Department of Environment and Conservation
Our environment, our future

Fauna notes

Information about Western Australia's fauna

No. 32

Fencing and gates to reduce kangaroo damage

The use of suitable fences and gates can reduce kangaroo damage to crops, pasture and fences by either excluding the animals or by allowing them to pass through fences without causing damage. In areas where shooting kangaroos is not possible, suitable fences and gates offer a viable alternative and should be considered when setting up a property or considering the establishment of new crops.

Choosing fencing and gates

Fences are multi-purpose, long-term investments and it is important to consult widely to ensure that:

- The right design is chosen and correctly erected.
- The severity of the damage warrants the proposed expenditure on fencing.

Costs

The costs of fencing and gates vary widely. Generally, the largest component is the cost of labour but the cost of fencing components also varies widely and landholders are advised to compare prices before buying materials.

Maintaining standing fences and gates and clearing vegetation along fence lines is an extremely important part of excluding wildlife and containing stock. The costs of this should be taken into account when preparing a budget.

Shooting as a control option

Destruction of kangaroos by shooting can be an effective way to reduce the damage they cause. However, in settled areas, shooting is usually permitted only as a one-off short-term measure to achieve an initial reduction in the population. Long-term damage reduction must be managed by other means such as fencing and gates.

Repeated shooting in settled areas can lead to local extinctions of kangaroos and the use of high-powered firearms can be dangerous. Licences may be required in some areas (See the fauna notes listed under further reading for more information).

Preventing fence damage

Choosing fencing that enables kangaroos to easily pass through (plain wire instead of ringlock fencing) can reduce fence damage and associated repair costs. Another means of preventing fence damage is to install stock-proof access gates that enable kangaroos to move through fences.

Where total exclusion of kangaroos is needed to protect crops or pasture, a combination of some shooting and fencing may be required.

Fence and gate visibility

The visibility of kangaroo-proof fences and access gates is very important. Irrespective of the design, if an animal cannot see the fence it will not be effective. Fences are most likely to be damaged at sunrise and sunset when kangaroos may attempt to get through the fence.

Ringlock and plain wire fencing

Kangaroos generally cross fences by crawling through the lower wires or by digging underneath. Their least-favoured option is to jump over fences. Plain wire fences pose less of a barrier to kangaroos than ringlock fences and are easier for the animals to crawl under or through without causing damage. However, both styles of fencing can entangle kangaroos if the animals attempt to jump through or over while being chased.

Sloped and double fencing

When the movement of a kangaroo is obstructed by a fence that they cannot crawl through or under, they may try to jump over it. They do this by moving as close to the fence as possible and then making an almost vertical jump. The cost-effective answer is to slope the fence away from the approach of the kangaroo at an angle of around 45 degrees. This prevents the kangaroo from getting close enough to the top wire to jump over.

Another method is to run two parallel fences, so kangaroos cannot get close enough to jump over them. The outside fence is usually much lower than the inner fence.

Electric fencing

Electric fences have been thoroughly researched and can be effective in excluding kangaroos if the correct design is installed.

Electric fences have the following advantages over other fence designs.

- *Low construction cost*. The major advantage of electric fences over conventional fences is that animals avoid them and thus their construction does not have to be as robust. This usually translates into lower construction costs in comparison with conventional fences. Existing fences can also be electrified as an alternative to upgrade or replacement.
- *Non-lethal control method*. Many sections of the community support the use of electric fences to exclude kangaroos because the animals do not have to be killed.
- *Multi-purpose*. As well as containing stock and excluding kangaroos, suitably designed electric fences can also exclude other pest species such as rabbits.
- *Easily erected and sometimes moveable*. Solar or battery power can quickly be utilised for electric fencing. Some fences can be moved to other areas, depending on the vulnerability of crops or the current land use.

Technical considerations for electric fencing

Earthing

Ground return fences rely on the soil being moist enough to conduct electricity. In drier areas of the state this may not be practical but can be overcome by incorporating earth wires into the design. In wetter areas, electric fences may be constructed from live wires alone.

