



Rabbit control in urban and semi-urban areas

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Background

Rabbits are known to cause considerable losses to agricultural and horticultural industries. In addition, they can cause serious environmental problems such as soil erosion, and degradation and denudation of native vegetation. Rabbits also compete with native fauna for food and habitat.

Rabbits may be a problem, or just a nuisance, albeit on a smaller scale, in urban environments where they can damage lawns and gardens, and may undermine buildings, garages and sheds. Rabbits can also damage golf courses, sports grounds and regional parkland reserves.

However, the options for control of urban rabbits are more limited than are the techniques available to rural landholders. Complicating factors in urban areas include public health concerns, and the presence and proximity of neighbours, domestic pets or livestock.

Status and management

In Western Australia, rabbits are declared pests in categories A1, A3 and A5 under the *Agriculture and Related Resources Protection Act 1976* and landholders are required to control them on their properties.

All control activities must comply with requirements under the *Animal Welfare Act 2002* and *Animal Welfare (General) Regulations 2003* so that animals are handled and killed humanely. It is an offence to release any declared pest back into the wild.

Control options

- Eliminate the rabbits (trap, poison, fumigate, ferrets)
- Prevent rabbits from entering the area (fencing)
- Limit the amount of damage (harbourage modification, tree guards, repellents)

Trapping

Live-capture cage traps may be used to catch rabbits when their numbers are relatively few and they are restricted to a relatively small area (note: the use of steel jaw traps to capture rabbits is illegal). Diced carrot (1 cm cubes), oats or apple have proven to be effective



European rabbit.

in attracting rabbits to traps depending on seasonal conditions.

Captured rabbits must be killed humanely in accordance with the animal welfare legislation. Acceptable techniques include cervical fracture for young rabbits, and if permissible, shooting. Non-target animals must be released unharmed at site of capture.

Some authorities (for example local councils) loan wire cage traps to landholders for the removal of rabbits.

Poisoning

Pindone oat bait

Where circumstances allow, poisoning rabbits may be an option. The most suitable rabbit poison in urban areas is the anticoagulant, pindone. Pindone is similar in action to the anticoagulant poisons used to control rats and mice (for example warfarin, bromadiolone). To be effective, pindone bait needs to be ingested by rabbits over several nights of feeding.

Because there is an effective antidote (Vitamin K1, phytomenadione), pindone can be used in more closely settled areas where 1080 (sodium fluoroacetate) poison

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cannot be used due to the potential risk of poisoning domestic livestock and pets. The antidote for pindone is available from veterinarians either as an injection or as a tablet.

As pindone poses some potential risk to native animals such as kangaroos, birds of prey and bandicoots, an assessment of these risks needs to be undertaken before pindone-baiting can be undertaken. Pindone should not be used where these non-target species are likely to be exposed to the bait, or considered to be at risk.

Ready-to-use pindone bait is available through farm supply stores. Licensed Pest Control Operators (LPCOs) are also able to lay pindone bait on your behalf. However, pindone cannot be used on properties smaller than 1,000 square metres.

The form of pindone in these baits is the sodium salt which is water-soluble, degradable and non-residual. Because of its water-soluble nature, pindone-baiting should not take place if rain is expected.

Rabbits need to be encouraged to feed on the bait by 'free-feeding' with unpoisoned oats before poison-baiting can commence. 'Free-feeding' should continue until the rabbits are feeding consistently; this will usually take two to three nights. Once rabbits are feeding well on the unpoisoned oats, remove all remaining grain and apply the poisoned oats.

Pindone oats should be applied as three applications approximately four days apart over a 10-12 day period in accordance with the label directions regarding their safe handling and use. This includes notifying all your neighbours that poisoning is to take place, and the disposal of any poisoned rabbits found. Any carcasses found should be destroyed either by incineration or by deep burial (>0.5 m).

Bait stations can be used to restrict non-target species from accessing the bait. The best method for presenting bait is to place it on plastic saucers (about 40 cm diameter) secured with a brick or something similar in the centre of the saucer (Figure 1). The saucers with bait are best put out at night and retrieved early the next morning, as this reduces the potential non-target risks.

To further reduce the potential risk to non-target species, or if rain/heavy dew is likely, the saucers should be covered with a plastic 200 litre drum cut in half lengthways with small holes cut out at each end to allow access by rabbits. Alternatively, a raised concrete slab (60 x 60 cm on house bricks) can be used but this design does allow greater access to non-target animals such as birds.

Reductions in rabbit numbers achieved with pindone in bait stations can be highly variable and rabbits may take a considerable time to become accustomed to their presence.



Figure 1: A bait station comprising: bait (mostly eaten) in the plastic saucer, the brick and the half plastic drum (raised to show the bait saucer). (T. Lowe ©)

1080 One-shot oat bait

Under most circumstances, and mainly due to safety concerns, 1080 poison cannot be used for rabbit control in urban areas. However, under special circumstances 1080 One-shot Oat bait may be supplied to bona fide landholders for agriculture protection or conservation purposes, provided that associated potential risks are manageable. Authorised landholders are able to purchase and lay baits containing 1080, but these products are only available from licensed commercial S7 retail outlets, and a voucher is required before baits can be purchased.

A 1080 Baiting Application Form must be submitted to an authorised officer of the Department of Agriculture and Food who will then conduct a risk assessment for the baiting proposal and, if approved, will issue a 1080 Authorisation Voucher. Authorised officers will also provide training in the safe use of 1080 including its security, as only suitably trained persons are permitted to handle or lay baits.

Fumigation

Many rabbits live above-ground and shelter amongst suitable vegetation. However, if rabbits are using warrens as their main refuge then fumigation may be a satisfactory means for reducing rabbit numbers. Fumigant tablets can be obtained from farm supply stores. The pellets are positioned in the burrows, and all burrow entrances sealed which allows the released phosphine gas to permeate through the warren.

