



Government  
of South Australia

# **POLICY ON RABBITS IN SOUTH AUSTRALIA**

*Adopted by the*

*Minister for Environment and  
Conservation*

*28 September 2005*

## Policy Objectives

Primary producers, the environment and the public protected from damage and hazards caused by rabbits.

Minimal impact on wild rabbit management programs as a result of the keeping and sale of domestic breeds of rabbits.

Rabbits will not establish on offshore islands.

Rabbit Research will be maintained to address immediate problems and to pursue longer term options by identifying new technologies and any potential risks to control techniques.

## Implementation

### ***Management of wild rabbits***

Landholders have a responsibility to destroy all wild rabbits (*Oryctolagus cuniculus*) on offshore islands (except Wardang Island) and manage wild rabbits in all other areas of the State (see policy explanation and interpretation – part 4).

### ***Keeping and sale of wild rabbits.***

The keeping and sale of wild rabbits is prohibited in all areas.

### ***Keeping and sale of domestic breeds of rabbits in especially sensitive areas.***

The keeping and sale of domestic breeds of rabbits is prohibited on all offshore islands with the exception of Wardang Island where wild rabbits are already established.

### ***Keeping and sale of domestic breeds of rabbits for whole of the State (excluding offshore islands other than Wardang Island)***

The deliberate release of domestic breeds of rabbits into the wild is prohibited. The keeping and sale of domestic breeds of rabbits is permitted subject to statutory requirements under other legislation (eg Prevention of Cruelty to Animals Act 1985 and subordinate legislation, and planning regulations under the Local Government Act 1934 – see policy explanation and interpretation – part 4).

## **Background**

### ***History***

Biosecurity SA develops and regularly reviews its policies to ensure that they reflect community and industry expectations on the level of legislative control required to minimise the impact of non-indigenous plants and animals on agriculture, the environment and public safety.

Prior to 1 July 2005 the Animal and Plant Control Commission developed pest animal policies. The Animal and Plant Control Commission's policy on the keeping and sale of rabbits was implemented after a review in 1998/99. Prior to the review of the Commission's policy in 1999, the keeping and sale of rabbits for meat, fibre and pelts was prohibited in South Australia under the *Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986*. The keeping of pet rabbits was exempted but was restricted to a single cage per property of less than 4 m<sup>2</sup>.

The review determined that commercial farming of domestic breeds of rabbits for meat, fibre and pelts and the keeping and sale of domestic breeds of pet rabbits did not present a significant risk to wild rabbit management programs. As a result APCC policy permits the keeping and sale of domestic breeds of rabbits subject to provisions of the Animal and Plant Control Act and notwithstanding any other legislative requirements. The policy on the keeping and sale of wild rabbits remains unchanged.

### ***Distribution and Abundance***

Rabbits are one of the most widely distributed and abundant mammals in Australia.

Soils are a major factor influencing local and regional distribution.

Warrens are larger and more abundant in the deeper soils on lower slopes and flats. These areas are also the most productive areas for domestic stock and are important for drought fodder.

Rabbits prefer well-drained soils. Warrens are rarely found on cracking clay soils that become waterlogged and the few rabbits living on this soil type breed in hollow logs.

Warren density is higher on deep sands than on shallow sands. This may be due to fox predation or to temperature effects. Rabbits are absent from some areas due to shallow soils or nutritionally deficient pastures.

In the areas where rainfall is less than 300 mm, numbers build up after consecutive good seasons and then collapse during drought due to poor nutrition following depletion of available pasture by rabbits and stock. Numbers may then remain low for some years. The rate of recolonisation depends on rainfall, predator numbers, and outbreaks of RHD, myxomatosis and warren availability.

Rabbit populations vary from one season to the next. Populations are lowest at the beginning of the breeding season (usually winter/spring) then increase by a factor of 2–5 to peak near the end of the breeding season.

