

Managing production losses due to wildlife on farms

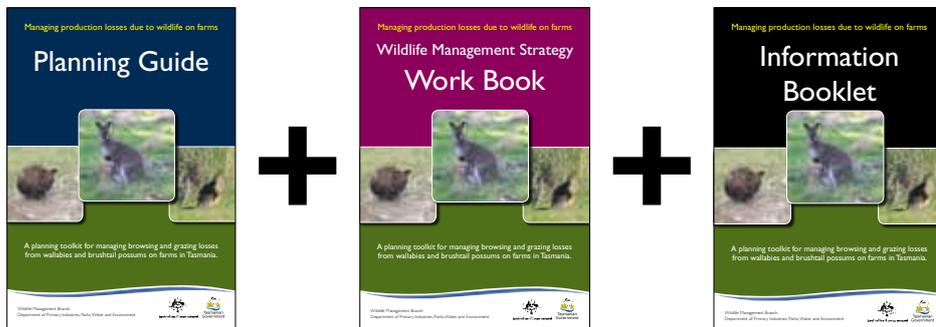
# Information Booklet



A planning toolkit for managing browsing and grazing losses from wallabies and brushtail possums on farms in Tasmania.

# Table of Contents

|  |    |
|--|----|
| Browsing Wildlife Species .....                                    | 3  |
| Monitoring and Measuring Pasture Losses to Wildlife .....          | 9  |
| Fencing.....   | 15 |
| Wombat Gates .....   | 19 |
| Legislative Information for Landowners .....                       | 21 |
| Shooting and Hunting Effectively .....                             | 23 |
| A Sub-Catchment Approach Coordinating Browsing Damage Management.. | 30 |
| Trapping .....   | 31 |
| Browsing Wildlife Management with Fallow deer.....                 | 36 |
| Conservation on Private Land.....                                  | 38 |
| I080 Poison.....   | 39 |



This reference document has been designed to be used in conjunction with the Managing Production Losses due to Wildlife on Farms – Planning Guide and the Managing Production Losses due to Wildlife on Farms – Wildlife Management Strategy Workbook.

Copyright © State of Tasmania, 2011.

Wildlife Management Branch, (2011), A planning toolkit for managing browsing and grazing losses from wallabies and brushtail possums on farms in Tasmania, Department of Primary Industries, Parks, Water and Environment, Launceston, Tasmania.

ISBN: 978-0-7246-6564-8

Title: Managing production losses due to wildlife on farms Planning Guide

Managing production losses due to wildlife on farms Wildlife Management Strategy Work Book

Managing production losses due to wildlife on farms Information Booklet

Author(s): Wildlife Management Branch

Publisher: Stevens Publishing Pty Ltd, Launceston

Published: 2011

Disclaimer: The material and information contained in this publication is intended as a guide only. Whilst every care has been taken to ensure the accuracy of such material and information at the time of printing, the Department of Primary Industries, Parks, Water and Environment (DPIPWE) does not guarantee this publication is without error.

The Crown in right of the State of Tasmania disclaims any liability for any loss or damage which may arise from any reliance upon any material or information contained in this publication.

**Acknowledgement. This publication was produced with funding from the Australian Government Department of Agriculture, Fisheries and Forestry, Alternatives to the I080 program.**

# Browsing Wildlife Species - Description, Status, Distribution, Diet and Control Options and Issues



There are a number of native and introduced species which will compete with livestock for pasture and crops in Tasmania. The main problem species being:

1. Bennett's wallabies
2. Tasmanian pademelon (rufous wallaby)
3. Brushtail possum
4. Fallow deer
5. Rabbits
6. Forester kangaroos.

Other species such as hares, sulphur crested cockatoos, feral cats, ravens (crows), wombats, native hens, wild ducks and black swans can all variously cause problems with crop or pasture damage, water quality in dams, predation and damage to farm infrastructure.

Different control options will be more effective for different species.

| Species / Control   | Fencing | Shooting# | Trapping | 1080 Poison | Feratox | Repellents |
|---------------------|---------|-----------|----------|-------------|---------|------------|
| Bennett's wallabies | ✓✓✓     | ✓✓        | ✗        | ✓✓✓         | ✓✓      | ✓          |
| Tasmanian pademelon | ✓✓✓     | ✓✓        | ✓✓       | ✓✓✓         | ✓✓      | ✓          |
| Brushtail possum    | ✓       | ✓✓        | ✓✓✓      | ✓✓✓         | ✓✓✓     | ✗          |
| Fallow deer         | ✓       | ✓✓        | ✗        | ✗           | ✗       | ✓          |
| Rabbits*            | ✓       | ✓✓        | ✗        | ✓✓✓         | ✗       | ✗          |
| Forester kangaroos  | ✓       | ✓✓        | ✗        | ✗           | ✗       | ✗          |

Table 1. Different control tool effectiveness for browsing species – pasture protection.

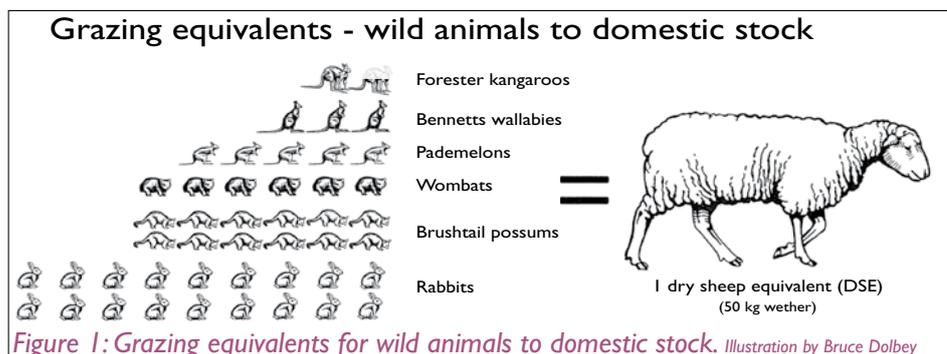
- ✓ Can work
- ✓✓ Effective control
- ✓✓✓ Very effective control
- ✗ impracticable / illegal.

\* Rabbits can also be controlled with Pindone, myxo, calicivirus and through burrow fumigation.  
# There are many different ways to shoot.

Knowing which species are present and causing damage on your property is critical to deciding the correct control strategy (See Table 1).

It's also important to consider the full suite of species on your property as these may affect the effectiveness of control options for other species. For example, trapping is particularly effective on properties where both Tasmanian pademelons (rufous wallaby) and brushtail possums are the main problem species however traps can be destroyed by other species such as wombats so caution should be used.

In terms of different species impacts on farm productivity, Figure 1 shows the relative impacts that different native



species can have, though it must be realised that this is based on their computed metabolic intake, and assumes that an animal is getting all of its dietary intake from pasture in competition with domestic stock, whereas in reality it would be getting at least part of its diet from other sources.

This booklet explains the distribution, diet and control options most applicable to each species, and also where multiple species occur.

Given the current high population levels of most wildlife species in Tasmania, capture and relocation is not a recommended practice for any of these species, as the most likely outcome of any relocation will be the death of the animal through fighting for territory or starvation due to being unable to establish a new territory.

## Bennett's Wallaby (Partly Protected)

*Macropus rufogriseus*. Also called red-necked wallabies, or colloquially kangaroo, grey kangaroos.

Bennett's wallaby are found in most vegetation types at all altitudes, but are most common in drier bush areas with an open understorey, especially at the bush - pasture interface.

Primarily grass eaters, Bennett's wallabies will also eat herbs, fungi, shrubs, seedlings and chew bark. They have adapted well to introduced grasses, legume and some crop species. On the basis of relative energy needs, 2.8 Bennett's wallabies eat the same amount as a 50 kg sheep, although this probably won't all have come from the pasture or crop area.



Bennett's wallabies usually come out to feed at dusk and can travel long distances into crop or pasture, moving over wide areas as they feed throughout the night. This can result in patchy damage across a paddock that is not always obvious. Five Bennett's wallabies radio tracked over a three month period at Kempton, southern Tasmania, had an average home range of 100 ha (range 34 - 164 ha), moving nightly up to 1.7 km through forest to pasture and up to 0.5 km out into pasture.

## Control Options and Issues

Fencing is an excellent control option for Bennett's wallabies, although they will repeatedly try and breach fences. Bennett's wallabies will generally try to push through a fence rather than under it but if holes are

present under a fence they will certainly make use of these existing holes. A small portion of the population will just jump the fence, and when pushed or stressed they will more readily leap and jump at fences in their haste to get away.

Because Bennett's wallabies attempt to push and jump through a fence, they readily break the joints in some types of mesh fencing which is why a heavier mesh is recommended in areas where this species is present.

