

## Kangaroos and Wallabies

Eastern Grey Kangaroos, Western Grey Kangaroos and Swamp Wallabies sometimes reach very high densities. Control may be necessary where they threaten human safety, damage biodiversity or impact livelihoods.

### Background

The populations of several macropod species, including the Eastern Grey Kangaroo, the Western Grey Kangaroo and the Swamp Wallaby (collectively referred to here as “macropods”), have significantly increased since establishment of European land management practices in Victoria. This is mainly due to the introduction of improved pastures, availability of reliable water sources and the removal of predators.

In farming situations, macropods can cause significant damage as they feed on or flatten crops or pasture, or foul high value crops, such as almonds.

Research has shown that in temperate areas one kangaroo equals 0.4 dry sheep equivalent. This means one kangaroo eats around 40 % as much as one sheep. While their presence alone is not generally a problem, kangaroos can have a significant impact on farmland in high densities, especially in areas with poor pasture.

Likewise, where kangaroo densities are too high for the habitat that supports them they can impact native biodiversity values and, in severe cases, local kangaroo populations may starve due to overgrazing.

Macropods can also cause issues such as traffic accidents, aggressiveness towards people, damage to forestry operations, gardens and fences.

For situations such as these, macropods may need to be controlled to protect people, property, animal welfare and biodiversity.

### Legal status of macropods in Victoria

All macropods, including the Eastern Grey Kangaroo, the Western Grey Kangaroo and the Swamp Wallaby, are protected in Victoria under the *Wildlife Act 1975*.

It is illegal to wilfully disturb or destroy protected wildlife without prior approval from the Department of Environment, Land, Water and Planning (DELWP).

The most common approval for control of wildlife is an Authority to Control Wildlife (ATCW). If you require an ATCW you should complete an ATCW application form and submit it to DELWP. The application form is available for download at: <https://www.wildlife.vic.gov.au/managing-wildlife/wildlife-management-and-control-authorisations>

Your ATCW application will be assessed by a DELWP officer who may inspect your property to confirm the damage being caused by wildlife, to provide you with advice on additional management options that may be available and to explain your legal obligations to you.

An ATCW for lethal control will only be issued if the DELWP officer is satisfied that it is necessary to manage the problem and that all practical non-lethal control options have been trialled.

### Management methods

The next sections describe methods that can be utilised to mitigate impacts from macropods. Some of these methods are indirect and do not require an ATCW, while others are direct control methods and do require an ATCW.

#### Indirect management methods (no ATCW required)

##### Avoid close contact and do not feed macropods

Macropods sometimes lose their instinctive fear of people. This can happen when they get fed at picnic grounds, when they were hand-reared by people or when they live in popular national parks or golf courses and get used to being around people. These animals can become aggressive and attack people who do not feed them or who get too close.

For your safety and the safety of others, and for the health and wellbeing of the animals, do not feed or encourage close contact with macropods.

##### Limit availability of food and water

Rural and semi-urban developed areas with their lawns, water sources and shaded areas can be very attractive to macropods, especially if there is bushland nearby for



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them to shelter in during the day. Likewise, if your farm is near bushland then your crops or pasture may represent a welcome food source for macropods.

There are several options available to mitigate impacts from macropods on your property, and best results may be obtained by combining several of them.

## **Around the house**

If you live near bush and don't want to share your garden with macropods, consider planting locally indigenous prickly or less palatable trees and shrubs, and reduce open grassy areas. Your local nursery or Landcare group should be able to provide advice on suitable species. Mow lawn areas often to minimise food availability for macropods.

If you prefer to grow trees and shrubs that are also favourite foods for macropods, then you can protect seedlings and developing trees with tree guards until they have outgrown the browsing zone (i.e. tree has grown sufficiently to put foliage out of reach of macropods), or developed mature foliage which may be less palatable to macropods.

You can also protect your seedlings by adding repellents, such as the commercially available Sen-tree™. It is a gritty odorous repellent and applied in a two-stage process. Step 1 involves spraying an egg-based odorous adhesive onto foliage. Then, before this mixture dries, a gritty substance is sprinkled onto the foliage. The repellent needs to be reapplied after about 6 – 8 weeks, and when new growth starts to emerge.

Consider removing open water sources from your garden. Place bird baths so that they are out of reach of macropods, or forego water features which would attract macropods to your garden.

## **On the farm**

If you grow crops and your farm adjoins bushland, plant crops at least 400 metres from bushland and keep grass areas to a minimum. This will limit the availability of food for the macropods.

Where practicable, consider removing availability of open water. In some instances, it may make sense to replace farm dams with stock activated troughs, which macropods are not likely to be able to use.

