

## B7. Fire Management

In managing fire, local governments aim to reduce the risk to property and life as well as threats to the natural values of bushland. "Wildfire can damage and destroy both conservation and societal values; hence risk management must be based on a systematic and structured approach to identifying and managing the consequences of such an event" (Burrows & Abbott, 2003, p446).

Local governments are vested with responsibilities under the Bush Fires Act 1954, in relation to the prevention, control and extinguishment of bushfires; including the establishment and running of Volunteer Bush Fire Brigades.

The Fire and Emergency Services Authority (FESA) is responsible for fire extinguishment within FESA Gazetted Fire Districts (built areas). Additionally, FESA administers the following Acts relating to bushfire management:

- Fire and Emergency Services Authority of Western Australia Act 1998
- Fire Brigades Act 1942
- Bush Fires Act 1954
- Emergency Services Levy Act 2002
- Emergency Management Act 2005

Volunteer Bushfire Brigades are administered by FESA through the Emergency Services Levy (ESL) and operate in peri-urban and country areas outside Gazetted Fire Districts on unallocated Crown Land and local government-controlled bushland reserves. Under certain circumstances, volunteer bush fire brigades join forces with the DEC to combat fires burning to, and from, local government and/or DEC-controlled reserves. The DEC is responsible for managing national parks, nature reserves, timber reserves and state forests in South-West WA.

### **Fire Frequency**

Many fragmented urban bushland reserves are burnt more frequently than they would have been in the past. Too frequent burning has devastating effects on biodiversity in urban bushland reserves. Fire frequency affects the floristic composition and structure of vegetation and fauna composition of bushland reserves (Burrows & Abbott, 2003, Davis, 2008). In highly fragmented, urbanised areas, frequent burning encourages growth of highly flammable and invasive weeds. Natural regeneration is prevented because with frequent fire regimes, seeders do not have enough time to flower and set seed and re-sprouters do not have time to build up enough food store to allow re-sprouting of buds. "At the landscape scale, fire diversity can promote biodiversity, but some fire regimes, together with other threatening processes such as fragmentation and invasion by weeds and other exotic pests, can threaten biodiversity" (Burrows & Abbott, 2003, p437).

When unwanted fire events occur in natural areas, especially in an urban landscape, it is very important that weed control is undertaken in order to minimise the degradation of burnt areas. "Post-fire conditions (space, light and high nutrient availability) often favour establishment of weeds" (Brown *et al*, 2002). Each area needs management actions devised for it based on a site-specific understanding of ecological values and threats and disturbances that operate there.

### **Post-Fire Weed Control**

Fire changes the nutrient balance of soil and opens up the structure of vegetation that may favour the re-establishment of weeds over native plants. This is particularly the

case with weedy grasses and bulbs, especially those of South African and Mediterranean origin because they too have evolved in a fire-prone environment. In a lot of cases, weed species germinate first after a fire, utilising newly available nutrients in the ash bed before native resprouters, and well before new native seeds germinate and start to grow and feed. The weeds are actively growing and therefore take in herbicide very effectively, the bush is easier to physically move through, the weeds are easier to spot in an open and burnt landscape and there is often a lesser chance of off-target damage because the weeds are up and thriving whilst the natives are dormant below ground. This provides the opportunity to remove a greater majority of the weed population than in a normal year and, importantly, stop the weed populations from dramatically increasing in a boom flowering and seeding year.

Weed control should be undertaken once the target species are actively growing i.e. resprouting or germinated and with a reasonable amount of leaf surface area. This is usually before, or soon after, the first rains of autumn. In wetlands, moisture may already be available and regrowth might happen very quickly. Target weeds will be those that become more invasive after fire. Weed species posing the greatest threat to the best condition bushland should be prioritised for control (for more information see Part A, B17 – Weed Management, pp 48-51).

Fencing may or may not be required. Fire often opens up areas that were very hard to access before and trampling of young native plants and regrowth may take place. Temporary fencing and signage may be warranted if vehicles and people are having an adverse impact, however, often this won't be necessary.

Monitoring of weed management is important. Mapping of the burnt area (onto an aerial photograph or with a GPS) will also be very useful. Don't forget to include a date on the map.

Local governments that annually have a number of unplanned fires in their natural areas (through arson or natural causes) are encouraged to put aside a contingency fund in their budget to allow for reactive weed management (post-fire weed control). Follow-up weed control can then be planned for in the budget. Local governments could go through fire records from the past 2-5 years and estimate the average number of hectares of bush that is likely to burn and put aside a suitable amount of money. It could be seen as an insurance policy to protect the values of natural assets. After the fire season, the natural areas affected by fire are prioritised and weed management programs are put in place. Areas with the highest ecological values should be given the highest priority.

### **Fire Management Planning**

Local governments are responsible for overall fire management planning and implementation of prevention, preparedness and recovery strategies for vested lands. A common recommendation arising from the ecological assessments using the NAIA Templates is that fire risk management plans and fire response plans are developed and implemented (PBP, 2008). This should be done in consultation with local fire authorities and other relevant stakeholders such as adjoining property owners and 'Friends' groups involved in the management of a bushland reserve.

Individual local governments may have established policy on bushfire management.

Some aims of fire management may be:

- to protect public and private property adjoining natural areas;
- to protect the conservation values of natural areas;

- to minimise the area affected by fire; and
- to reduce incidences of fire that cause irreparable damage to endemic flora, as well as re-vegetated areas and infrastructure.

Management Actions may include:

- preparation of a Fire Response Plan which will outline practices such as:
  - fire control actions and strategies to protect environmentally sensitive areas from unplanned fire;
  - undertaking pre-suppression activities such as reducing fuel loads by mowing or slashing;
  - controlling access to bushland; and
  - ensuring an effective network of fire access tracks is maintained;
- Maintaining records of the date, cause and impact of fire events within natural areas. Bushfire events are opportunities for managers, scientists and the public to learn about fire impacts. It is important to record extent, date and timing of each fire and to maintain continuous fire records for future reference in understanding fire impacts;
- weed control within the natural areas, at appropriate times of the year, to reduce fuel loads;
- encouraging community involvement in monitoring suspicious activities within natural areas and encourage prompt reporting;
- scheduling ranger patrol (particularly on weekends and school holidays) as a deterrent to undesirable activities within natural areas;
- ensuring fire fighting access maintenance; and
- development of a community education program to raise awareness of the danger and impacts of fire in urban bushland.

### **More Information**

General information on fire management principles applied in Western Australia is available at: <http://www.dec.wa.gov.au/fire/fire-management/fire-management-principles.html>

Some fire management planning information 'Planning for bushfire protection' is also available on the FESA website:

<http://www.fesa.wa.gov.au/internet/?MenuID=380&ContentID=598>

An excellent (if somewhat out of date) bushland fire management reference is: *Fire Management Planning for Urban Bushland*, (Sue Davis, 2000) A Guide for Landowners, Fire Officers and Bushland 'Friends groups', FESA, Perth.