In light or sandy soils they are able to dig under a fence to create an entry or exit point. From inspection it is often found that these holes have been made by wallabies trying to get out, after having come in via a breach point elsewhere. On heavier soils they will exploit slight undulations in the ground surface or use gaps at gullies, creek crossings etc or holes dug by wombats. Anecdotal evidence suggests that Bennett's wallabies will use culverts under roads to access feed sources.

Bennett's wallabies are very trap shy animals, and although smaller individuals have been caught in traps, trapping is not an effective method for Bennett's wallaby control. Shooting can be a very effective control method for Bennett's wallaby when done properly. 1080 poison has been very effective in the past for Bennett's wallabies, but should be seen as a last resort of limited use. Evidence to date from New Zealand and Tasmanian trials suggests that Feratox™ could be an effective tool for wallabies if it is registered for use in Tasmania. Research to date suggests that Feratox™ could potentially be a much more humane poison option than 1080 poison provided it is properly managed. Sen-tree contact repellent, and other various repellent trials, have been shown to have some efficacy on Bennett's wallabies, but none have been shown to have a sustained, or reliable effect. Repellents would be more suitable for small area control, eg. gardens, where alternative nearby food sources are available.



An example of Bennett's wallaby faecal pellets.

## Tasmanian pademelon (Partly Protected)

Tasmanian pademelon, rufous wallaby or wallaby (*Thylogale billardieri*)

This species is common on mainland Tasmania and the Bass Strait islands, although only patchily distributed on King Island.

Tasmanian pademelons prefer wetter areas, with thicker undergrowth than do Bennett's wallabies. They mainly feed on herbs and grasses in their natural habitat but have readily adapted to non-native species such as clover,

some crops and introduced grasses. Four and a half to five Tasmanian pademelons (rufous wallaby) will eat as much as a 50 kg sheep.

Tasmanian pademelons (rufous wallaby) shelter under cover by day and emerge to feed at dusk. As a result they are commonly seen feeding close to cover. Four pademelons radio tracked in dry sclerophyll habitat at Kempton, southern Tasmania, over a three month period, had overlapping home ranges of approximately 150 ha (range 149 - 169 ha). Pademelons made nightly movements of up to 2 km through bush to feed on pasture within 200 - 300 m of the bush edge. In more typical habitat where animals are moving between bush with dense undergrowth and improved pasture, they usually stay closer to the bush edge.



## Control Options and Issues

Fencing is the most effective control for Tasmanian pademelons (rufous wallaby). Like Bennett's wallabies, they will also breach a fence by going under it. However they can fit through surprisingly small holes, especially the young ones which can move through some mesh fences and through many gate meshes. Recent research has shown that Tasmanian pademelons (rufous wallaby) will readily move through 350 mm pipe to gain access to pasture.

Tasmanian pademelons (rufous wallaby) can be a hard species to effectively control through shooting as they tend to browse in groups, very close to the bush edge and quickly flee if feeling threatened. However, a well implemented shooting strategy can control them. Activities such as laying out grain lines can help shooting of this species. Poisoning is very effective for Tasmanian pademelons (rufous wallaby), as after brushtail possums, they tend to be the next species to eat from poison bait piles. Trapping can be an effective niche tool for this species. Sen-tree contact repellent, and other various repellent trials, have been shown to have some efficacy on this species, but none have been shown to have a sustained, or reliable effect. Repellents would be more suitable for small area control, eg. gardens, where alternative nearby food sources are available.

### Pademelon (rufous) Summary

- come out to feed on dusk and throughout the night
- prefer wetter areas and dense undergrowth especially where they abut pastures and crops
- browse within close proximity to bush edge
- use runways under fencing
- generally leave faecal pellets that are compressed together and cigar shaped
- fencing, shooting, trapping and poisoning are all viable control methods for this species



An example of a Tasmanian pademelon (rufous wallaby) faecal pellet.

## Brushtail Possum (Partly Protected)

The brushtail possum (possum) (*Trichosurus vulpecula*) is abundant and widespread throughout Tasmania and the Bass Strait islands.

Possums occur in most habitats including rural and urban areas. They are particularly abundant along the edge of native bush and improved agricultural lands and throughout cleared areas with suitable nest sites. Preferred nest sites include tree hollows, timber heaps, buildings or holes in the ground.

In their natural habitat possums eat mainly plant-based material such as leaves, fresh gum tips and flowers, and have been recorded to take half of their diet from ground vegetation. They are opportunistic feeders that have adapted well to agricultural species such as clovers and fruit. Although it takes 12 possums to eat as much as a 50 kg sheep, their effect on pasture can be substantial because they preferentially graze on high quality pasture species such as clover.

Poisoning trials have also clearly demonstrated that possums can be much more numerous than a landowner might realise through spotlighting and hence their impact significantly underestimated.

### Control Options and Issues

Possums will travel long distances over the ground.

Possums will preferentially try and go under fences where there is sufficient clearance, and they can fit through remarkably small gaps. Barbed wire at the bottom of the fence will not stop or slow them. They easily fit through some mesh styles and are able to climb over most fences. There are adaptations that can be done to standard wallaby fences such as using electrical outriggers at the base and also near the top of the fence or the use of 'floppy tops', but these adaptations are generally quite expensive to run and maintain, and possums are remarkably adaptive, learning to use nearby trees, stumps or even corner posts to breach fences.

Brushtail possums have not been heavily shot on many properties, as they are not seen as a sporting animal to hunt, and most recreational hunters prefer wallaby



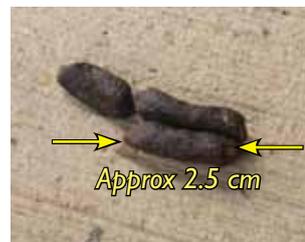
meat to possum meat. Providing recreational hunters with incentives to shoot brushtail possums, such as providing them with fuel or ammunition, can be an extremely effective strategy for getting possum damage under control.

Possums are very curious and bold creatures, and hence are usually very easy to trap and poison. Trapping is a particularly good strategy where a property's main problem species are brushtail possums and Tasmanian pademelons (rufous wallaby).

Brushtail possums appear to have either an extremely strong stomach or very poor taste buds. Even repellents such as bitrex (an extremely bitter product) are largely ineffective against possums, though again, repellents can play a role in niche protection of gardens where other alternative food sources are readily available.

### Brushtail possum summary

- come out after dusk and feed throughout the night
- are often more abundant than is realised
- are present wherever there are suitable den sites
- preferentially browse clover
- trapping, shooting and poisoning are best control options. Possums will breach most fences, and are highly resistant to repellents
- leave groups of cylindrical faecal pellets each approx 2.5 cm long and several mm in diameter.



*An example of brushtail possum faecal pellets.*

## Forester Kangaroos (Protected)

The Forester kangaroo (*Macropus giganteus*) is the largest marsupial in Tasmania and the second largest in the world.

Their preferred habitat is open grassy forests and woodlands of northeastern and central Tasmania.

Foresters often feed during the day, but mostly in the early morning and evening. Grasses and forbs comprise the diet. Forester kangaroos are social animals that are usually seen in family groups of three or four, but may occur in loosely associated mobs of more than ten.



### Control Options and Issues

Kangaroos can damage crops and pastures where local populations are high. Due to their large size, they can also damage fences. As a result they can come into conflict with landholders. The Forester kangaroo, due to its protected classification have more stringent requirements to be met before permits will be issued. Given their more limited abundance and day time browsing activities,



*Electrical outriggers placed near and/or on top of the fence will help deter possums.*

shooting is the most logical control for managing local populations causing damage. Landholders are required to justify a culling quota at the time of seeking crop protection permits for this species. Forester kangaroos are a desirable game species in Tasmania, and many recreational hunters are willing to provide crop protection services to landholders in exchange for access to Forester kangaroo tags and this provides opportunities for landholders to increase control effort on their properties.

Like the other macropods, Foresters prefer to go under a fence than over it, but they will leap at or over fences, especially when they feel in danger. Because of this a typical wallaby fence will not generally stop Forester kangaroos, though taller fences may. In considering such a design landholders should consider the welfare impacts of animals becoming entangled in fences.

Trapping and poisoning are not options for this species.



*An example of Forester faecal pellets.*

## Fallow Deer (Partly Protected)

Fallow deer were brought into Tasmania in 1836 and wild populations were established about 20 years later.

Fallow deer are a highly mobile species and don't respect property boundaries. They can also cause swift and severe damage to pasture areas and crops when moving in large numbers.

Fallow deer are herbivores and graze all types of ground vegetation. They can cause a great deal of damage to young plantations by pulling seedlings out of the ground, and they also like to feed in arable fields on root crops such as carrots, sugar beet, parsnips or potatoes. Male deer can also damage vegetation with their antlers during the breeding season when marking territories.

Wild fallow deer are highly valued by sections of the Tasmanian community as a hunting resource. Annual seasons are proclaimed for the taking of male deer and antlerless deer. Outside of the seasons, deer may be taken under Crop Protection Permits by landowners who are suffering browsing damage from deer.

