10. Management issues for Grampians National Park

Links to Section 1
This resource sheet can be used for park specific application of activities in Section 1 of this Parks Victoria education resource kit, in particular:
Parks and SOSE
9. Management issues in national parks.
12. Visitor impacts and management strategies.

The demands for recreational opportunities from the large number of visitors to Grampians National Park need to be balanced against the conservation actions required to protect the park's cultural and natural heritage, the very things that visitors come to the park to see and experience.

Parks Victoria recognises the following values and issues that need to be addressed in the management of the park:

1. Vegetation management.
2. Animal management.
3. Fire management.
4. Visual landscape management.
5. Soil and geology management.
6. Historical and cultural heritage.
7. Water resources.
8. Apiculture.
9. Other authorised uses.

New Holland Honeyeater/Silver Banksia © MT

1. Vegetation management issues and solutions

Past logging and grazing in certain areas have adversely influenced the vegetation of the Grampians. Weed invasion and disease (Cinnamon Fungus) have had a marked effect on some plant communities. High levels of use for recreational activities and by grazing animals have also put pressure on the vegetation. Fire or its absence is a major influence on vegetation and may affect the conservation of some plant species. Cinnamon Fungus (*Phytophthera cinnamomi)* has the potential to cause significant changes to vegetation communities in the park.

An adequate vegetation cover is needed to maintain wildlife, soil stability and water catchment values, particularly water quality and yield.

Specific vegetation management objectives for Grampians National Park include:

- Protect plant species recognized as being of special significance.
- Protect and maintain the diversity of natural plant communities.
- Rehabilitate disturbed areas.
- Eradicate or control exotic flora, particularly where it is seriously affecting native species.
- Undertake continuing research and resource surveys to monitor vegetation.

Pest plants
Plants that do not occur naturally in the park are considered environmental weeds and need to be removed or controlled. Seeds of weed plants can travel into a national park via the wind and via animal fur, road gravel and soil transport, the soles of people's shoes, the treads of tyres, camping gear, people throwing seeds such as apple cores into the bush and from gardening efforts by settlers such as at Zumstein.

Within Grampians National Park weed problems include blackberries, thistles,

stinkwort, poplars, maples, holly, laurel, agapanthus, willow, Irish Strawberry Tree, Bridal Veil Creeper (Smilax), One-leaf Cape Tulip, Arum Lily, Periwinkle and Sweet Briar.

Zumstein is an example of a weed problem site in the park. The land was cleared in the 1920s to provide tourist facilities and approximately 140 exotic trees were planted. Introduced grasses were grown and attracted kangaroos. Some of these exotics (e.g. Arum Lily, Periwinkle, poplar and maple) proved invasive, successfully competing with native species. Poplars spread via underground roots and on the edge of creeks their root systems catch silt, preparing the ground for the invasion of the Arum Lily. Today a large number of Arum Lilies grow on the edge of the stream at Zumstein and are difficult to eradicate. Maples have winged seeds which are readily dispersed by the wind. The seeds then germinate easily in disturbed soil.

The control of environmental weeds is an important part of management to prevent them from spreading further into the natural plant communities.

Timber harvesting

Up until July 1984 most of the Grampians area was managed by the Forests Commission of Victoria as two sections: 1) Reserved Forest and 2) Protected Forest.

The Reserved Forest covered an area of 154 000 hectares and was used for harvesting timber. The Protected Forest contained 62 000 hectares primarily set aside for conservation, recreation and education. The boundaries between the two forests were drawn up on a basis of potential timber. The main trees harvested from the Grampians were Red Gum, Messmate, Brown Stringybark and Mountain Grey Gum. Consideration was given to the regeneration of the bush by leaving seed trees.

The table below gives the volume of hardwood extracted from the Grampians State Forest from 1930 to 1990, showing that the 1950s to 1970s was the period of greatest harvesting.

