prepared - this is necessary to ensure that local peculiarities and requirements are incorporated and to form a regional commitment to the plan.
- 2 The plan is based on Statewide standards and format - this is required to make the document readily understood by all sections of the Department and Statewide outside interested parties eg Apiarists Association, Conservation Council Victoria, Fire Protection Committees.
- 3 The strategy is based on protection of a total forest system - sub-plans for individual reserves are developed from the plan for the total system. This ensures that all works are integrated to provide the greatest effect.
- 4 Account is taken of management and conservation objectives and the ecological role of fire - the various management and community objectives are integrated into the plan by ensuring input from specialist officers from relevant disciplines, the various functional divisions of the Department, local interest groups (including rural fire brigades, conservation and client groups) and the general public. Normally where fire protection objectives and conservation or management objectives clash acceptable compromise can be found, but if it cannot, modification of management objectives may be necessary.
- 5 Departmental strategy plans are integrated with neighbouring regions and with Municipal Fire Prevention Plans - a Departmental arrangement provides for integration with neighbouring regions whilst there is legislative provision for the Regional Fire Prevention Committees to integrate the plans with municipal plans for private land areas.
- 6 Four major fire protection objectives must be addressed - to protect life, property and other assets from wildfire; to protect areas with special natural

S T R A T E G I C  
L E V E L



O P E R A T I O N A L  
L E V E L



E M E R G E N C Y  
L E V E L



**FIGURE 1**  
**Fire Protection Planning Concept**

and cultural values from wildfire; to restrict the spread and reduce the intensity of wildfire; and to reduce the incidence of wildfire.

## Plan Structure

A series of data maps is developed for each region or forest system, usually at a scale of 1:100 000, to provide the basis for subsequent decisions on fire protection strategy. The data maps are:

*Land tenure map* - indicates the present and proposed status of the public land and outlines the private property boundaries.

*Vegetation/fuel type map* - vegetation types with similar fuel accumulation or similar fire behaviour patterns are delineated.

*Travel time map* - shows travel times from work centres to various parts of the region. It allows a reliable estimate of the time taken by a forest attack crew to reach any point in the region and assist in determining relative priorities for fire protection expenditure.

*Fire origin map* - historical ignition points are colour coded by cause. The map indicates likely fire sources and influences the positioning of fire protection works.

*Burning history map* - records fuel reduction, regeneration burns and wildfires of the previous ten years. Areas are classified according to the surface area covered by the fire. Categories are "less than 20 per cent", "twenty to fifty per cent" and "greater than 50 per cent".

*Assets map* - highlights the requirements for specific protection. It includes fire sensitive areas, fixed installations, settlements, visitor congregation areas and areas subject to special management or other constraints.

*Additional maps* or variants of existing maps, such as aircraft/helicopter travel and turn-around times can be added to this series where relevant.

The Strategy Plan consists of a short descriptive text detailing objectives, constraints and operational instructions and a map that outlines the current and proposed fire protection activities. The facilities are designed to limit the occurrence of fires, decrease the impact of major fires and allow more effective suppression.

The Strategy Plan includes details on detection, access, fuel treatment (eg burning, slashing, grazing), and provision and maintenance of facilities (eg firebreaks, water points, refuges and air attack facilities). The planning process enables the integration of management burns for flora and fauna management when such requirements are made known by the relevant sections of the Department. Fuel reduction burning is the most significant single fire prevention tool used. It is used in accordance with the "Department's Policy on Fuel Reduction Burning".

Burning zones are indicated on the Strategy Plan as follows:

*Priority 1 Burning Zones* - located principally around specific assets such as townships, settlements and plantations. The aim can vary but in dry sclerophyll forest is typically to maintain fine fuel below eight tonnes per hectare with 90 per cent of the ground area burnt over in any one operation. The burning rotation depends on the rate of fuel accumulation, but could be as frequent as once every three to five years.

*Priority 2 Burning Zones* - strategic corridors of wide continuous belts of forest in which the fuel is reduced by burning to provide substantial barriers to the spread of wildfire. Some strategic corridors are integrated with Priority 1 Burning Zones and other means of fuel modification. The aim is to maintain fine fuel below 12 tonnes per hectare with 80 per cent of the ground area burnt over in any one operation. The burning rotation depends on the rate of fuel accumulation, but could be as frequent as once every four to eight years.

*Priority 3 Burning Zones* - areas of forest where fuel reduction is necessary to prevent destruction of forest values and to complement higher priority works. Ridge-top lighting, aerial ignition and ground ignition are all acceptable means of achieving this fuel reduction. The burning rotation depends on the rate of fuel accumulation, but could be as frequent as once every six to twelve years.

A Works Program map is prepared annually, based on the Strategy Plan map and the records of past operations. It is prepared on a rolling three-year basis to provide continuity of operations, particularly linked operations (such as preparing control lines this year for burning next year) and to provide flexibility to take advantage of seasonal conditions. The annual budget derives from the Works Program map.

Large scale Fire Protection Unit Plans are required to record small but significant items of operational and ecological importance, which may necessitate constraints to fire protection works, and particular hazards/dangers associated with certain areas. Fire Protection Unit or Burning Unit Plans have been developed to record this information and form the basis for works direction.

### **Input to the Planning Process**

The Regional Fire Protection Officer is responsible for preparation of the plan. He is expected to generate a wide spectrum of input to the Strategy Plan both during the preparation phase and when the first draft has been prepared.

Information input is obtained from specialist officers from all functional areas within the region/department, and identified interest groups in the region. This is done by personal approach to the groups and attendance at meetings where the fire protection of their specific interest area is discussed. These groups include fire brigades, municipal fire committees, conservation groups, field naturalists, birdwatchers, apiarists and Committees of Management.

Formal input to the draft is requested from the Regional Management Team and functional Departments of CFL (ie Fire Protection, National Parks and Wildlife, Land Protection, State Forests and Lands), and amendments made in the light of

these comments. Input is also sought from the general public through newspaper advertisement, both locally and in Melbourne. The plan is displayed for inspection at appropriate sites within the region and in the Melbourne Head Office for six weeks. The plan is further amended in the light of public comment.

The final approval process within the Department involves the functional Divisions at a planning issues meeting, where unresolved matters, if they exist, can be resolved.

The plan can be revised at any time if circumstances change, and must be reviewed at least every five years.

## **CONCLUSION**

Though time consuming to prepare initially, the fire protection plan is simple to understand by other than fire protection people, and is readily updated and amended if necessary. The input from the public and specialists from a wide range of disciplines ensures that the fire protection objectives are met with the minimum of environmental and social impact.

## **REFERENCES**

Luke, R.H. and McArthur, A.G. (1978). *Bushfires in Australia*. Australian Government Publishing Service, Canberra.