## Control Options and Issues

With the desirability of wild deer as a hunting resource, many properties have managed wild deer according to the principles of Quality Deer Management (QDM).



*An example of fallow deer faecal pellets.*

The aim of QDM, introduced to Tasmania in the 1990s, is to promote a healthy deer population in balance with the habitat in which the deer reside. This usually equates to deer herds being kept at lower densities than under traditional management practices and also increasing the number of trophy animals within these smaller herds. This provides a benefit to the landholder by reducing any potential crop or pasture damage caused by deer, and provides the hunting groups on the property a higher quality herd.

QDM is total herd management involving the management of males, females, and fawns, habitat, hunters and hunting experiences. The reasons for adopting the principles of QDM vary between properties, and from hunter to hunter. Hunters are encouraged to show restraint in the harvest of young male deer combined with an increased harvest of female deer.

Furthermore, hunters and hunting clubs, often enter into agreements with landholders to provide agreed levels of shooting control for other wildlife species, in return for property access rights and deer hunting privileges during the deer season and if crop protection permits are sought. These agreements can save landholders thousands of dollars.

When well implemented, this can be one of the most effective control strategies for a property, especially on properties that undertake principally larger dryland extensive agriculture practices.

There is no requirement for landowners to implement QDM in Tasmania and all landowners inside and outside of the core deer range can apply for crop protection permits.

There are no approved trap designs for deer, and it is illegal to poison them in Tasmania. There are deer fences which can be used to stop deer, and the Forestry Commission of Britain have an excellent "Forest Fencing" technical guide which can be downloaded for free from [www.forestry.gov.uk](http://www.forestry.gov.uk) which covers many of the issues with deer fencing.

## Rabbits (Vermin)

Rabbits are classified as vermin under the **Vermin Control Act 2000** and may be hunted at any time on Crown land, State Forest and on private land with the permission of the landowner. There is no bag limit and rabbits are normally taken with shotguns and rimfire rifles, although any non-prohibited firearm may be used. Hunters are encouraged to harvest rabbits whenever possible because they have the potential to become a major problem in the future if not properly managed.

There is a much broader range of control options for rabbits than for the other species, including the use of 1080 poison, pindone, myxamotosis, calicivirus and burrow fumigation.



*An example of rabbit faecal pellets.*

## Control Options and Issues

If rabbits are a significant problem on a property, as well as other species, then it is worth considering those control options which might target multiple species.

Rabbits can of course be shot when undertaking control of other species, but the major consideration to think about when looking at combined control options is the use of rabbit wire to exclude both rabbits and wallabies as rabbits will pass through wallaby mesh. The addition of rabbit netting, preferably buried 150 mm into the ground, will not only slow the reinvasion of rabbits, it is also very effective in increasing a fence's effectiveness against possums and wallabies as this is their typical preferred breach point.

Rabbits are very neophobic, that is they fear anything new or strange, therefore cage traps are largely useless for their control, and leg hold traps and snares are illegal to use in Tasmania.

## Other species

### Hares (Not Protected)

Hares, while not classified as vermin, have no legal status and can be hunted under the same conditions that apply to rabbits.



### Wombats (Partly Protected)

Wombats are infrequently a significant problem with pasture losses, though six wombats can eat



*When fencing it is important to understand species you are trying to manage. For example, rabbits can breach even the smallest wallaby meshes.*

as much as a standard sheep.

The main issues landholders generally have with wombats is the burrows they dig in

pasture areas, particularly the resulting instability in sandy banks, their ability to dig under wallaby proof fences creating highways for the other species to travel through and undermining building foundations.

An effective wombat gate design has been developed which allow wombats to enter and exit pasture areas, but preclude most wallabies, possums and other smaller species from doing so. A brochure is available to explain how to build such a gate, and how and where best to install it.

Whilst landholders are strongly encouraged to live with wombats, and most are happy to do so, it is recognised that there are situations where small numbers of wombats need to be culled due to the damage or risk they are causing, and in these circumstances the Wildlife Management Branch do issue crop protection permits for the removal of a set number of wombats from a property.

The presence of wombats is a negative when it comes to trapping, as they can easily destroy traps set for wallabies and possums should they enter and get caught.



*An example of wombat faecal pellets.*



Further Information and Contacts

### Wildlife Management Branch

Reception Phone: 03 6233 6556

Reception Fax: 03 6233 3477

Email: [wildlife.enq@dpipwe.tas.gov.au](mailto:wildlife.enq@dpipwe.tas.gov.au)

[www.dpipwe.tas.gov.au/browsingmanagement](http://www.dpipwe.tas.gov.au/browsingmanagement)

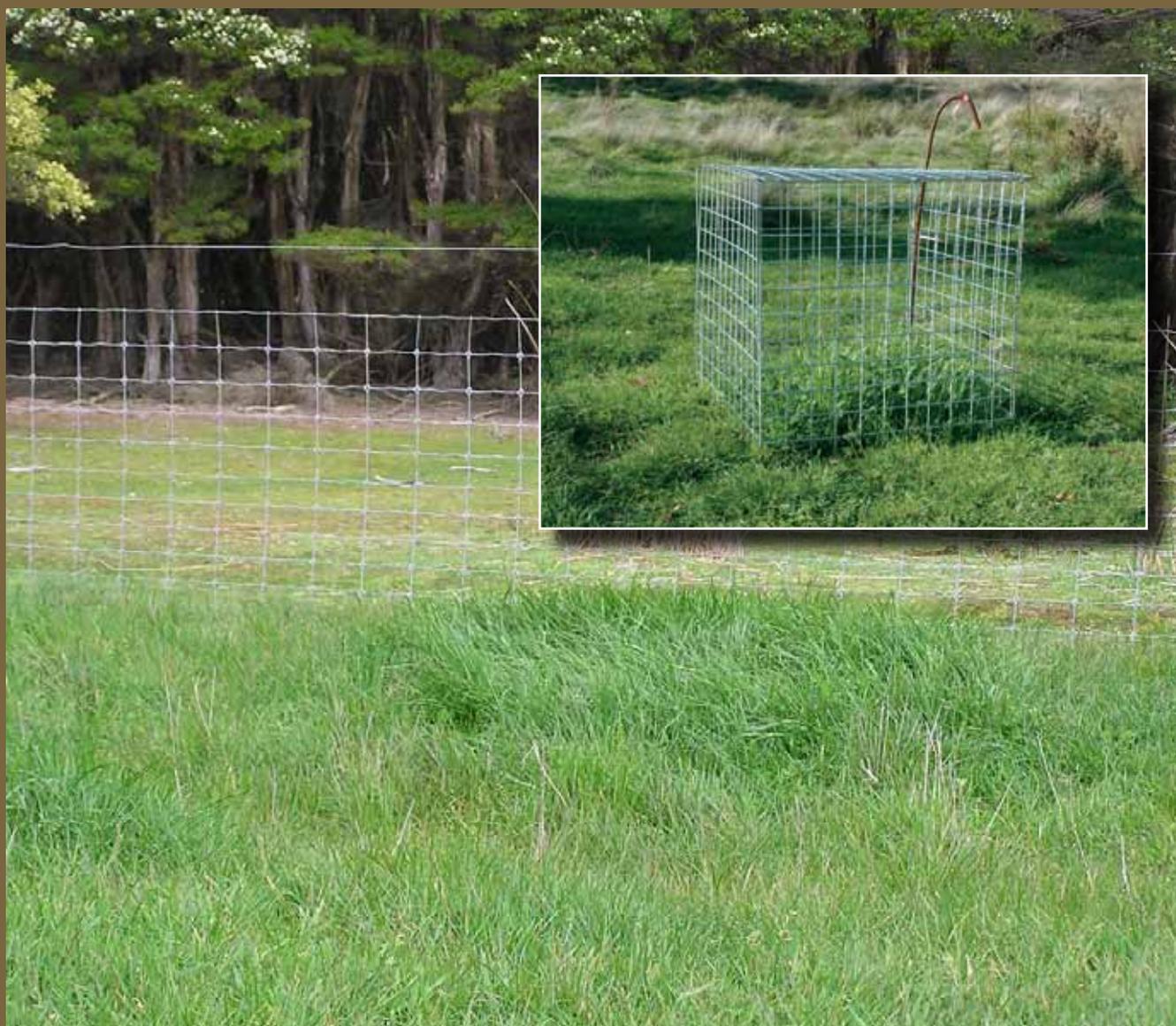
GPO Box 44, HOBART, TAS, 7001

Published by: Department of Primary Industries, Parks, Water and Environment.  
Wildlife Management Branch.