Extreme caution must be exercised when using this method, particularly with regard to operator safety, as phosphine is lethal to most life-forms. Read the label, and follow the instructions carefully. Warren entrances should be checked for rabbit activity several days after fumigation to determine if rabbits are still present, and the warrens re-treated if necessary.

Fencing

One way of reducing or eliminating a rabbit problem is to keep them off your property or away from high-value plants or crops (for example, vegetables, floriculture, market gardens). Fencing can be a permanent, cost-effective solution and may be the only viable option available in certain situations, particularly in urban and semi-urban areas.

Rabbit-proof netting

Rabbit-proof netting (prefabricated wire netting) has been available for many years and has proved to be an effective, long-term control option when properly installed and maintained (Figure 2). It can be an almost impenetrable barrier, excluding all but the most persistent and agile rabbits.

Care must be taken to repair any breaches as soon as they are noticed to ensure long-term control is maintained. Any gates or entry/exit points within the fence should also be made as rabbit-proof as practicable.

A disadvantage of this technique is the high initial capital outlay. However, these costs can soon be recouped, particularly where high-value products are protected. Costs may also be reduced if there is an existing fence on which to attach the rabbit netting.

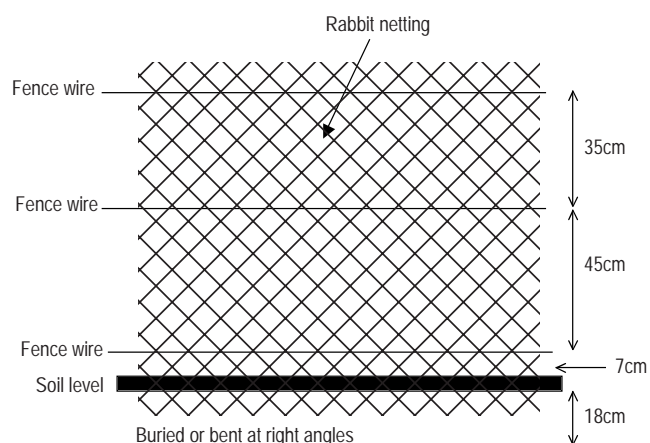


Figure 2: Design of a rabbit proof fence.

Tree guards

Tree guards are a simple but effective method of reducing rabbit damage to individual plants. There are various types of guards suitable for either temporary or semi-permanent applications. These include plastic mesh netting (polyethylene or polypropylene) available in rolls of various lengths, and rigid plastic tubes or cylindrical sleeves.

Most of these guards will also need stakes for support. Irrespective of what material is used, all tree guards should have a minimum height of 40 cm to be effective against rabbits. A maximum mesh size of 3.5 x 3.5 cm is recommended to prevent rabbits accessing plants through the netting.

Cheaper home-made solutions such as old tyres, milk cartons (plasticized cardboard lasts about one year) and soft drink bottles may also be used but these may be less effective.

Harbourage removal/modification

Make your property less attractive to rabbits by removing all available rabbit harbour. For example, where practical, destroy any rabbit warrens, remove rock piles or wood heaps, and keep your garden, and its surrounds, tidy.

Ferrets

If there are only a few rabbits living in warrens, ferrets can be a useful means of control. By using the ferrets' natural hunting instincts, rabbits are driven from underground burrows into nets placed over the exit holes. However, the handler should be experienced, the ferret well-trained, and any rabbits caught in the nets must be killed humanely.

Repellents

A small number of products are registered for use as animal and bird repellents in Australia. However, none have been developed specifically to repel rabbits. This may change in the future. Most repellents will need repeated application, and are generally only suited to relatively small areas (for example garden beds), with a small number of rabbits.

Table 1 overleaf

Table 1 Summary of options for rabbit control in urban/semi-urban areas

Option	Usage/advantages	Disadvantages
Trapping (cage-traps)	Non-toxic. Can be used in conjunction with other methods. Non-target animals can be released unharmed.	Labour intensive, time consuming and requires some skill. Only suitable for low rabbit numbers. Rabbits must be killed humanely.
Poisoning (pindone)	Bait readily available. Less potential hazard to domestic animals than 1080. Antidote (Vitamin K1) available.	Cannot be used where there is a risk to native animals. Only to be used in dry weather or in bait stations.
Poisoning (1080) (not generally recommended)	Effective rabbit poison. Secondary poisoning of foxes.	High potential human health risk if used in urban environments. No effective antidote. Domestic animals are at potential risk. Dry weather required. Training required before supply and use.
Fumigation	Useful if rabbits are living in warrens. Best used to remove the last few remaining rabbits.	Cannot be used if rabbits live above ground. Potential hazard to operator. May need to be repeated. Warrens must be sealable.
Rabbit netting	Very effective in the short and long-term. Stops reinfestation.	High initial cost. Requires ongoing maintenance and surveillance.
Tree guards	Simple to protect small numbers of plants. Can be temporary or permanent. Reusable.	Only protects individual plants. Can be labour intensive.
Harbourage removal/ modification	Good follow-up to other control methods.	Labour intensive. Not applicable to all situations. Cannot destroy native vegetation.
Ferrets	Can be useful if rabbit numbers are low, or to remove the last few rabbits from a warren.	Labour intensive. Handler needs to be experienced. Rabbits must be killed humanely.
Repellents (no registered options specifically for rabbits in WA)	May deter rabbits from small areas. Low cost and relatively safe to use.	May be only temporary. May need to be re-applied. Often not suitable for large areas. Many options have not been scientifically tested.

Further information

Contact your local Department of Agriculture and Food or telephone Freecall 1800 084 881 or email info@agric.wa.gov.au.