

Foxes: Integrated Fox Control

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This Landcare Note provides advice on integrated fox control.

Often fox control work is undertaken as a reaction after fox damage has occurred. Carrying out preventative control work prior to predation especially lambing may be a more effective option. Preventative control should be viewed as an investment not an expense.

Although studies indicate little evidence to support the view of the fox as an important predator of livestock, it cannot be denied that individual farmers or particular agricultural areas sometimes suffer heavy lamb losses because of the activity of a few "rogue" or "killer" foxes. In some situations it has been found that foxes will reduce lamb marking percentages by up to 25% to 30%.

Factors determining preventative control

Past history

When assessing the need for preventative control, the past history of fox damage in the area and the amount of current fox activity must be taken into account. If foxes are active in an area where predation has previously been experienced, preventative control of foxes should be carried out approximately one month prior to lambing or kidding.

Timing

The timing of the lamb or kid drop in relation to neighbouring properties is important. Landholders, for example, who time their lambing later than their neighbours may suffer greater losses from foxes that have already learnt to seek lambs as prey.

Food supply

Abundant food sources, like rabbits/carrion will act as attractants to foxes, bringing more foxes into an area, and posing an increasing risk to livestock.

Assessing fox populations

Spotlighting

While it is difficult to obtain precise numbers, spotlighting in the early hours of the morning is probably one of the best guides to fox abundance. From the counts, it can be gauged if sufficient numbers are present to pose a threat to lambs or assess if fox numbers are changing. Five foxes seen in an hour (or one fox every two kilometres) would indicate their numbers are high enough to be affecting lamb marking percentages. Caution must be used when

estimating fox numbers. The number of visible foxes often does not reflect the true number of foxes present in the landscape. Research carried out in the Bendigo area suggests that for every fox seen there will be another four undetected. The ratio of foxes seen to those undetected will vary according to topography, hunting pressure, and terrain.

Fox sign

Look for fox tracks on roads or sheep pads, and droppings (scats, see Figure 2) near carcasses or scent marking posts. These will all be easily noticed if foxes are plentiful. The following examples of fox tracks and scats have been reproduced from Triggs (1996).

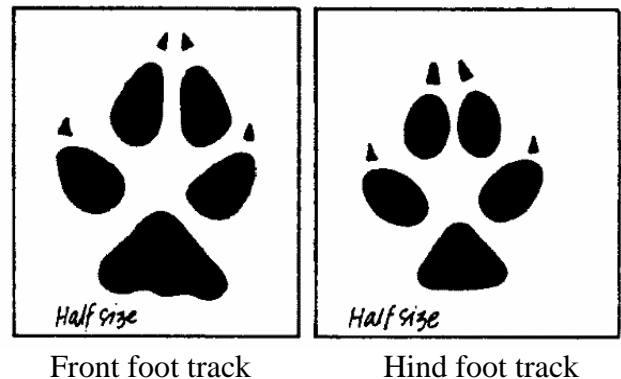


Figure 1. The heel pad of the front foot is separated from the toe by hair. This distinguishes the tracks from those of dogs.



Figure 2. Scat no wider than 2 cm with a characteristic strong smell

Carrion feeding

Foxes readily eat sheep and lamb carcasses. Lamb carcasses may be difficult to find if foxes are a problem.

Locating foxes

Foxes are opportunist feeders and scavengers. In agricultural areas sheep and rabbits often form the bulk of their diet in the cooler months. Foxes are often seen near watering points where there is a concentration of foodstuffs nearby. Foxes will re-use dens for breeding; often the same dens every year, and by looking at den sites in breeding season this will provide a good indicator of fox presence.

Attracting foxes

A promise of food is the basis of many attractants. Shooters often use a tin whistle imitating the call of a distressed rabbit to draw foxes in, or get them to look at the spotlight. Carcasses of farm livestock attract foxes. Carcasses can be dragged to make a scent trail to a bait station. Foxes will often follow the trail of a dragged carcass (eg. singed fowl) in the hope of finding a feed. The effectiveness of baiting may be improved by dragging scent trails (hides, carcasses) to a bait station but do not join bait stations with the scent trail as multiple take by a single individual is highly likely.