Copyright: State of Tasmania: 2010

First published: May 2010

# Monitoring and Measuring Pasture Losses to Wildlife



We were at the stage where we couldn't afford not to fence. Grass wouldn't germinate before the fence was built and we couldn't run 50 sheep in the paddock. Now we run 50 cows and 200 sheep. **Stewart Archer, Weymouth.**

We share a 12 km boundary with the Crown, which currently means a loss of production equivalent to about 125 breeding cows. The good thing is that if we wallaby proof fence the boundary and it is effective it will pay for itself quickly. **Steve Pilkington, Redpa.**

We fenced a 20 ha paddock in November and now, two months later, the pasture inside the fence is a foot high and is being grazed by sheep. Outside the fence there is less grass than on a bowling green. **Leigh Hansson, Bruny Is.**

## Is Pasture Loss To Wildlife Really That Important?

Loss of agricultural and forest production to native and introduced wildlife in Tasmania is considerable. Most landowners have only anecdotal records of losses due to wallaby and possum browsing because accurate records are time consuming to collect, but comments above indicate the extent of losses.

Experimental information on pasture loss in Tasmania due to wallabies is limited. However, 4 studies have been reported in scientific journals.

- In a 3 year trial<sup>1</sup> using an electric fence designed specifically to exclude wallabies, loss of production to wallaby browsing averaged 11% inside the fenced areas, compared with 83% in an adjacent similar area with a normal stock fence.
- In another later trial<sup>2</sup>, where enclosure cages were used to exclude wallabies in farm paddocks, pasture loss in areas accessible to wallabies outside enclosures varied between 17% and 100% at 9 different locations.
- With wallaby proof wire fences around 5 ha paddocks in the North East and South East of Tasmania over 3 years, an increase in carrying capacity of over 35% on dryland pastures was achieved when wallabies were excluded<sup>3</sup>.
- In a short term, preliminary study<sup>4</sup> of the effects of all wildlife on pasture growth at Elliot in North West Tasmania, pasture dry matter production was reduced by 21% under dryland and 34% under irrigation.

A trial<sup>5</sup> on a large property at Ross in the central midlands, measured the impacts of browsing damage by native and introduced wildlife on pasture. Pasture loss was greatest close to bush edges and diminished with distance into the pasture. The main browsing/grazing species were identified as Forester kangaroo, Bennett's wallaby, brushtail possum and fallow deer. However, the relative importance of each of the browsing species in causing the damage has not yet been determined. Other trials<sup>6</sup> in 12 irrigated and dryland dairy pastures in northern Tasmania are recording pasture loss to Tasmanian pademelons (rufous wallaby), near the paddock edge, ranging from 12% to 100% with an average of 65%.



*An easily relocatable enclosure.*

Loss of production does not relate directly to numbers of browsing animals present because the animals don't necessarily get all their food from the crop or pasture.

However, animal surveys by spotlight counting or faecal pellet counts can help determine which browsing species are present and whether there are large numbers of them.

## How Do I Know How Much I Am Losing?

One of the first steps in deciding how important losses to wildlife are on your farm is to try and estimate how big a financial impact they are having.

The presence of animals by itself is not the problem, it is the amount of pasture or crops they are eating, so just counting animals will not give you a good indication of how much impact they are having as you don't know how many you're not seeing, or how much of their diet is coming from your pastures.

Direct pasture monitoring is the best way to really understand wildlife impacts at a property level and is recommended as part of any wildlife control strategy monitoring program.

There are several ways you can determine your losses, or at least relative impacts, without going to the time and effort of putting out enclosure plots.

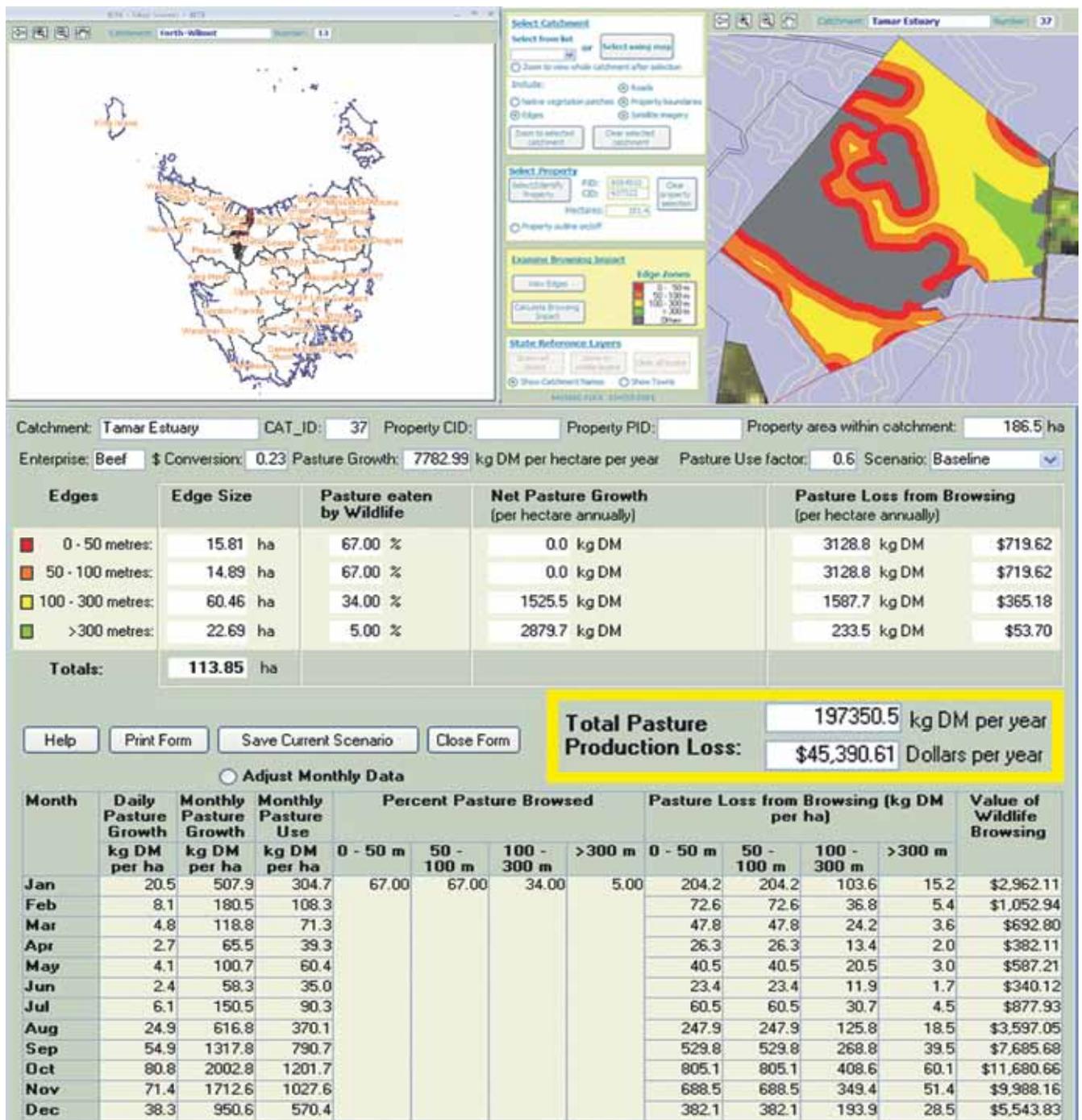
**Our research indicates that the magnitude of pasture loss and its economic implications are seriously under-estimated by many landowners and land managers in Tasmania. The magnitude of the annual financial loss to the pasture-based, primary industries is clearly in the order of many millions of dollars.**

**Professor Tony Norton.**

## Method 1: Property History

If you've owned the property for a long time, or have access to longer term records, look back and see how productive the different areas of your farm were 5, 10 or 20 years ago. If you find you're running significantly less livestock than you used to, and that this difference can't be explained by other causes, then this is a good initial estimate of the impact that increased wildlife browsing has had on your farm. Just take the amount of stock you can no longer run and multiply this by how much they're worth to you each year and you have a very good starting point for how much browsing impacts are costing you under your current control strategy.

It may also be more subtle, but are you still cutting the same amount of hay or silage as you were five, ten years ago?



**BITE is a powerful computer software program that can help you estimate pasture loss.**

BITE screen images: (Starting from top left in a clockwise direction) Selecting the catchment where your property is located is the first step to finding your property using the map function; A view of the predicted level of browsing for a parcel of land. (The differing colours represent browsing zone classifications based on distances from the bush edge, red = 0-50m, orange 50-100m, yellow 100-300m and green =>300m); A summary of estimated pasture production and potential pasture loss due to wildlife for each zone highlighted on the parcel of land. (The baseline data and assumptions used in the analysis can be easily modified to reflect known pasture growth and potential pasture loss figures for a property).

## Method 2: Use BITE

As part of the Alternatives to I080 Program, Prof. Tony Norton of TIAR has developed a tool called BITE (Browsing Impact on Tasmanian Ecosystems), which you can use to estimate your pasture losses from wildlife browsing.

