Grampians National Park
Fire ecology - an overview

Bushfires are often considered to be disasters, but fire is a natural occurrence that has influenced the Gariwerd/Grampians plant and animal diversity. Fires release nutrients to the soil and create rich seedbeds for newly dropped seed. The first rains after fires bring the landscape to life; a cycle of regrowth, competition and maturation starts all over again.

Ecological burns aim to replicate natural Australian environment fire-cycles.

A natural event
There is little doubt that the flora and fauna of Gariwerd/Grampians has evolved to cope with fire. Lightning has always been, and will remain, a major source of ignition.

Early explorers, like G. A. Robinson in 1841, observed smoke from the burning activities of local Aboriginal people in the Gariwerd/Grampians area. However, the use, frequency, distribution and extent of fires lit by Aboriginal people prior to European colonisation is largely unknown.

Early settlers also used fire to assist their land clearing activities and later, graziers lit fires in forest areas to promote the growth of grasses to feed their stock.

Management & Protection
Protecting the natural features and assets in and around Gariwerd/Grampians, from damage by fire, is an important part of the area’s management. In the past 20 years, lightning has started about 60% of wildfires in the Gariwerd/Grampians. The remaining wildfires were caused by human activities.

The Department of Sustainability and Environment (DSE), in co-operation with Parks Victoria and with assistance from the Country Fire Authority, has been extremely successful in suppressing wildfires. Over 80% of these wildfires are controlled within 24 hours of starting and are confined to less than 4 hectares in area.

The flora and fauna of Gariwerd/Grampians have developed many ways to survive fire. Plants such as Banksia or Hakea regrow from seed after a fire.

Fired into life
Many Gariwerd/Grampians plants can re-sprout after they have been burnt, some from swollen roots called lignotubers and some from epicormic buds. These epicormic buds remain dormant unless the crown of the plant is damaged by fire or storms.

The effects of fire on the flora and fauna will depend on the type of fire or the fire regime. Fire regime is made up of three aspects:

- fire frequency - the period between fires
- season - time of year the fire occurs
- fire intensity - how ‘hot’ & long it lasts

Each plant and animal has evolved with a particular fire regime.

Some flora species are dependent on particular fire regimes for their regeneration. For example, the Desert Banksia (Banksia ornata) produces seed in hard ‘cones’ that only open-and-release their seed after heating above 75%C.

A Desert Banksia bush produces the first viable seeds 6 - 7 years after germination. After about 50 years these plants decline and die.

‘Hot’ fires are required between 6 and 50 years apart to cause adequate regeneration from seed and allow the species to remain at a site.

Similarly, some fauna species are dependent on fire to maintain their habitats. The Heath Mouse (Pseudomys shortridgei) relies on the wide variety of food plants that develop in heathlands about 6-9 years following a fire. These plants are important in providing food during the critical winter period, when food can be scarce. While the Heath Mouse can survive in many heath areas, it can only reach the nutrition levels necessary for successful breeding, in heathland that has been burnt a few years before.

Understanding fire
To conserve the flora and fauna of the Gariwerd/Grampians, appropriate fire regimes need to be implemented that allow the flora and fauna to survive and adequately reproduce.

For some species, like the Desert Banksia and the Heath Mouse, this may require some deliberate burning. Other species may need protection from fire. A mixture or mosaic of burnt and unburnt areas needs to be maintained so that all of the plants and animals that live in the Gariwerd/Grampians area can be conserved.

Extensive knowledge is required of how plants flower, produce, and grow following fire. Also, how creatures survive, reproduce and migrate following fire. Appropriate fire regimes can then be defined and implemented. This information is already known for some species in the Gariwerd/Grampians, however much information on other species is still needed.

Current fire management planning and research is working towards achieving this aim. As well, adequate protection must be provided for the natural features and valuable assets in and around the Gariwerd/Grampians.

Prescribed burning
Parks Victoria still burns selected sections to protect the park and surrounding pastoral lands from major fires and to promote the natural life cycle of native plants and animals. Prescribed burns aim to reduce the amount of fine fuel in an area. A reduction in the available fine fuels slows the progress of a fire and assists fire fighters to safely put out fires that occur in the burn block within 5-10 years.

Burning is usually carried out close to valuable assets or natural features to protect them. It is also done in broad areas to stop wildfires from burning large areas of Garwerd/Grampians in a single wildfire. Prescribed burns may also be used to promote regeneration of certain species or in the control of weeds.

The Austral Grass-tree, Xanthorrhoea australis responds extremely well to fire.

Conducting a prescribed burn
Autumn and spring conditions make it easier to undertake prescribed burns and control the fire. In the Garwerd/Grampians, suitable conditions occur most often during early autumn.

The process of deciding when and where a prescribed burn will take place is quite complex. An outline of this process follows.

DSE - Fire Management Branch, identifies a proposed prescribed burn area. Then local officers will check the proposed area (block) with respect to:
- zoning
- fuel loads
- fire history with respect to fire frequency and time elapsed since the last fire
- vegetation types
- logical boundaries for vegetation types
- how well the actual fire history of that vegetation community (the age-class structure) matches the desired age-class.

When the actual block to be burnt has been determined, several further checks must be made before the burn takes place:
- the terrain
- detailed examination of fuel loads
- spot values:
  - rare populations of flora/fauna
  - assets i.e. buildings
  - special features i.e. Aboriginal art sites
  - presence of weeds whose spread might be encouraged by burning
  - weather forecast
  - moisture levels
  - the provision of suitable fire breaks
  - resources i.e.personnel, equipment, water supplies
  - catchment / water quality issues
  - lighting patterns to achieve the desired result.

Weather conditions ultimately determine the execution and success of the burns.

For Bushfire or Total Fire Ban Information please phone the Victorian Bushfire Information Line on 1800 240 667.