***In general, the highest rabbit populations occur in agricultural areas where management is difficult or neglected, or in rangeland areas where control is not obligatory or legislation is not enforced because control is perceived to be uneconomic.***

Since 1995, rabbit haemorrhagic disease (RHD) has become endemic in rabbit populations throughout South Australia. The impact of RHD on rabbit numbers has varied greatly across the state. In the rangelands it has been profound, with most populations held at only 5-20% of previous levels. Significant effects have also occurred in the agricultural zone but in some areas it has had little impact, most notably in high rainfall areas of the Mount Lofty Ranges and South-East, and in some coastal rabbit populations on Eyre Peninsula.

Theories exist about why RHDV has been less successful in higher rainfall areas, but none have been proven. These include:

- more feed allows rabbit populations to recover from RHDV infections/losses
- there is another, related virus which is present in the rabbit population and this may generate immune resistance to RHDV
- the RHDV virus does not persist or be transmitted well
- RHDV outbreaks mainly occur in spring/summer (rather than in winter in pastoral areas)
- possible negative interactions with myxomatosis

Rabbits numbers are low throughout most of the higher rainfall areas (rainfall > 300mm per annum) because of the ongoing influence of myxomatosis and RHD, and because the area is flat, largely cleared

and often cultivated making warrens accessible and easily ripped and it is economically viable to undertake conventional rabbit control.

In higher rainfall areas rabbit numbers are generally kept low by close settlement and intensive land management, including the control of rabbit populations by warren ripping, fumigation and baiting with 1080 or pindone. Even within these areas rabbit numbers remain high in patches where steep slopes, rocks or remnant vegetation provide harbour for rabbits and hamper effective control.

In recent years, subdivision of peri-urban areas into large residential blocks and hobby farms has contributed to increased rabbit populations. Rabbits are favoured in these areas by the provision of cover from the re-establishment of trees and shrubs, by year-round grazing from irrigated lawns and pastures, and by limitations on the use of toxins for rabbit control.

## ***Cost of wild rabbits to South Australia***

### **Environmental Issues**

The introduction of the rabbit has been one of the greatest single impacts of European settlement on the Australian environment. Rabbits have affected Australian fauna and flora through overgrazing, competitive displacement of native species and by supporting large populations of exotic predators. Rabbits have played an integral role in the extinction of many plants and animals and continue to threaten restoration of natural habitats and the reintroduction of locally-extinct species.

### **Economic Issues**

In South Australia, annual losses to primary production in 1992 were estimated at \$28m, of which \$22m was in pastoral areas. Rabbit management programs costing \$1.7m (\$0.5m by land managers and the rest by government, including rabbit-related activities by the Animal and Plant Control Commission and Animal and Plant Control Boards) prevented additional potential damage of \$62m per annum (Henzell 1992).

Estimates of primary production losses caused by rabbits in Australia before the introduction of RHD ranged from around \$200 million to \$600 million per annum (Williams *et al.* 1995, ACIL 1996). These estimates generally do not include benefits to forestry, irrigated agriculture, greater life for dams, salinity, soil conservation, native vegetation and nature conservation.

Primary production losses have been greatly reduced by RHD, particularly in arid areas. For example, increased cattle production in

rabbit-prone areas of Australia's rangelands has been valued at \$26m per annum (Brian Cooke, unpublished) and landholder expenditure on rabbit control in South Australia has been reduced by \$0.5m per annum (Saunders *et al* 2003). Benefits to the pastoral sheep-grazing industry are also likely to be substantial but are unquantified.

### ***Risk to wild rabbit control programs from the keeping and sale of domestic breeds of rabbits***

The South Australian Government strongly supports programs for the control of wild rabbits and is committed to the maintenance of those programs to protect agriculture and the environment from the losses mentioned above. The South Australian rabbit policy was formulated on the basis that this fundamental premise would not be jeopardised.

The 1998/99-policy review sought considerable industry and public comment on the risks to wild rabbit management from the keeping and sale of domestic breeds of rabbits. Comment was sourced from a stakeholder Working Party and public response to a discussion paper.

Changes in public perception of rabbits as pests is considered unlikely as a result of the relaxation on prohibitions to the commercial keeping and sale of rabbits. A landholder survey in Victoria and policy reviews from WA, Victoria, NSW and Tasmania have indicated that public perception of wild rabbit control is unlikely to change the level of wild rabbit management in those States.