At its simplest the model requires you to nominate your enterprise type (dairy, beef or sheep) and then locate and select your property and based on some catchment level assumptions about pasture growth, wildlife browsing



Setting out a transect line to do a faecal pellet count. Set it at one metre by twenty metres.

impacts and pasture utilisation derived from a number of research projects, BITE will produce an estimate of pasture losses for your property. However, the model is much more powerful than this, allowing you to modify all assumptions from pasture growth, pasture value and browsing impacts to better match your own knowledge of your property and derive some educated estimates of how much browsing damage could be costing you.

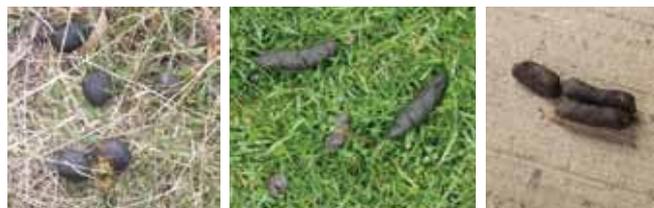
BITE can be accessed by contacting a Game Management Officer within the Wildlife Management Branch.

### Method 3: Using a Meat and Livestock Australia (MLA) Pasture Ruler or Electronic Pasture Meter

Another rough way of estimating wildlife browsing impacts is to source either a MLA Pasture Ruler or an electronic pasture meter, and walk a number of transects adjacent to, but at different distances from the bush line, eg. 10 m, 25 m, 50 m, 100 m, 150 m and 300 m (or as far out as you practically can).

If you're seeing a clear increase in pasture mass as you move further and further out from the bush edge then this is a good indication of browsing impacts under most circumstances. Furthermore if you can get a reading far enough out from the bush edge that you are comfortable that the pasture is relatively unaffected by wildlife browsing, then you could do some very rough calculations to figure out percentage pasture losses in the first few hundred metres out from the bush edge.

Again, take this as a guide only; less pasture growth nearer the bush edge could be due to soil differences or variation in fertiliser application. Furthermore, the impacts of wildlife browsing vary between the species, and also quite significantly between the seasons.



Faecal pellets, left to right, Bennett's wallaby, Tasmanian pademelon (rufous wallaby) and brushtail possum.

### Method 4: Faecal Pellet Counts

Unlike direct animal counts, faecal pellet counts involve walking a transect line (usually 20 m long adjacent to the bush edge) and counting the number of wallaby and possum pellets seen, and then removing these pellets and repeating this process a week or fortnight later.

Whilst it is again difficult to translate faecal pellet counts into either pasture loss or browser numbers, they do give a good indication of relative browsing impacts across the property as animals tend to defecate where they are browsing so higher pellets counts in some areas are a good indication of higher browsing areas. Low pellet counts in areas are where you are likely to be experiencing lower browsing pressure.

As such this method is more useful for getting an initial indication of relative browsing impacts across

your property, but can also be used as a longer term monitoring tool to see where presence is changing over time. It could be a useful tool to use to ground test the areas of high, medium and low browsing impacts for the BITE model.

### Method 5: Direct Animal Counts

Several trials conducted by the Alternatives to 1080 Program have demonstrated the deficiencies in using spotlight counting to determine the number of animals on your property and the impact they are having. Spotlighting regularly picks up less than 50% of animals present even at the time the observer is there counting, and in worse case scenarios you can actually see no animals as they have all fled ahead of your spotlight beam. For example, at one trial site, three nights of spotlighting produced a maximum count of 5 possums on a site. 80 possums were then trapped along the spotlight route over 3 weeks.

These problems are further compounded by the fact that animals come out at different times during the night, and don't necessarily come out onto pastures every night so you never really know what percentage of the population you are seeing, and then you further don't know if the animals you have counted take 10%, 50% or 100% of their diet from your pastures so you can't translate what you are seeing into dollar impacts with any meaningful accuracy.

There are however a small number of contractors in Tasmania who have access to infra-red or thermal cameras or scopes, and which offer a service to count animals on your property. When done by an experienced operator, at different times of the night and across several nights, you can get a much more accurate picture of wildlife impacts on your property, but it comes at a cost and still doesn't tell you the magnitude of the problem just that you have one or not.

Like faecal pellet counts, information provided by accurate direct animal counts (see Figure 1) could be a useful tool in determining areas of high, medium and low browsing impacts for the BITE model.



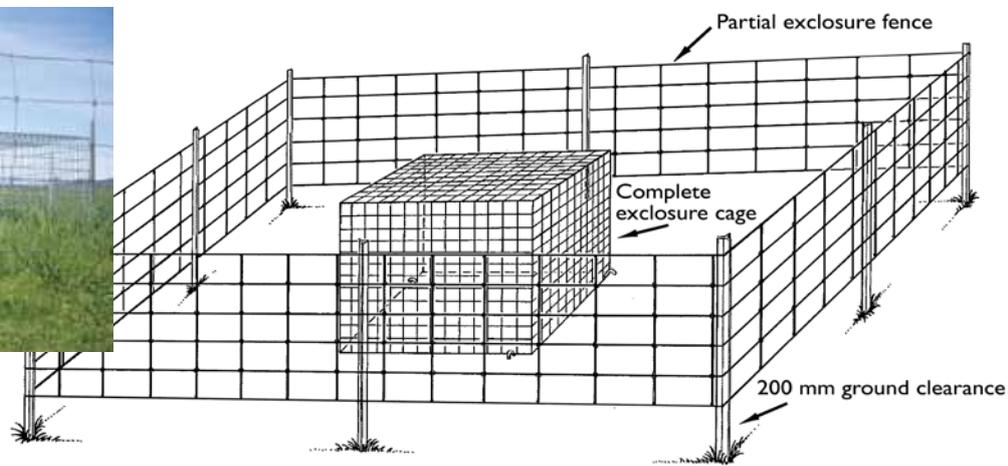
Figure 1. Example of thermal imaging. These are cows in the foreground, with each smaller black dot being a wallaby. Top of hill is 350m from viewing point.

### Exclosure Plots - The Only Accurate Way

Once you have obtained an estimation of the scale of pasture losses from historical methods or through investigation of the BITE tool, if you want to get more



*A semi-permanent enclosure.*



*Figure 2. An enclosure that excludes stock, but allows wildlife to enter. Illustration by Bruce Dolbey.*

accurate property level information, or set in place a monitoring strategy to see how effective the controls you are about to undertake are, then using enclosure plots to measure pasture losses to wildlife browsing is the only realistic tool to do this.

These small plots are designed to exclude wildlife and therefore any wildlife browsing so that the difference in pasture biomass between the browsed and non-browsed plots can be calculated.

You don't need many enclosures, though it is wise to place a few at different distances from your fence or bushline (eg. 4 enclosure plots: 1 at 10 m, 1 at 50 m, 1 at 100 m and one at the far edge of the paddock furthest from the bush edge).

Using enclosures to determine pasture loss is easiest to do when stock are not in the paddock, so if you rotate your stock, then you might want to consider building movable (folding) enclosure plots that you can move into paddocks that are being rested. If you use set stocking, then semi-permanent enclosures might be a better idea.

However, enclosure plots are not the be all and end all of wildlife monitoring. Measuring biomass lost to browsing wildlife still won't provide the full picture: wallabies and possums preferentially graze certain species and can therefore alter pasture composition and enclosure plots won't necessarily pick this up.

## Making an Enclosure

The types of enclosure used will depend on farming practices and materials that are readily available. Two



*It's not just about total biomass lost to wildlife, wallabies and possum preferentially graze certain species such as clovers, and therefore have the potential to alter pasture composition.*

main approaches that could be used involve enclosures designed to be easily relocated based on stock movements out of a paddock, or semi-permanent in set stocking situations.

Easily relocatable enclosures can be simply made out of weld mesh (approx 1.5 m in diameter, so 5 metres of wire) with rabbit wire around the base. This will exclude most wallabies and other ground based animals from browsing inside the enclosure, though if there are lots of brushtail possums in your area it would make sense to put a top on your enclosure using rabbit wire or some form of netting to prevent losses to these animals. A star picket or two for stability is a good idea to ensure enclosures stay in place, or use tent pegs if cattle will not be present. Put enclosures up around the same time that stock are removed.

Placement of enclosures based on distance from the bushline should vary and suggestions are 10 metres, 25 metres, 50 metres and 100 metres. A spot should be identified outside of the enclosure that has pasture of a similar height to where you have just placed your enclosure. This spot will be measured at the same time your enclosure is measured to allow comparisons to be made, so in effect, it is an open enclosure.

Semi-permanent enclosures allow wildlife browsing calculations to be made with stock present. It involves a little more preparation to ensure a differentiation can be made between pasture consumed by stock and pasture lost due to browsing wildlife. A partial enclosure that excludes stock but allows wildlife to enter and graze is erected around the enclosure that excludes all grazing (See figure 2). An open site is still selected outside of the partial enclosure and come time for pasture measurements all three enclosures are measured. The difference between the partial and open enclosures is the figure used for the 'weight of sample' from outside the enclosure to determine the percentage lost to browsing wildlife in the Calculation of Pasture Loss section.