Line clearing

The effective operation of an electric fence requires a fence line clear of vegetation. If the fence is in contact with vegetation, the voltage of the fence may be reduced by short-circuits.

Dual polarity

The practical problems of completing a fence circuit that ensures an adequate electric shock, has led to alternative developments by manufacturers, including the dual polarity system. In this system, the fence energiser sends out two shock pulses simultaneously, one positive (live) and one negative (earth). Each wire connected to the energiser is charged alternately positive then negative. A shock is received by touching any one wire and the ground, or any two wires.

Frequent earth pegs coupled to a separate return earth wire, which is connected to the energiser, are still required to enhance the ground return in arid conditions.

Potential problems

Local laws sometimes prohibit the use of electrified boundary fencing. Contact the local government authority for advice before erecting electric fencing.

Electric fence designs

The fence designs discussed below have been proven to exclude kangaroos.

McCutchan fence

This design has been researched intensively for its effectiveness in excluding kangaroos. Variations have been used by a number of farmers who report success.

The recommended fence is a two-part construction, 1.8 metres high including 10 wires (Figure 1). The bottom section of the fence leans 45 degrees away from the approach direction of the kangaroo. The fence is one metre high and has eight plain wires, alternating live and earth. The bottom wire is 75-125 millimetres off the ground. The top section consists of two wires (non-electric) held vertically by a pivoting extension designed to tip the fence over, if the fence receives sufficient impact to break a shear peg or wire.

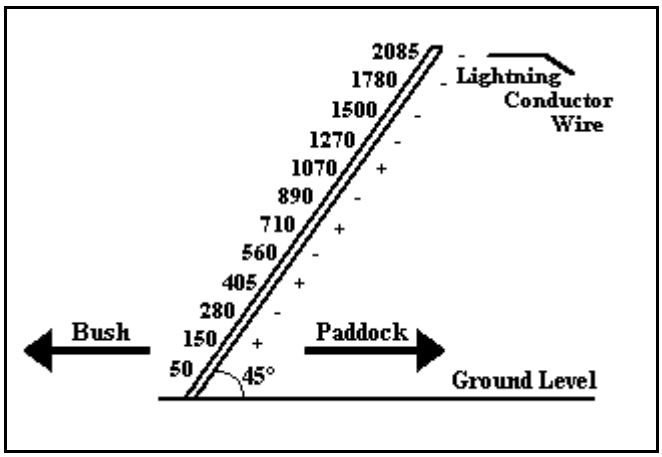

Figure 1 McCutchan fence: a sloping electric fence for kangaroos (modified from McCutchan (1983)). Wire spacings are shown in millimetres from ground level and total post length is 2.13 metres (+ active live wire, - earth wire).

The leaning section can be propped up to allow stock to pass underneath or to facilitate clearing of vegetation. The angled post can also be pivoted at different heights along its length, ensuring that downward pressure is always being applied to the wires and reducing the likelihood of an animal being able to crawl through or underneath. The fence is reported to be an extremely effective barrier to kangaroos and although expensive, has application as a cost effective control technique.

Other designs

Mark Wardlaw, a sheep farmer in Tasmania had problems with two species of kangaroo. His fence design is a double electric fence construction with the main fence of eleven wires alternating live and earth and a lower outer fence of four wires also alternating live and earth. This fence is claimed to be 90-95 per cent effective as a barrier to kangaroos.

Less complicated electric fences with only three or four wires have also been reported to reduce kangaroo incursions into crops and pastures. For example, a three-wire electric fence system on a pastoral property in Western Australia noticeably reduced the numbers of kangaroos that grazed on the paddocks.

Normal dingo fences comprising about eight plain wires up to a height of about 1.5 metres are reported to provide reasonable control of kangaroos. However, they must be sloped and comprise of eight or nine plain wires alternating earth and live. The gaps between the

wires must be about 20 centimetres, (up to the height of a dingo) with wider gaps above this height.