At a national level there is a risk that the domestic rabbit industry might derail wild rabbit control options by opposing current or future opportunities for biological control. However, because commercial rabbit industries are already operating in most other States, South Australia's policy adds little to the national risk.

Scientific studies indicate that the chances of domestic breeds of rabbits establishing in the wild are low except on islands where predatory animals are absent (Stodart and Myers 1964). Investigations undertaken as part of the 1993 review of the keeping of rabbits in NSW, found that while there may be isolated cases of domestic breeds establishing colonies, overall the keeping of domestic breeds was unlikely to increase wild rabbit populations.

### ***Community Attitudes***

There are strongly held conflicting views among people interested in the management of rabbits. Some scientists and most land managers judge rabbits as Australia's most pernicious environmental problem, and wish to see more resources allocated to their management. People involved in commercial or subsistence use of rabbits are alarmed at the prospect of rabbits being managed to levels too low to allow such uses

to continue. Economists argue the spending on rabbit management should be fully justified in terms of the economic or environmental returns on such investments, and are concerned that the information necessary for this to occur does not exist. People with strong animal welfare concerns would like to see more humane control techniques applied to reduce suffering in rabbits.

The rural community in rabbit-prone areas also needs to be informed about the damage caused by rabbits. On some of the more productive grazing lands in particular, there has been a tendency to tolerate increasing rabbit numbers with little attempt to determine the ensuing economic and environmental damage. Incremental change in rabbit damage is not obvious to the untrained eye.

### ***Who has the problem?***

#### **Higher rainfall (>300mm rainfall)**

Isolated infestations of rabbits continue to be of concern in areas of higher rainfall where populations are usually associated with vegetated roadsides or other areas where controls are not easily applied.

#### **Low rainfall arid lands (< 300mm per annum)**

Pastoral livestock production in low rainfall arid lands falls roughly into three categories:

Smaller marginal farming/perpetual lease grazing properties where there are economic benefits to be gained by controlling rabbits and where rabbit control has been ongoing for some time. This country is relatively densely settled and well developed, and there are no government stocking restrictions.

Medium-sized (mostly) sheep pastoral leases where the government sets maximum stocking rates. Active rabbit control on these properties varies on range of factors including rainfall, size of holding and level of debt.

Large pastoral leases including cattle properties north of the Dog Fence which are also subject to maximum stocking rates. Few large pastoral leases undertake active rabbit control programs.

### **Aboriginal Lands**

Aboriginal peoples are major South Australian landholders with an increasing interest in returning to or remaining on traditional lands. The prevailing view that introduced animals are less valuable than native species is not shared by all Aboriginal peoples. Indeed, feral species are quite often perceived to belong to the land and to have taken the

place of the animals that disappeared when Europeans arrived. Aboriginal people in outback communities of South Australia often consume rabbit meat.

### **Conservation**

Land controlled by public and private landholders managed strictly for conservation purposes and where rabbits are perceived as introduced animals to be eradicated where possible.

### **Mining**

Rabbits sometimes cause minor indirect effects on lands managed for mineral exploration and production can prevent successful rehabilitation.

### **Tourism Operators**

One important social aspect of the impact of rabbits on biodiversity is its potential effect on ecotourism. Australia's unique wildlife is vulnerable to habitat destruction or competition from rabbits, and constitutes an important tourism asset.

## **Meeting Policy Objectives – Explanation and Interpretation**

### ***History of rabbit management compliance and enforcement***

The current approach to rabbit management in South Australia was implemented following a meeting of industry, State and Local Government representatives in September 1968, which canvassed the experience of other States and New Zealand and the science related to the management of rabbits.

The appropriate action required a further seven years of refinement and the introduction of new legislation in 1975 (Vertebrate Pests Act) to provide a framework before wide scale implementation of policies and strategies occurred.

Successful rabbit control programs were based for the first time on sound technical advice and guidance provided by trained local officers to the landholders. Landholders were given statutory responsibility for the protection of the land resource from the impact of rabbits and other animal pests.

This advisory role of local officers was supported by enforcement provided by regionally located staff of the central agency (Vertebrate Pests Control Authority - VPCA) that could concentrate on enforcing an owners responsibility to control rabbits on their land.