Once you have calculated the pasture mass both inside and outside the enclosure plots you can then convert this into the cost of browsing wildlife.

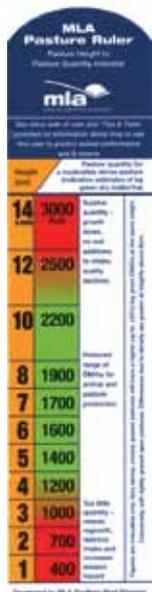


*An enclosure reinforced to exclude rabbits and possums.*

## Calculation Of Pasture Loss

The simplest way to measure pasture loss is to use a Meat and Livestock Australia Pasture Ruler to measure the amount of pasture growth both inside the enclosure and at a spot identified outside the enclosure for comparison. The ruler provides the basis for a quick and easy way to estimate pasture mass and quality and has been designed for use on a moderately dense pasture.

The pasture ruler and other information on pasture quality can be found at [www.mla.com.au](http://www.mla.com.au)



For more accurate results you can cut, dry and weigh pasture samples using the method outlined on the next page.

Cut a 50 cm x 50 cm area to ground level from inside each enclosure and a matching one from outside each enclosure. To ensure accuracy, a quadrant, (a square with an inside measurement of 50 cm made from either wood or steel) can be used to mark the area to be cut. Store the cut pasture immediately in a plastic bag, squeeze out all air and seal the top until weighing or drying. Make sure the samples are kept out of the sun.

A rough estimate of the loss can be calculated from weighing the samples as accurately as possible and using the formula:-

$$\% \text{ Loss} = \frac{\text{Wt of sample from inside enclosure} - \text{Wt of sample from outside}}{\text{Wt of sample from outside}} \times 100$$

Wt of sample from inside enclosure

Also try to estimate the relative proportions of grass and clover in the samples from inside and outside the enclosures as wallabies and possums preferentially graze clover:

A more accurate measure of pasture loss can be made by drying the samples from the quadrants and calculating the amount of feed available. This is the method to be used to get an accurate measure of the loss in kg of dry matter per ha.

The procedure is:

1. Weigh the sample before drying, to the nearest gram, and record the weight (W).
2. Take a representative subsample of 100 g.
3. Dry the subsample in a microwave oven for 12 minutes on high. (It is essential to include a cup of water to avoid the sample burning.)
4. Weigh the dried sample to the nearest gram. Put it back in the microwave for a further minute and reweigh. If the dry weight has not changed by more than a gram then record the weight (SS) in grams. Otherwise repeat the previous step.
5. Calculate the sample dry weight as below:

$$\text{Herbage mass} = W \times \frac{SS}{100} \times 40 \text{ (kg DM/ha)}$$

The factor of 40 is used because a quadrant of size 50 x 50 cm is 1/40,000 of a hectare and there are 10,000 m<sup>2</sup> in a hectare.

The above calculation is designed to provide you with a total pasture loss estimate, not a determination of pasture loss per species. It is also important to realise if only a few enclosures are used, the results for these sites may be relevant to a particular paddock, but discretion will be required should you wish to use these results to project losses across your whole property.

## What's Next?

Once you understand how much pasture, and ultimately income and profit, you are losing to wildlife grazing the next logical step is to strategically plan for browsing wildlife on our property. This will involve making decisions on what is acceptable loss, which range of control options best suits your particular circumstances and how they might be implemented.

## Other useful information and resources

DPIPWE website:

[www.dpipwe.tas.gov.au/browsingmanagement](http://www.dpipwe.tas.gov.au/browsingmanagement) for practical information on browsing wildlife management.

### References

- 1 Statham M (1994) Electric fencing for the control of wallaby movement. *Wildlife Research* 21, 697-707.
- 2 Statham M and Raynor P (1995) Loss of pasture and crop to native animals in Tasmania. *Proc. 10th Australian Vertebrate Pest Conference* 171-176
- 3 Statham M (2000) Demonstration of the economic benefits to grazing from effective wallaby control. Report to the National Feral Animal Control Program, Bureau of Rural Sciences.
- 4 Donaghy DJ and Tegg R (2001) Report on effects of wildlife on pasture growth at Elliot Research & Demonstration Station, 2000-2001. (Industry report:TIAR).
- 5 R.Smith (pers. comm.)
- 6 J. Coad (pers. comm.)



Further Information and Contacts

## Wildlife Management Branch

Reception Phone: 03 6233 6556

Reception Fax: 03 6233 3477

Email: [wildlife.enq@dpipwe.tas.gov.au](mailto:wildlife.enq@dpipwe.tas.gov.au)

[www.dpipwe.tas.gov.au/browsingmanagement](http://www.dpipwe.tas.gov.au/browsingmanagement)

GPO Box 44, HOBART, TAS, 7001

Published by: Department of Primary Industries, Parks, Water and Environment.  
Wildlife Management Branch.

Copyright: State of Tasmania: 2010

First published: May 2010

# Fencing

## An Effective Management Tool for Wallabies and Pademelons



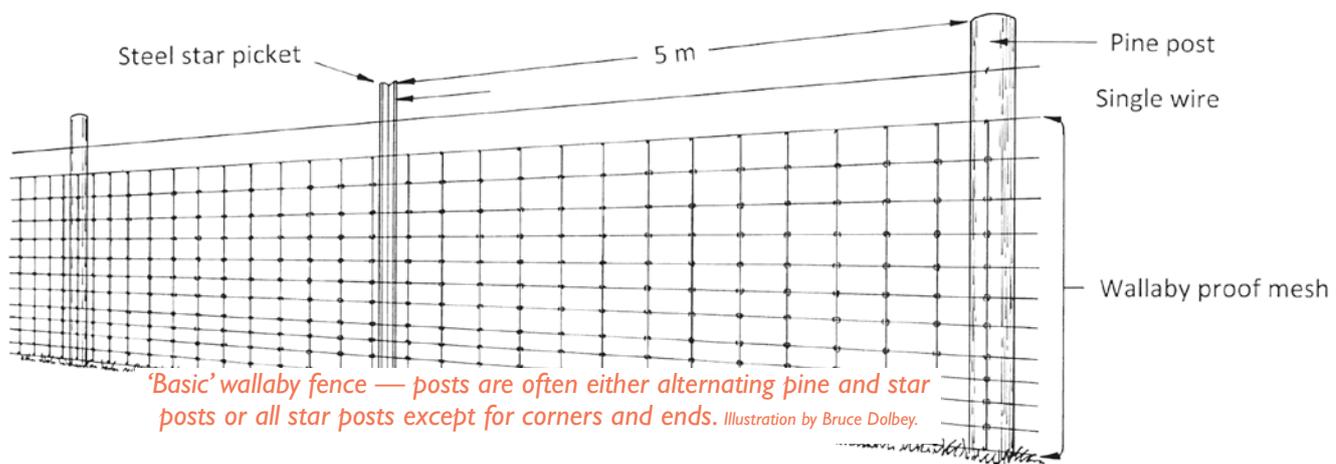
*A wallaby proof fence paying for itself on King Island.*



*Mesh extended onto the ground to deter digging and fence breaches.*



*Electrical outrigger positioned at the top of the netting to deter brushtail possums from climbing over the fence.*



## Species Effectiveness

Fencing is most cost effective for controlling wallabies entering a property, but must be done in conjunction with lethal control tools.

Fences can be easily adapted to also exclude rabbits through the addition of rabbit wire at the bottom. The number of breaches by brushtail possums can also be reduced through the addition of electrical outriggers. Electrical outriggers will also improve effectiveness against wombats and wallabies.

Fence modifications to stop deer and Forester kangaroos are also possible, but expensive, involving increasing the height of the fence to over 1.4 metres. If wombats are in your area then some combination of wombat gates, electrical outriggers or targeted culling will be required to control these species.

Importantly a fence is only as effective as its weakest point. There only needs to be 1 or 2 holes under a fence to considerably reduce its effectiveness (see box below). Good construction and maintenance are keys to effective fencing.

The use of # 'pig wire' (8-80-15) is not recommended for excluding Tasmanian pademelons (rufous wallaby).

## Wildlife Fencing Basics

Wildlife proof fencing is a long term control option that can significantly reduce browsing losses.

Wallaby fencing requires a substantial capital outlay. Landowners with high pasture or crop losses who have fenced have found it pays for itself in a few years.

Wallaby fencing needs to be integrated with other control methods such as shooting, poisoning and trapping particularly when first built to reduce pressure on the fence and ensure that the animals don't die an inhumane death due to starvation on the other side of the fence or compromise the native vegetation by over-browsing it.