In one study ringlock fencing, topped by two strands of barbed wire with a plain wire inbetween, virtually eliminated damage to lupin crops.

Deer fencing, consisting of two metre high ringlock fencing with well-strained bottom wires, is also reported to be effective in excluding kangaroos from vineyards.

Kangaroo access gate

Stock-proof gates that allow kangaroos to pass through without damaging fencing have been developed. One such design has been used successfully in the presence of merino sheep at the CSIRO field station 'Yalanbee', Bakers Hill for about 20 years (Figure 2). This gate can be fitted into an existing fence.

Specifications

The main gate component consists of a piece of four millimetres by five centimetres weld mesh or similar mesh. It should be a minimum of 50 centimetres high and 45 centimetres wide. A n approximately 10mm internal diameter length of pipe should be welded to the top of the mesh, extending it a minimum of 20 millimetres either side of the weld mesh. The bottom of the gate should be formed (as shown in Figure 2), with a bent piece of approximately eight millimetres rod welded to the mesh. This provides a gap with a maximum height about 10 centimetres from the ground, which encourages the kangaroos to push their noses under the gate, which activates the gate.

The gate is simply swung by a five to seven millimetres rod through the 10 millimetres pipe and matching holes in the star posts, with the bottom end just above ground level, allowing the gate to swing freely both ways.

Siting

The gate should be installed at a position along the fence where kangaroos have already made a hole and in the path of a well-used kangaroo track. Several gates are erected at Yalanbee and the cost and time required for construction are minimal considering the time saved in repairing fences and locating lost sheep.

Experience has shown that once gates are installed in the appropriate position in the fence, kangaroos will quickly learn to use them. The gates have been used by grey kangaroos at Yalanbee and by grey kangaroos and euros in the wheatbelt. The gates would probably be suitable for red kangaroos as well.

Further reading

- Fauna note no. 29. Western grey kangaroo. DEC, Western Australia.
- Fauna note no. 30. Western grey kangaroo management plan. DEC, Western Australia.
- Fauna note no. 31. Red kangaroo management plan. DEC, Western Australia.
- Fauna note no. 36. Wildlife trade operation for the euro. DEC, Western Australia.

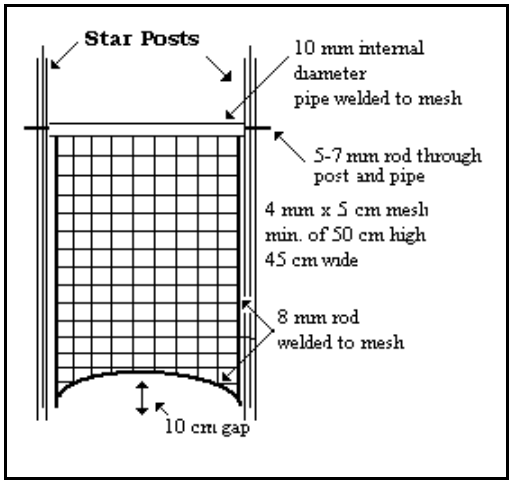

Figure 2 Specifications for the kangaroo access gate used at Yalanbee, Bakers Hill.

References

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Campbell, G., Mawson, P.R. and Gray, G. (1990) Electric fences for vertebrate pest management in Western Australia. Tech. Series No. 9. Agriculture Protection Board, South Perth.

McCutchan, J. (1983) A pivoted electric fence for kangaroos. Dept. of Electrical Engineering, University of Melbourne, Unpublished Report.

Arnold, G.W., Steven, D.E. and Weeldenburg, J.R. (1989) The use of surrounding farmland by western grey kangaroos living in a remnant of wandoo woodland and their impact on crop production. *Aust. Wildl. Res*. 16: 85-93.

Further information

Contact your local office of the Department of Environment and Conservation.

See the department's website for the latest information: www.dec.wa.gov.au.

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