A fundamental part of this scheme was to provide ready access to 1080 bait and focus responsibility for management on the landholder who is the beneficiary of controlling the rabbits. The trade off for direct access to 1080 bait was that the landholder had to agree to the destruction of all accessible warrens in treated areas within a specified time.

A new scheme was introduced which put the responsibility for laying 1080 poison bait on to the landholder instead of by a trained operator.

The establishment of vertebrate pests control boards; based on council areas and which were concurrent with pest plant control boards, helped implementation.

The objective adopted by VPCA in 1975 for agricultural lands was for the elimination of warrens in reasonably accessible locations and for the effective management of rabbits in the fringes of native vegetation.

The achievement of these objectives required the VPCA to demonstrate its resolve, which led to the prosecution of landholders who ignored enforcement notices issued after formal warnings by local advisers. Some 50 prosecutions were required to enforce control in the first year of operations but the community soon recognized the benefits of the new scheme and prosecutions declined to less than 1 per year.

### ***Current role of legislation in wild rabbit control***

Legislation and its enforcement are important components of wild rabbit management. However, legislation that directs land managers to carry out certain actions, such as rabbit control, is being replaced with legislation that fosters a more cooperative relationship between government and land managers, though regulation is available as a last resort. The current *Natural Resource Management Act 2004* is an example of the new approach to legislation. The Act and associated policy documents establish objectives for managing natural resources, and provide for negotiated property action plans that aim for sustainable land management. This includes control of 'total grazing pressure' by both domestic and wild animals. As a backup, penalties can be used against those who fail to abide by property action plans or protection orders to protect the land.

### ***Community involvement***

Local community driven wild rabbit management is integral to this policy, and to facilitate this the NRM Act has devolved many pest animal management matters to regional NRM Boards. NRM Boards can determine how this policy can be implemented in their areas by developing regional NRM plans and operational plans to determine how to best apply the provisions of the NRM Act to their communities. Biosecurity SA will help Boards develop their plans by providing technical and other support.

### ***Barriers to rabbit management***

One of the main barriers to rabbit control is a lack of ownership of the rabbit problem by land managers. In addition, there is a common failure to identify the damage and to overlook the relative ease and economic returns to be gained by controlling rabbits when in low numbers (resulting in an approach of do nothing when rabbits are in low numbers, respond to rabbits in high numbers when damage is most evident).

Several barriers to rabbit control are particularly important in low rainfall arid lands:

- RHD has resulted in land managers forming a false impression that there is no need undertake active rabbit control
- Commodity prices (especially for sheep pastoral areas) have been low
- Rural population decline (there are fewer people to do more work)
- Lack of appropriate machinery in pastoral areas
- Large areas and low returns per unit area of land

**Given there are significant barriers to getting landholders to undertake rabbit control in low rainfall areas, rabbit management should not be enforced where conventional control is uneconomic, not feasible or impractical. However, NRM boards should work closely with land managers to them determine the real impact rabbits are having on their land to ensure there is sound rationale for decision making in relation to rabbit control.**

### ***When should regional NRM boards intervene and enforce section 182 of the NRM Act 2004 in relation to rabbit control?***

The provisions of the NRM Act, which can be enforced, are:

- Under Section 182 (1) of the NRM Act 2004, an owner of land on all offshore islands (excluding Wardang Island) must destroy all wild rabbits.

- Under Section 182 (2) of the NRM Act 2004, an owner of land anywhere in the State must control and keep controlled wild rabbits.

How can regional NRM boards decide when to apply enforcement as an instrument to achieve the objectives of this policy at a regional level?

Rabbit management is much more complicated than simply just reducing rabbit numbers. It is just one element of a complex ecological, economic and social system that farmers and land managers operate within. Thus, rabbit management is best approached as part of the whole system of land management.

For effective, sustainable land management three major elements should be considered which greatly influence the approach to and effectiveness of rabbit control:

Ecological – pest management that takes into account the relationship between organisms and their environment, specifically, the interrelationships between rabbits and communities of plants and other animals, soil and water resources, and other factors;

Economic – relates to the costs and benefits of various pest management strategies;

Social – covers a multitude of factors, from the attitude of neighbours to cooperative pest management and the attitude of individuals to pest animals (e.g., 'I just want to get rid of them') to the impact of community groups through restrictions on techniques and practices due to concerns about animal welfare as well as any political considerations.