Wallaby proof fencing is not suitable in all situations and even the best fence will still not stop all wallabies getting into your crops or pasture.

There is no "best" wallaby fence, the materials and design used will depend on the animal species involved, terrain, proportion of the browsing population which needs to be excluded and finances available. You can build fences which will totally exclude all wildlife, but it would require daily monitoring, and the cost would just be prohibitively expensive (think \$50,000 + per km). Also the use of cheaper materials may be an option if used in conjunction with wallaby gates and/or an ongoing integrated control program that succeeds in minimising the wildlife pressure on the fence.



*Modified fence to deter fallow deer.*

## Top 10 Steps in Building a Wallaby Proof Fence

Before building a fence it is worth spending the time looking at different options for your situation. This could include talking to neighbours with similar problems who have fenced; attending organised field days or farmer discussion groups; talking to private fencing contractors; and reading relevant guides such as TIAR's Wallaby Proof Fencing guide.

## The Importance of Fixing Holes

At an 'Alternatives to 1080 Program' - trial site at Waterhouse, 60 to 70 wallabies were counted in a paddock prior to the erection of a 1.5 km electrified wallaby fence section.

A few weeks after the erection of the fence, wombats had dug three holes under the middle section of the fence.

We placed some night vision cameras to monitor these breaches, and in a single night 37 wallabies came and went through just 2 holes.

That's nearly 2/3rds of the animals coming into the paddock prior to the fence. These breaches had become a super highway and the fence was not doing its job, which is why maintenance is so essential.



*Bennett's wallabies caught on the wrong side of a wallaby proof fence. New fence breaches often occur when frantic wallabies try to escape at dawn.*



*A wombat gate.*

From talking to farmers who have wallaby proof fenced, some of the key issues to consider are:

## Research and Planning

**1. Identify the species that are causing damage.** A standard wallaby proof fence will not stop possums, rabbits or deer (though you can modify them for each of these species). If wombats are present they can dig under a fence and create access for wallabies. In some situations wallabies also dig under fences. Wombat gates can be used to allow wombats but exclude most wallabies. Alternatively electrical outriggers 140 – 150 mm above ground on both sides of the fence will usually prevent wombats and wallabies digging under if they are kept free of vegetation. A common mistake is to only put outriggers on the outside of fences. It is often the animals trapped inside a fence at dawn which will cause new breaches in fences as they tend to be more frantic to escape into the bush. Further, where electrical outriggers are used low to the ground a hazard to echidnas exist.

**2. Learn from neighbours.** Others in your area will have problems similar to yours and wallaby proof fencing may have already been attempted. Learn from the successes and mistakes. Talking to these neighbours is a great way of finding out how fencing improved their productivity as a guide for the next point below.

**3. Figure out how much wildlife browsing is costing you.** Can you afford to fence (or can you afford not to fence)? An 'average' fence will cost somewhere from \$7,000-\$12,000 per kilometre, so if you're unsure of your losses, it's worth spending the time determining how much you're currently losing, or at least how much extra you'd need to gain to justify your fencing outlay. Choose materials to suit your site and budget, don't just copy someone else. There is a fencing payback calculator on DPIPW's website: [www.dpipwe.tas.gov.au/browsingmanagement](http://www.dpipwe.tas.gov.au/browsingmanagement)

**4. Consider coordinating wallaby fencing with your neighbours.** This may make your fence more effective and minimise the length (and cost) of fence needed. This cooperation can usefully be extended to the initial control effort as well. If you can't work with your neighbour then factor in needing to build wings of 50-100 metres in from the bush line at the edge of your properties.



*Electrical outriggers are recommended on both sides of a fence to prevent wombats and wallabies breaching the fence in the first instance, and to protect the fence from beaches made at dawn by animals trying to escape.*

**5. Fence location is important.** Don't just put it around the boundary or where your existing fence is. Where possible avoid creeks, gullies, thick vegetation, and sharp corners, and think about maintenance and the need for shooting. It's best to allow access to both sides of the fence. It might be that giving up a bit of land here and there, allows for a much stronger fence and more effective control and pasture growth overall on your property. Think also about the soil types. Fence lines through light or sandy soils are going to have a lot more problem with breaches under the fence, and are likely to require some form of electrical outriggers near the base to prevent breaches, or will need a section of mesh dug down into the ground.

## Fence Construction

Wallabies tend to prefer to push under or force their way through a fence, rather than to jump over it and will travel along the fence-line looking for weak spots at the base. Therefore;

**6. Preparing a firm, level base.** This can be critical to an effective fence, though electrical outriggers will assist in keeping pressure off the base of a fence where this isn't possible. A fence with dips and gaps under it is as effective as a swimming pool with holes in the bottom of it. You have to get the base right, and consider using rabbit wire, which can be purchased in 30 cm and 60 cm widths, clipped to the bottom single wire and buried into the ground. Using 60 cm width helps stop wallabies creating breaches when trying to dig out at dawn.



An example of a wallaby proof fence where the posts have been spaced too far apart resulting in fence breaches between the posts and concertina to the netting.



A firm level base is critical when constructing a wallaby proof fence. Your aim should be to strain your chosen netting at ground level, as tightly as possible.



A lot of effort has gone into fencing this gully. If possible, gullies, creeks, areas of thick vegetation and sharp corners are best avoided when planning for wallaby proof fencing.

**7. Follow the lie of the land as much as possible.**

Keep the fence bottom close to the ground.

**8. Don't put the posts too far apart to save money.**

Wallabies will quickly learn to push under or through the weakest points. It is a false economy to use fewer poles. Place posts at approx. 5 metre spacing and anchor down firmly in any hollows and strain mesh tight.

**Fence Maintenance**

**9. Remember, you're locking wildlife out of their feeding area.**

Some form of local population reduction through shooting, trapping or poisoning should be done in conjunction with the construction of a new wallaby fence, and an ongoing integrated control program will ensure your fence does what you built it to do – increase your farm productivity.

**10. Include regular fence maintenance in your work program.**

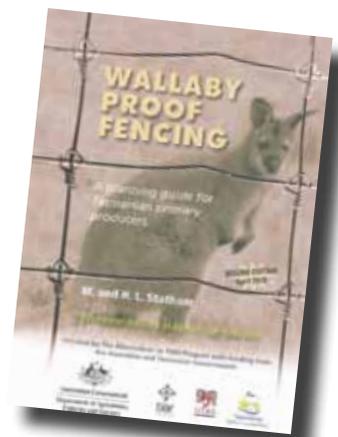
Check more often when the fence is new and after extreme weather conditions. It is worth keeping a log for evaluation purposes.

Small patches of remnant vegetation should not be fenced off with wallaby proof fencing.

**For Further Information**

A much more detailed manual on wallaby proof fencing in Tasmania is available. It covers all of the issues above in much more detail, and includes sections on animal species involved; planning and preparation; materials and construction; maintenance; integrated control, erecting wombat gates and a selection of case studies. For a copy contact the DPIPWE Wildlife Management Branch on 03 6233 6556 or download a copy from:

[www.dpipwe.tas.gov.au/browsingmanagement](http://www.dpipwe.tas.gov.au/browsingmanagement)



Further Information and Contacts

**Wildlife Management Branch**

Reception Phone: 03 6233 6556

Reception Fax: 03 6233 3477

Email: [wildlife.enq@dpiipwe.tas.gov.au](mailto:wildlife.enq@dpiipwe.tas.gov.au)

[www.dpipwe.tas.gov.au/browsingmanagement](http://www.dpipwe.tas.gov.au/browsingmanagement)

GPO Box 44, HOBART, TAS, 7001

Published by: Department of Primary Industries, Parks, Water and Environment.  
Wildlife Management Branch.

Copyright: State of Tasmania: 2010

First published: May 2010

# Wombat Gates

Wombat gate information from - *Wallaby proof fencing manual*. H and M Statham.

Wombats probably comprise the biggest threat to effectiveness of wallaby proof fencing in Tasmania. They are creatures of habit and tend to use the same path, digging under a fence for access and creating an entrance for wallabies.

Where wombats are present, simply blocking a hole in the fence line is rarely a long-term solution as they tend to dig a new hole, next to or, at least near, the one that has just been blocked.

One possibility is to install 'wombat gates' in holes currently being used by wombats.

A wombat gate needs to be simple, sturdy and vertically swinging. It must be light enough to enable a wombat to push through easily but sufficiently heavy to deter most wallabies.

In a recent trial the most effective wombat gate design for Tasmanian conditions was found to be a top hung weldmesh gate 35 - 40 cm square with a bottom weight of at least 3 kg. Lighter gates did not stop wallabies and wombats did not use a solid gate they couldn't see through but simply dug a new hole beside it.

The gates must be placed where wombats have existing runways, rather than where it is convenient to place them. Therefore they must be put in place after the fence has been constructed and when the wombats have dug under it. Usually a gate has to be cut into a wallaby proof fence to allow it to be fitted at the correct height, however in light soils they are sometimes placed below the mesh as Matt Dunbabin has done on the Tasman Peninsula.