## **Use livestock guardian dogs to deter macropods**

Macropods have evolved in an ecosystem with large predators, such as dingoes, and have an instinctive fear of dogs.

An increasing number of Australian farmers use livestock guardian dogs to protect their sheep from wild dogs and foxes. A recent study on two properties in north-eastern Victoria has shown that the presence of free ranging Maremma dogs not only impacted fox behaviour, but it also had the effect of completely excluding Swamp Wallabies, and significantly reducing the use of the area by Eastern Grey Kangaroos (van Bommel and Johnson 2016).

Aside from fulfilling their role as livestock guardian dogs the Maremmas thus also deterred macropods from the properties. Graziers who use livestock guardian dogs to protect their sheep from predators may find it to also be a cost-effective method to manage impacts from macropods on their properties.

## **Fencing**

Fencing can sometimes be the most effective method for controlling macropods. The design of the fence will depend on whether it is meant to allow macropod passage or whether its purpose is to exclude them entirely. It is important to carefully choose the appropriate type of fence for your property and situation. As part of this process the financial losses due to macropod damage need to be quantified as far as possible, to ensure that the benefits of fencing will exceed the cost of constructing and maintaining the fence.

It is also prudent to consult with neighbours, as exclusion of macropods from your property may mean increased impacts on theirs. You may be able to agree to a communal approach, allowing you to share the cost of building a fence or to consider fencing a cluster of adjacent properties. A landscape scale approach may also be useful when considering other supplementary options to control macropods.

Aside from financial considerations, land holders should also evaluate and minimise the risk that fencing poses to the welfare of wildlife. Macropods and other wildlife are vulnerable to injury and death from electrocution, entanglement or entrapment in fences. Examples are macropods or echidnas being caught and electrocuted in live wires or Brolgas being caught in ringlock fences. Barb wire fencing is particularly hazardous for wildlife. Many Australian wildlife species get regularly entangled in barb wire fencing. Use of this wire type should be avoided where possible.

## **Electric fencing**

Electric fencing is comparatively cheap to construct but expensive to maintain. Various designs have been

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shown to be effective in excluding macropods from properties. (The research report by Kondinin Group, referenced below, includes some examples.) However, electric fencing may not be an option in areas of high fire risk, and the ongoing maintenance requirements for this type of fencing may not be sustainable in your situation. Confirm with your local government authority if electric fencing is permitted in your area before considering this option.

It is imperative that an electrified fence is installed properly (e.g. taut strands of wire, use of one energizer) and maintained so that hazards, such as likelihood of people or animals suffering entanglements, entrapments or receiving multiple shocks is minimised. Therefore, it is highly recommended that installation and maintenance is done in accordance with the Australian / New Zealand Standard 3014/2003 "Electrical Installations - Electric Fences".

## Increase visibility of fencing

The best way to minimise wildlife damage to fencing, regardless of design, is to ensure that the animals can see the fence.

Add white electric fence tape or white strand wire at the top of the fence to make it more visible to kangaroos. For small areas or to protect high value crops it may be worthwhile adding a board or colourbond strip at the top of the fence to maximise visibility. The addition of netting at the top of the fence also increases visibility and effectiveness. However, it is important that if netting is used, that only small aperture netting is used and that the netting is affixed tightly to not cause entanglement.

## Protect high value crops with chainmesh or prefabricated wire fencing

Chain mesh or small aperture prefabricated wire fencing can exclude kangaroos from areas if the damage warrants the significant expense. Kangaroos often try to push through or dig underneath a fence and these fences effectively prevent this.

If digging under the fence is the main concern then the chain mesh or prefabricated wire fence can be buried in trenches or augmented with aprons. Aprons come in two main types: hinged or fixed. Hinged aprons are attachments to the main fence, usually made up of about 25 to 30 cm fence sections, which lie flat on the ground. Fixed aprons are formed by fastening prefabricated fence sections to posts so that the bottom 30 centimetres of the fence fan out along the ground instead of sitting flush on top of the surface. Provided the fence is reasonably stiff and fastened tightly to closely spaced posts near the ground, the fixed apron

will exert considerable downward pressure on the surface. Either of these options effectively impede macropods from burrowing under fences.

## Upgrade gates and surrounds

Unsealed vehicular tracks often erode and if the surface under a fence gate is not graded and filled in, then macropods will use this gap to gain access to your property. It may be worthwhile investing in a steel or concrete barrier and placing it under the gate to ensure it does not become the weakest link in your exclusion fence. If you frequently use a roadway to access your property then it may be more efficient to remove the gate and instead use a grid, which neither stock nor wildlife will pass.