It is an offence under the Wildlife Act to use dead native animals as attractants. In addition, carcasses are not to be poisoned, nor poisoned baits placed inside them.

Timing of control programs

The effectiveness of preventative control programs against foxes varies depending on the time of year. Ideally the first major campaign using poisoning should be about one month prior to maximum livestock predation. In most areas March to early April would be this optimum time for poisoning to be carried out if control is to be exerted before the maximum predation period of April / May. However there may be some regional differences in predation times so you will have to decide the most effective period to commence preventative control. Control work should continue during autumn and most of winter or it is likely only to temporarily reduce fox numbers due to the "vacuum effect". During autumn there are many young foxes looking for an area in which to settle. They may move in rapidly from surrounding areas to replace resident foxes, which have been killed. Because of immigration of young foxes it may be necessary to sustain control work over an extended period.

To reduce this rapid reinfestation and produce long-term population reduction, control work should also be carried out in early spring during the fox's reproductive phase. By targeting the breeding season, the breeding population and their potential or realised offspring can be removed. Recovery of the fox population would therefore be dependent on immigrant animals dispersing into the control area. The larger the area controlled, the longer the

time it takes for foxes to reach the core area you wish to protect.

Preventative control: integrating options

You need to approach the concept of fox control in the same manner used to successfully control rabbits. No single technique will provide effective long-term protection of your livestock. Programs should be planned in advance and wherever possible be integrated to include a variety of techniques such as poisoning, shooting and den fumigation. As foxes are very mobile, widely distributed with the ability to quickly move throughout an area, control is rarely effective if carried out in isolation. A group of landholders tackling the whole problem in a simultaneous and coordinated manner is likely to be more successful than isolated individuals tackling only part of the problem. These programs therefore should also be conducted on a co-ordinated landholder group or district wide basis in order to maximise long-term fox control.

Husbandry methods

Small lambing paddocks should be used to allow easier monitoring of the flock and reduce the chances of young lambs being left unattended a long way from their mothers. Lambing paddocks sited close to the homestead are also easier to check frequently. Shed lambing can be a practical means of preventing fox predation on small flocks of valuable animals.

Some producers have successfully used trained guard dogs (eg. Anatolian shepherds, Maremma sheep dogs) to protect their flocks from fox predation.

Carcasses of stock/native animals must at all times of the year be removed and/or destroyed in accordance with the *Directions for the Use of 1080 Pest Animal Bait Products in Victoria*.

Use of 1080 poison baits

The use of 1080 pest animal baits products, when implemented correctly, is an effective method of controlling foxes.

1080 pest animal bait products can only be purchased by authorised persons, these being:

- a person holding a valid Agricultural Chemical User Permit (ACUP) with 1080 endorsement issued under the *Agricultural and Veterinary Chemicals (Control of Use Act) 1992*
- a person or entity holding a valid Commercial Operator Licence (COL) with a vermin destroyer endorsement issued under the *Agricultural and Veterinary Chemicals (Control of Use) Act 1992*, or the staff listed on the COL who have completed a *Course in Minimising the Risks in the Use of 1080 Pest Animal Bait Products for Vertebrate Pest Control*
- a person holding a valid Licence to Use Pesticides (LTUP) issued under the *Health Act 1958*, authorising the use of pesticides formulated for the control of pest animals.

Users of 1080 pest animal bait products must adhere to the requirements on the product label and *the Directions for the Use of 1080 Pest Animal Bait Products in Victoria*.

For more information about purchasing and using 1080 pest animal bait products refer to www.dpi.vic.gov.au/1080

Monitoring

Monitoring enables baiting programs to be more effectively planned and implemented by revealing preferred feeding areas, numbers and distribution of target and non-target species. It also allows you to better estimate how much bait you will need, thus reducing costs. Monitoring minimises non-target damage and improves the likelihood of achieving long-term pest animal control.

Monitoring of bait stations during free feeding will indicate (by their tracks and/or scats) which animals are taking the baits. The most effective way to achieve this for foxes is to free feed with unpoisoned bait material for a period of 7 days to achieve maximum rates of take prior to baiting with 1080. The long free feeding period ensures a regular feeding pattern is established and this increases the likelihood of controlling the target species. Once poisoning begins it is very common on initial poisoning runs to have 95% of all baits removed within the first few days.