Many individuals and groups have an interest in rabbit control. They include farmers, nature reserve managers, government agencies, banks, and animal welfare and nature conservation groups. Failure to adequately consult and take into account the views of all major players when determining the best approach to rabbit control may hinder effective management of rabbit damage. For example, if a neighbour has little interest or is opposed to some forms of pest animal control, they are unlikely to cooperate.

***Rabbit management is an expensive land management operation. Therefore at a local level, regional NRM boards need to work with farmers to define the relative costs and benefits of various rabbit management strategies, and understand why the actions of individual landholders may not lead to optimal rabbit management. If collective private decisions on rabbit management strategies do not meet the public interest for long-term sustainable land use and conservation of biological diversity, then regional boards need to determine what instrument (e.g. preparation of a property action plan, or serving a protection order) they will use to meet their regional or local objectives.***

In high rainfall areas, landholders may ignore the rabbits' potential for major increase in numbers, given favourable seasonal conditions, and regard relatively low rabbit populations complacently. Therefore justification still remains for boards to enforce a landholder's responsibility to control rabbits on their land, when for one reason or another (see barriers to rabbit control) they refuse to undertake rabbit management and cooperate with their neighbours to meet agreed community objectives for managing rabbit damage.

Despite the economic and environmental impact of rabbits in low rainfall arid lands, it is not reasonable to require pastoral land managers to control rabbits because of low returns per unit of land for pastoral production.

Rabbit control programs in the arid lands need to be considered in light of land capability, stocking rate limitations in leasehold agreements and availability of finance, labour and equipment. Warren destruction should always be the primary consideration but might only be worthwhile in areas of high value or importance e.g. :

- High production value areas: e.g. around permanent waters, in holding paddocks
- High conservation value areas: e.g. around last stand of mulga, tree plantings
- High social value areas: e.g. around gardens, houses, sheds.

Where warrens can't be ripped because it is not economically viable or is not feasible, the use of other control measure will always be less long-lasting and hence in the long term more expensive and time consuming (because controls will need to be reapplied regularly). For example, fumigation may be used in sensitive areas where a bulldozer or tractor may not be suitable (under remnant trees, under buildings, in dam banks).

***Given the range of factors that need to be considered when undertaking rabbit control there will always be a number of possible management solutions. Management strategies will depend on levels of damage and infestation levels, expertise, resources, timing, land type, current commodity prices etc.***

#### 4.6 **Research**

During consultation with pastoral zone landholders during the development of a new Pastoral Zone R&D Strategy, Australian Wool Innovations (AWI) identified concerns about longer-term prospects for effective rabbit control.

AWI prompted the Foundation for Rabbit Free Australia to organise and host a workshop in Adelaide on 10 May 2005 to review the current status of rabbit population in Australia, their impact, the effectiveness of current control measures and to identify possible R&D needs and opportunities. Twenty-six participants who included AWI, MLA, graziers and people from research/extension agencies in five states and the new Australian Invasive Animal (AIA) CRC attended the workshop.

The workshop identified the following possible research and development needs:

##### Short term (next 1-3 years)

- Establish coordinated monitoring of rabbit population trends
- Document and quantify the costs and benefits (to productivity and biodiversity) of rabbit control programs
- Investigate if there are 'RHDV like', non pathogenic viruses present in the rabbit population which are reducing the effectiveness of RHDV
- Develop an antibody test kit to allow field testing if rabbits are infected by RHDV or myxomatosis
- Develop and register a shelf stable RHDV bait and recommendation for its use

##### Long term (next 1-10 years)

- Conduct long term monitoring of rabbit population trends and status of rabbit resistance/susceptibility to RHDV and myxomatosis
- Investigate internationally the option for new bio-control agents (which may differ for arid/pastoral and higher rainfall areas)
- Investigate possible new toxins/baits for targeted rabbit control

- Conduct long term monitoring of biodiversity and productivity trends in relation to rabbit population trends

From the outcomes of this workshop, AWI and MLA are to jointly sponsor a short term (2-3 month) review of:

- rabbit population trends
- environmental and production impacts of rabbits
- past and current research outcomes

The review will then recommend new monitoring, research and extension needs for wild rabbits in Australia.