Output of Hardwood Logs from the Grampians State Forest

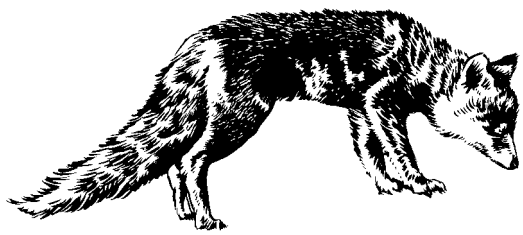
Period	**Volume (m3)**
1930 - 1940	29 000
1940 - 1950	75 000
1950 - 1960	153 000
1960 - 1970	135 000
1970 - 1980	54 000
1980s	3 000
1990	950

After the establishment of Grampians National Park timber harvesting was conducted in a more environmentally sensitive manner in keeping with the other management objectives required of the park. Timber harvesting was phased out completely by 1994 but until then four saw mills had rights to access up to 3,000 cubic metres of timber per year. Although some 22% of the Park was available for logging only 7% of this area was actually harvested. Trees were individually selected and marked by the forest officers and as little disturbance as possible was caused. In a Red Gum forest 10-12 living trees per hectare could be logged and in a stringybark forest up to 20 trees per hectare could be logged. To minimise the impact to fauna, habitat and seed trees were retained.

The extensive harvesting of the 1950s and 60s reduced the availability of old trees with hollows, essential breeding and shelter sites for many birds and animals. The Red-tailed Black Cockatoo is classified as threatened under the Flora and Fauna Guarantee in Victoria. For a tree to provide a hollow large enough for the Red-tailed Black Cockatoo to use as a nesting site, the tree would need to be between 200 and 300 years old. This illustrates the need to maintain old trees as habitat in the park.

Pathogens
The root-rot fungus (Cinnamon Fungus, *Phytophthera cinnamomi*) is believed to have caused widespread decline and scattered death of trees, especially in the stringybark forests and heathy woodlands of the park. The fungus is transported in the soil, gravel, by vehicles or the soles of people's feet and in the drainage water. Being a water-borne fungus, its spread can be accelerated by altering the drainage pattern of infected roads. The spread of this disease was accelerated when the Grampians was predominantly a timber harvesting area, before it became a national park.

Careful management is required to minimise the levels of impact at intensively used recreation sites, for example, by appropriate design of facilities, rehabilitation of damaged areas, and the rotation of sites or routes. One of the reasons for the construction of boardwalks to the Major Mitchell Plateau was to prevent the spread of Cinnamon Fungus.



Red fox © MT

2. Animal management issues and solutions

Land use activities such as grazing, timber harvesting, bee-keeping and intensive recreation may adversely affect wildlife. Native animals face strong competition from introduced species. Also, some native species may cause damage to adjoining freehold land.

The Brush-tailed Rock-wallaby is endangered in Victoria and is threatened by feral animals. The Rock-wallabies have to compete with other herbivores like rabbits for food, feral goats for shelter and foxes prey on young wallabies.

Introduced animals

In Grampians National Park these include:

Mammals: rabbit, fox, feral cat, goat, Red Deer, House Mouse, Brown Hare, and Black Rat.

Birds: feral pigeon, skylark, blackbird, Cattle Egret, European Goldfinch, House Sparrow and Common Starling.

Fish: Brown Trout, Rainbow Trout, goldfish, tench, redfin and mosquito fish.

Insects: Honeybee.

Rabbits and goats are a significant threat to native animals, competing successfully for habitat and food, while foxes and feral cats prey on mammals and birds. Introduced birds such as the Common Starling, and feral bees, can take over nesting hollows used by native birds.

Feral goats have occurred in the Grampians for at least 80 years with their present stronghold being around Halls Gap and in the Victoria Range. Goats pose a serious threat to the ecosystems in which they occur. Shooting is the main control method.

Red Deer, introduced as a hunting animal last century, have built up in numbers. The deer can heavily browse particular native species in the park and can also be a localised problem to gardeners and horticulturalists neighbouring the park.

Because feral animals pose a very serious threat to native wildlife, domestic pets are not permitted in the park since they can

easily escape and thrive. Breeding in the wild, cats can grow much larger than normal and become ferocious hunters. Dogs are prohibited in the park except in vehicles on sealed roads and in sealed car parks. Dogs are prohibited even in the sealed car park at Zumstein because the site is popular with kangaroos.

Grazing impacts
Murnong or Yam Daisy, one of the staple food sources for Aborigines, was widely distributed before European settlement, particularly on the plains. But with the introduction of grazing animals it was quickly eaten out. The reeds and rushes that fringed the creeks were devoured or trampled by hungry bullocks. These grazing animals began to change the shape of the land as the early settlers utilised it for their own gain.