It is also important to increase the height of gates so that it matches the height of the surrounding exclusion fence.

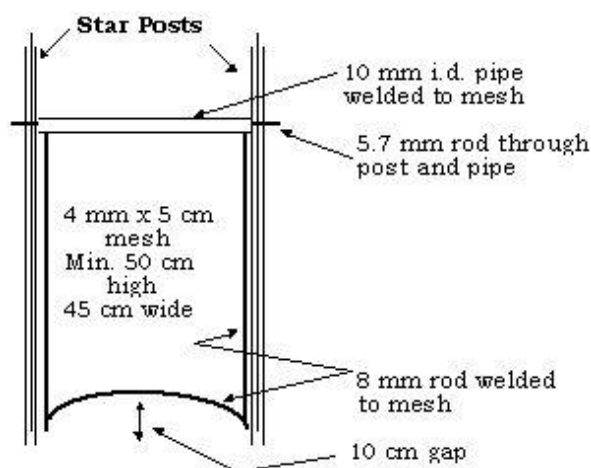
## Install access points

Another option may be the installation of access points in your fence for kangaroos to pass through. Such access points should be situated where macropods have burrowed under fences previously, or, in the case of new fences, where kangaroo tracks transect the fence line.

A simple method to create a gate is to use an old tractor tyre, cut it by a third and bury the ends in the ground to form an arch. The tyre arch needs to be partially buried for support as the macropod passes through. This method generally does not allow livestock to escape.

Swing gates also allow macropods to pass through fences without loosening the wire. Livestock will normally not use these gates.

Figure 1: Swing gate design



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## Replace ringlock with plain wire

Depending on the type of stock on your property, it may be possible to reduce damage to fences and minimise repair costs by replacing existing ringlock with plain wire fencing. This type of fence might still be adequate to contain your livestock but would be easier for macropods to pass through.

## Adjust fence height and width

Kangaroos will usually jump a fence in a near vertical fashion from as close to the obstacle as possible. To prevent kangaroos from attempting to jump a fence in the first instance, the fence should be at least 1.8 m high.

Increasing the width of the barrier will deter a kangaroo from trying to jump across it. This can be achieved by running a secondary (usually smaller) outside fence parallel to the main boundary fence.

A more cost-efficient option may be the use of a fence that leans at 45 degrees into the paddock, with or without live wiring.

Farmers have reported high exclusion rates when using multiple strands of electrified wiring in such sloping fences, as animals who try to push under or through a fence are forced into contact with the electrified wires as they touch or stand on the lower wires. However, this design requires considerable investment and upkeep and thus won't always be a practicable option.

## Control methods that require an ATCW

### Scaring

Scaring frequently, using loud noises (e. g. "Bird Frite" cartridges or gas guns, car horns) or lights (e.g. spotlights, high beams on vehicles) may help deter kangaroos from your property. An ATCW for scaring kangaroos can be obtained from DELWP. Note, however, that you must not use vehicles to chase kangaroos.

### Shooting

If all practicable attempts to control macropods using non-lethal methods have been attempted and

documented, then land owners or managers can apply to DELWP for an ATCW to shoot macropods to reduce damage to property or biodiversity, to prevent animal suffering or protect human safety.

It is recommended that any shooting be incorporated into an integrated control campaign, rather than on its own. DELWP officers will discuss options and requirements with land owners when assessing an ATCW application and may stipulate specific conditions in the ATCW, which must be complied with.

ATCWs for shooting macropods include conditions which are designed to ensure that wildlife is shot humanely, in accordance with the National Code of Practice for the Humane Shooting of Kangaroos and Wallabies for Non-commercial Purposes (Commonwealth of Australia 2008). Shooters must also have a firearms licence and, depending on where shooting occurs, a populous place permit from Victoria Police may be required.

### Further Information:

Please contact the DELWP Customer Contact Centre on 136 186, your local DELWP regional office or visit the DELWP website [www.wildlife.vic.gov.au](http://www.wildlife.vic.gov.au).

### References:

Australian / New Zealand Standard 3014/2003 "Electrical Installations – Electric Fences", Standards Australia/Standards New Zealand

Kondinin Group (2016) Research Report No. 288 "Exclusion Fencing – Fighting Ferals", <https://www.wool.com/globalassets/start/about-awi/publications/kondinin-report-288.pdf>

Von Bommel, L. and Johnson, C. N. (2016), Livestock guardian dogs as surrogate top predators? How Maremma sheepdogs affect a wildlife community. *Ecology and Evolution*, 6: 6702-6711. doi:10.1002/ece3.2412

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