### ***Prohibition of movement, keeping, sale and release of wild rabbits***

Wild rabbits are proclaimed with Sections 175, 176, 177, and 179 applying for the whole of the State. The movement, sale, keeping and deliberate release of wild rabbits is an offence under the Act.

### ***Prohibition of movement, keeping and sale of domestic breeds of rabbits on offshore islands***

Domestic breeds of rabbits are proclaimed with Sections 175, 176, 177, 179 and 182 (1) applying to all offshore islands and any vessel adjoining these islands. This excludes Wardang Island where wild rabbits have established. Domestic breeds of rabbits have an increased risk of establishing feral colonies on offshore islands (when compared with mainland releases) and causing significant damage to sensitive environments.

The movement onto offshore islands or on any vessel adjacent offshore islands and the keeping and sale of domestic breeds of rabbits on offshore islands, excluding Wardang Island, is totally prohibited.

### ***Control over the keeping of domestic breeds of rabbits***

Domestic breeds of rabbits are proclaimed with Sections 179 and 181 applying for the whole of the State. Whilst the likelihood of the establishment of domestic breeds of rabbits from escapes is considered to be low, the deliberate release of domestic breeds of rabbits from captivity is an offence. Under Section 179, any costs associated with controlling or recovering domestic rabbits as a result of a deliberate release can be recovered from the owner of the animals. Under Section 181, an authorized officer can give a person a notice

(approved by the Minister) to take any action specified in the notice to keep a domestic rabbit in captivity.

**Due to the low risk to wild rabbit management programs, the keeping and sale of domestic breeds for meat, fibre and pelts is permitted under the NRM Act and no permits are required to farm rabbits. The keeping and sale of domestic breeds of pet rabbits is also permitted under the Act without permit.**

However, rabbit farming is an intensive animal industry. A *Code of Practice for Intensive Rabbit Husbandry* has been prepared by the Standing Committee on Agriculture and Resource Management to take consideration of animal welfare concerns. This Code has been adopted in South Australia under the provisions of the *Prevention of Cruelty to Animals Act 1985*, and subordinate legislation. Rabbit farming in South Australia must comply with this Code of Practice, which is administered by the RSPCA. Private individuals and breeders keeping pet rabbits are also required to comply with levels of husbandry required under the *Prevention of Cruelty to Animals Act 1985*. Rabbit farming is an intensive animal industry and Local Government planning approval is required. Further information can be obtained from your Local Council Planning Department.

## References and Further Information

Further information can be obtained from the Animal and Plant Control Commission on 8303 9500 and from the following references.

ACIL (1996) The economic importance of wild rabbits to rural production in Australia. Report to the International Wool Secretariat. ACIL Economics and Policy Pty Ltd., Canberra.

Linton, V. and Greenfield, B. (1999) Ripper! It's the Rangeland Rabbit Guide, Rabbit Technical Notes, Natural Heritage Trust

Morgan, A. 1993 "*Land Managers Decisions Regarding Rabbit Control*" Report – University of Ballarat

Olsen, P. (1998) *Australia's Pest Animals – New Solutions to Old Problems*, Bureau of Resource Sciences, Kangaroo Press, Australia

Henzell, R. 1992, *Organisational Development Review Report*, Department of Agriculture, South Australia.

Saunders, G., Kay, B. Mutze, G., and Choquenot, D (2002). Observations of the impacts of rabbit haemorrhagic disease on agricultural production values in Australia. *Wildlife Research* 29, 605-614.

Stodart, E and Myers, K. 1964, *A comparison of behaviour, reproduction, and mortality of wild and domestic rabbits in confined populations*, CSIRO Wildlife Research Volume 9, Number 2, November 1964.

Williams, K, Parer, I, Coman, B, Burley, J & Braysher, M (1995). *Managing Vertebrate Pests: Rabbits*. Bureau of Resource Sciences & CSIRO Division of Wildlife and Ecology. Bureau of Resource Sciences. Australian Government Publishing Service, Canberra.