The cloven hooves of sheep and cattle can quickly wear away vegetation and this increases the speed of erosion, particularly on the banks of streams. Introduced animals also spread weeds into the Grampians, attached to their hooves, fur or feathers and in their dung/droppings. The areas surrounding Halls Gap, Victoria Valley and Dunkeld are the most effected.

Impacts of visitors on wildlife
Road-kills of native wildlife commonly occur on the main tourist roads.

Traditional recreation uses have involved some visitors bringing pets into the area now declared a national park. Several introduced species, particularly trout and deer, provide for popular recreational activities. The concentrated removal of firewood for campfires can have detrimental effects on a variety of wildlife.

Grazing licenses existed in the Park up until 1985. Research has shown that grazing adversely affects the species composition and the density of the ground vegetation. Stock animals also compete with native herbivores for food. Grazing is not permitted in Grampians National Park today.

Specific wildlife management objectives for the park include:

- Conserve species of native wildlife recognized as being threatened or of special significance.
- Control introduced animals, particularly those seriously affecting native species.
- Protect and maintain the diversity of native wildlife by maintaining suitable habitat.
- Continue research and resource surveys of native wildlife.

For example, to protect the Brush-tailed Rock-wallaby, the known refuge area in the Victoria Range is being protected. Ground surveys are conducted in areas of potential rock-wallaby habitat, particularly those listed for prescribed burning. Rock climbers and bushwalkers are encouraged to report rock-wallaby sightings or unusual faecal pellets found in rocky labyrinths, the species' favoured habitat. The control of introduced fauna such as foxes, goats, rabbits and feral cats is given particular emphasis in known rock-wallaby refuge areas.

3. Fire management issues and solutions

Widespread wildfires have occurred in the Grampians in 1923, 1939, 1958, 1960, 1983, 1994 and 1999. In the past 20 years about 60% of wildfires in the Grampians were started by lightening. The remaining wildfires were started by human-related causes. Over 80% of these wildfires are controlled within 24 hours of starting and are confined to less than 4 hectares in area.

Fire is a major factor in the ecology of the Grampians flora and fauna. The vegetation of the Grampians is well adapted to fire; about 80% of its plants can resprout after a fire (e.g. eucalypts) or regrow from seed (e.g. banksias and hakeas). Some native plant species are dependent on fire to complete their life cycle. For example, Desert Banksia (*Banksia ornata*) produces seeds in hard 'cones' which only open and release their seed after they have been heated to around 75ºC. This temperature is

achieved during a 'hot' fire. Desert Banksias begin to produce seed after 6-7 years and have a lifespan of about 50 years. In management terms therefore a fire frequency of less than 6 years or greater than 50 will not produce adequate regeneration from seed and eliminates Desert Banksia from a site.

Since animals rely on plants for food and shelter, fire also affects wildlife in the park. For example, the Heath Mouse (*Psuedomys shortridgii*) requires the wide variety of food plants that develop in late winter and early spring in a plant community six to seven years old, i.e. a plant community that has developed after a fire six to seven years ago. These plants not only provide food during the critical winter period, but some of them are necessary as dietary requirements before the Heath Mouse can breed.

To be able to conserve the flora and fauna of the park, appropriate burning regimes are being researched and implemented. This means knowing the appropriate fire frequency and intensity, and the best season to burn for each plant and animal. Some species such as Desert Banksia and Heath Mouse may require some deliberate burning by park management while other species may require protection from fire. A key to fire management is knowledge of how the plants flower, produce seed and grow following fire, along with knowledge of how animals survive, reproduce and migrate following fire. Some of this information is already known for some species in the Grampians but further monitoring and research needs to be done on the critical elements for each species.

4. Visual resources management issues and solutions

The Grampians presents some of the most spectacular scenery in Victoria and the conservation of this visual landscape is of paramount importance. The richly varied landscape is one of the main features of the park and a major attraction for visitors.

The aesthetic value of the landscape can be reduced by management activities such as roadworks or recreation site development. Management objectives are therefore to minimize the visual impact of activities in all park landscapes. The park has guidelines to assist with this, for example, written guidelines for the design and siting of roads, walking tracks and structures within the park.