It is possible for one fox to eat several baits and/or cache baits (removing/reburying baits). Caching of baits may occur outside the boundary of the property where foxes are being poisoned, and may lead to poisoning of non-target animals, particularly domestic dogs. In the case of wild dog poisoning, foxes may be responsible for the removal of many baits.

Do not continue to replace poison baits until you have assessed your progress by follow-up spotlight counts. If foxes are still being detected repeat the exercise at weekly intervals until there is no evidence of foxes and bait take has ceased. High levels of caching may require you to stagger/pulse bait. Stop baiting for 1-2 days to allow foxes to revisit cached baits and then resume baiting.

Free feeding

The use of free feeds prior to poisoning in target areas; as predetermined by your spotlight assessment, will significantly assist in establishing a feeding pattern to enable a maximum kill.

Fumigation and den destruction

Where cubbing dens can be found, fumigation can be an effective means of reducing fox numbers. Foxes habitually re-use dens year after year. A vixen is likely to begin excavating prospective dens in April/May. Cubs are born during August/September. The vixen may have a 2-3 other dens that can be used if the main breeding (natal) den is disturbed.

Fumigation must be carried out while the cubs are confined to the den. The vixen is likely to be killed in the den only during the first three weeks after the birth of the cubs. Where the den is accessible to appropriate

machinery, deep ripping can destroy it. You should re-visit the dens each year in May-June and August-September to measure your fox activity and to fumigate dens. Recording dens sites for your district can give you an appreciation of fox activity in your area and enable better integrated control.

Shooting

While shooting is the most target specific and humane form of fox control, hunting does not provide long term broad scale fox control. Shooting is likely to quickly educate foxes and make them appear less in number without little real effect on numbers. Prior to the discontinuing of the fox bonus scheme in 1981, between 60,000 and 100,000 scalps were taken each year, with the level of harvesting being maintained over many years. Despite this large annual harvest, there was no indication that the fox population was decreasing or that there had been any reduction in lamb predation.

Although shooting at night with the aid of a spotlight is a common practise, many farmers do not wish to encourage this method of control as it can lead to indiscriminate shooting with damage to livestock and property. In addition, this technique is labour intensive, the number of foxes taken from the area drops rapidly after a few nights, and it tends to kill mainly young inexperienced foxes. Nonetheless, localised night spotlighting, particularly in late summer and early autumn, can account for large numbers of foxes (young cubs can be easily whistled up at this time).

Daylight drives or battues using a line of beaters or the services of recognised fox hunting clubs to drive foxes before guns, can be an effective control tool, but manpower requirements are very high.

The use of firearms to control foxes must conform to relevant firearm legislation and be integrated with other control methods.

Exclusion fencing

Foxes are agile animals capable of passing through, digging under, jumping over, or even climbing various types of fences. Wire netting with mesh size not exceeding 80 mm (approx 3 inches) will prevent most foxes passing through the fences. The netting should be 1.2 - 1.9 m high and should be buried to a depth of at least 450 mm. An apron of netting angled outwards for 200 mm at the base provides an added deterrent to digging.

Adding electrified outrigger wires to netting fences could help to discourage foxes from climbing. Electrified, plain-wire fences can exclude foxes, but the wire spacings must be close enough to ensure that the fox will get a shock before it has penetrated the fence. It should be remembered that conventional fences are built as physical barriers whereas electric fences are designed to operate as psychological as well as physical barriers. The change in emphasis means that fence maintenance assumes a critical role and unless the land manager is aware of this, failure

of electric fence lines will occur with the inevitable consequence of domestic stock losses.

Further information

- Contact your local landcare or friends group for further assistance and advice.
- Call the DPI/DSE Customer Service Centre on 136 186.
- Contact your local DPI Pest Management Officer for advice on local programs.
- Visit the DPI website at:
<http://www.dpi.vic.gov.au>
Invasive Animals Cooperative Research Centre
at: <http://www.invasiveanimals.com>

References

- Victorian Government (2007) *Directions for the Use of 1080 Pest Animal Bait Products in Victoria*. Victorian Government, Melbourne.
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Acknowledgements

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