5. Geology and soil management issues and solutions

The Australian Heritage Commission has identified the whole area as being of geological significance. Any user conducting activities that may have an adverse visual or ecological effect must consult with Parks Victoria staff in order to minimise impact.

Erosion

There are many causes of erosion. They include 4-wheel drive vehicles, off track driving, walkers forging new tracks, short cutting existing walking tracks, and excessive collection of firewood. The compacting of soil is a problem in camping grounds. With high usage, the soil particles are pressed together, water runs off and regeneration is halted, thereby further increasing the risk of erosion.

The potential for soil erosion in most of the Grampians is high. Many areas have steep slopes and have unstable, stony or sandy skeletal soils.

Where the protective vegetation has been removed by clearing, fire, grazing or trampling, the rapid run-off after rain can cause sheet erosion and lead to gully erosion. Fortunately most of the steep slopes still have their natural vegetation and so are protected from erosion. Erosion is minimised by not locating walking tracks and roads on steep grades.

Soil considerations

The clayey lowland soils can cause problems for transport. Major Mitchell's bullock drays became bogged last century and modern day travellers can bog their 2- wheel drive cars on

some unsealed roads in the Victoria Valley in winter. Some roads in the park are therefore closed to vehicle traffic seasonally or when required by weather conditions.

The location of toilets and other facilities needs to take into consideration the type of soil in the area and its hydrological characteristics. For example, in 1992 Zumstein was closed as a camping ground. One of the reasons for this decision was the potential contamination of the water supply by sewage from the camping ground. Problems arose because of the concentration of people camping on clayey soils near a major watercourse, the Mackenzie River, and the difficulties of providing adequate buffers around the river to filter the polluted run-off. To reduce this problem, Zumstein was converted to a day visitor area.

Gravel extraction
Gravel is sometimes taken from gravel pits in the park for the maintenance of roads within Grampians National Park. Once the gravel pits are no longer needed they are revegetated.

6. Historical and cultural heritage management issues and solutions

Indigenous heritage
A large number of Indigenous rock art sites and shelters occur in the park. All of these sites are protected and only five rock art sites are open to the public. Some of the artwork is being lost by natural deterioration but the greatest threat is from irresponsible visitors. Unfortunately some sites have been targets for vandalism and graffiti so now the shelters are protected by wire grids. They also have drip deflectors to divert trickles of water.

European heritage
The objectives for the management of historic sites include:

- Research into the history of the site.
- The protection and preservation of the site.
- Interpretation the history of these features to the public.

Over 30 historic sites have been identified, the main ones include Mafeking township site and the associated gold mining areas, the Mount Difficult (Heatherlie) Quarry, Zumstein, Borough Huts and the early fluming from the water storages. A number of exotic plant species which were sown by the early settlers are protected because of their historic significance.

7. Water management issues and solutions

Water is a major resource of Grampians National Park and water supply is one of the park's main objectives. An uncontaminated water supply is necessary in order to provide high quality water for the urban areas surrounding the Grampians, and to protect flora and fauna.

The inappropriate disposal of human waste is a potential pollution problem. Exposed faecal waste quickly attracts flies and bacteria and can rapidly spread disease, causing gastroenteritis and diarrhoea.

Human waste must be buried at least 100 metres from any stream or water supply area. It needs to be covered and for natural decomposition to occur most readily it needs to be at a depth of no greater than 15 centimetres. Bush camping in rocky areas is consequently a concern. Camping is illegal in the Buffer Zones which surround around all water reservoirs in Grampians National Park. Camping at Zumstein was stopped in order to protect water quality. The number of campers at bush campsites needs to be kept low.

Toilet facilities are not normally provided in more remote areas but a biological toilet was installed at the First Wannon Bush

Camping site on the Major Mitchell Plateau because it is a high use site. Without the toilet there would be potential for pollution of the water catchment area.

Water quality can be adversely affected by prescribed burning, wildfire, recreation, roads and logging in the catchment. These land uses in the park are curtailed or managed to minimise any impacts on water quality.

Water is also vital to the maintenance of many of the park's ecosystems. The natural water cycle has been considerably modified in some areas, especially the Victoria Valley, by the construction of the Moora Moora Reservoir. Drainage channels were constructed to assist Red Gum harvesters. Roads add additional barriers to water flow. All these changes have reduced the wetland habitat with possible adverse effects upon native fish, birds and flora. The survival of these Red Gum forests depends on spring rains to flood the valley floor and provide the swampy conditions needed by the Red Gum seeds for germination.

8. Apiculture management issues and solutions

Up to 100 sites are available to apiarists within Grampians National Park but they are restricted to areas set aside this resource use. Permits are necessary and hives must be put within a 50 metre radius of a marker peg. A fee is paid for a 3 month period.

Honey bees are introduced insects and scientists have documented concern about their impact on the environment and native wildlife such as honeyeaters, hollow dwellers such as gliders and kookaburras, and jewel beetles and scarabs.

Parks, reserves and national parks are the last remaining refuges for genetic diversity. Some scientists believe exploitation of the park by the apiary industry is no different in principle to the opening of the reserve to grazing for sheep and cattle. While there are times when the supply of nectar is extremely abundant, it is not an inexhaustible resource and may not be sufficient to meet the demands of both honey bees and native foragers.

Honey bees are more efficient foragers than many native animals because they can tolerate lower temperatures; this means honey bees can access the nectar earlier in the morning and later at night than native foragers. Honey bees also have a very efficient communication system and can exploit sources of nectar rapidly, in concentrated numbers.

Native bees and wasps have evolved to pollinate specific plants, e.g. a certain species of wasp is specialised to pollinate a single orchid species. Honey bees are inefficient pollinators of some native plants. Honey bees are aggressive feeders and can damage the flower parts while feeding. They also feed extensively on one plant then move on to a neighbouring plant. Neighbouring plants are often incompatible and will not be pollinated. Because of their feeding habits honey bees can therefore reduce the rate of pollination and hence seed production of native plants.

With the concentrated feeding habit of honey bees there is also the concern that plants will hybridise.

It is also known that honey bees usurp hollows, competing with native animals for hollows which are essential for shelter or nesting sites.

More research is necessary to understand the full impact of honey bees on the environment.

9. Use by other authorities and groups

The management of Grampians National Park is complicated by the continuation of several uses not normally permitted in a national park. Parks Victoria is bound by legislation to accommodate these activities which were recommended by the Land Conservation Council when the national park was established.

Apiculture
Beekeeping in Grampians National Park was inherited from the past, when the park

was controlled by the Forests Commission. Barnes Honey was established in the area in the early 1900s. Today, up to 100 bee-hive sites are located in the park.

Roads
The major sealed roads which run through the park are technically excluded from the Grampians National Park and are currently managed by VicRoads. Some other roads are managed by local government bodies. The remainder are managed by Parks Victoria

Stone extraction
Small amounts of gravel are extracted from several pits for roadworks within the park. Building stone can still be accessed from the Mount Difficult (Heatherlie) Quarry for repairs to historic buildings.

Buildings and structures
Within the park are numerous buildings, structures and other facilities and developments. Most of these are owned by Federal, State and local government authorities and are currently occupied under a variety of leases and licences. These include: annual occupancy licenses for residences and businesses, a scout camp, radio and telephone transmitters on Mount William and a State School reserve.

Water storage
Three water storage systems of the Wimmera-Mallee Domestic and Stock Water Supply (Lake Wartook, Lake Bellfield and Moora Moora Reservoir) are enclosed by the park. None of the catchments within the park are used solely for water protection although restrictions limit the types of activities permitted on some of the reservoirs.

A number of water supply channels and pipelines occur within the park along with stream gauge stations, measuring weirs and bores.

Timber harvesting
Selective timber harvesting in designated areas in the park was permitted between 1984 and June 1994.

Military use
Military training may be permitted under similar conditions to those that apply to the general public.

Unauthorised activities in the park
Management problems are caused by occasional illegal activities in the park. These illegal activities include:

- rubbish dumping
- bringing domestic pets into the park, particularly dogs
- poaching of game, especially deer
- collection of birds and eggs for the aviary trade
- collection of reptiles
- harvesting of wildflowers
- off-road driving and riding
- low-level flying and hang gliding

Ranger staff patrol the park and are authorised to issue fines to offenders. If needed, offenders are referred to the police.

Several education programs are in place to inform and motivate people to look after the park and native plants and wildlife.