Numerous successive wombat holes blocked with rocks: *Forestier Peninsula*. (Matt Dunbabin)



Night time photo of wombats using their hole under a wallaby proof fence: *Mathinna*.



Wombat gate under fence mesh: *Forestier Peninsula* (Matt Dunbabin)

Wombat gates can be made in a frame or have steel star posts as the uprights, providing an integral frame and gate support. Moveable locks can be added to change the free swinging gates so that they only move one way. Then if the gates are set in the afternoon so that they only open inwards any wallabies which have learned to get through

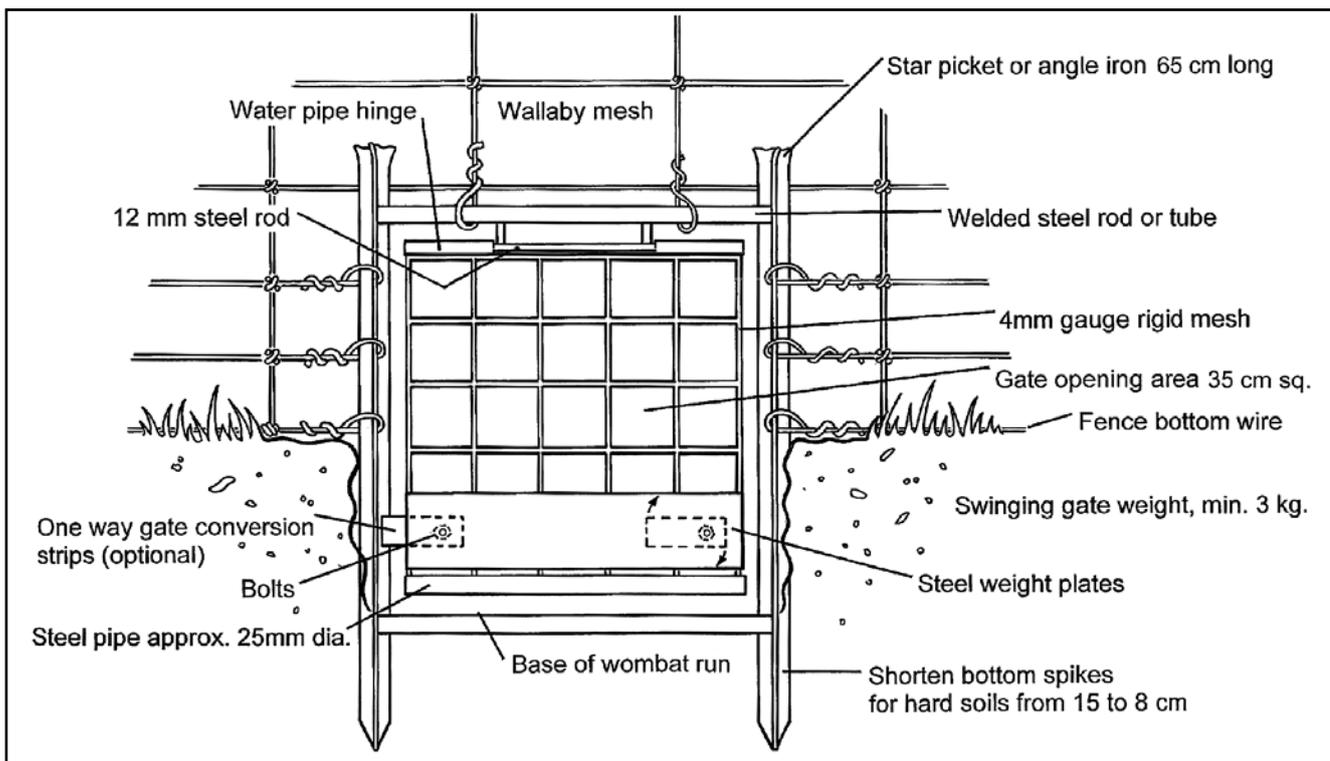
will be caught inside the paddock and can be shot early the next morning.

Ongoing maintenance is necessary, particularly during winter, to ensure the gates are neither blocked from opening or stuck open.



Effective wombat gate in fence: Mathinna (Jim Davies)

## Wombat gate design (Drawing by B. Dolbey)



# Legislative Information for Landholders

## Crop Protection Permits

Landowners are required to have crop protection permits to spotlight, trap or 1080 poison wallabies and possums in Tasmania to comply with the **Nature Conservation Act 2002** and the **Wildlife (General) Regulations 2010**.

Crop Protection Permits (CPP) are issued to landowners and land managers who need to control or prevent browsing damage by wildlife species. The Permit gives authority for activities which would be otherwise illegal under **Wildlife (General) Regulations 2010**, such as the use of spotlights and vehicles during prohibited hours. The most common use of CPP is for the control of brushtail possum and Bennett's and Tasmanian pademelon (rufous wallaby). Under this system a standard brushtail possum permit is valid for 3 months and the wallaby permit, which covers both wallaby species, is issued for 12 months.

The landowner must provide full details of all agents (hunters) who will be shooting possum on his behalf at the time of applying for a permit. Upon expiry of a CPP the landowner must return the permit detailing the number of animals taken, indicate if renewal is required and sign the permit. A renewal of a CPP will not occur until take details from the previous permit have been returned.

Landowners who have developed a Property-based Wildlife Management Plan (PBWMP) for their property are eligible for a slightly modified permitting format aimed to give wildlife management control back to the landowner and be more flexible.

Under a PBWMP, 12 month authorities are issued for wallabies, brushtail possum and some nuisance bird species.

The landowner does not have to provide the names of shooters at the time of permit application. These details are recorded as the landowner issues permits to agents.

Upon expiry of wallaby and possum permits, the landowner must return property logbooks.

## Landowner/Manager Responsibilities

When a Crop Protection Permit has been received ensure that the landowner/manager copy is filed away safely and that the additional agent (hunter) copies are given to hunters with their full name and address detailed on the top left in the blank space, and signed and dated by the landowner if applicable. These agent copies can be duplicated as many times as is necessary.

A few days prior to expiry of the permit, complete the reverse of the permit landowner/manager copy. This includes filling in the take (inclusive of all agent take), signing, dating and if an option, circling either Yes or No for renewal. Expired permits are to be returned to the Wildlife Management Branch, details are on the permit. Please note that all permits are required to be returned.

Ensure that any unused tags are returned with the expired permit.

It is your responsibility to ensure that all permits are current for your property and that hunters have the required permits for the species they intend hunting.

Read the specific permit conditions that relate to the permit and follow them.

Only the landowner/manager copy is accepted for renewal and required to be returned to the Wildlife Management Branch. Agent (hunter) copies are not required.

| SPECIES                           | SCIENTIFIC NAME                      | CLASSIFICATION   | MANAGEMENT OPTIONS                   |
|-----------------------------------|--------------------------------------|------------------|--------------------------------------|
| Bennett's wallaby                 | <i>Macropus rufogriseus</i>          | Partly Protected | Game Licence, Crop Protection Permit |
| Tasmanian pademelon               | <i>Thylogale billardieri</i>         | Partly Protected | Game Licence, Crop Protection Permit |
| Forester kangaroo                 | <i>Macropus giganteus</i>            | Protected        | Crop protection permit               |
| Brushtail possum                  | <i>Trichosurus vulpecula</i>         | Partly Protected | Crop protection permit               |
| Ringtail possum                   | <i>Pseudocheirus peregrinus</i>      | Protected        | N/A                                  |
| European fallow deer              | <i>Dama dama</i>                     | Partly Protected | Game Licence, Crop Protection Permit |
| European rabbit                   | <i>Oryctolagus cuniculus</i>         | Vermin           | No permit or licence required        |
| Hare                              | <i>Lepus capensis</i>                | Not Classified   | No permit or licence required        |
| (Domestic) Cat                    | <i>Felis catus</i>                   | Not Classified   | No permit or licence required        |
| Forest raven (Crow)               | <i>Corvus tasmanicus</i>             | Not Classified   | No permit or licence required        |
| Little raven (mainland / King Is) | <i>Corvus mellori</i>                | Protected        | Crop protection permit               |
| Kookaburra                        | <i>Dacelo novaeguineae</i>           | Not Classified   | No permit or licence required        |
| Native hen                        | <i>Gallinula mortierii</i>           | Protected        | Crop protection permit               |
| Black swan                        | <i>Cygnus atratus</i>                | Protected        | Crop protection permit               |
| Cape Barren goose                 | <i>Cereopsis novaehollandiae</i>     | Protected        | Crop protection permit               |
| Sulphur-crested cockatoo          | <i>Cacatua galerita</i>              | Protected        | Crop protection permit               |
| Galah                             | <i>Cacatua roseicapilla</i>          | Protected        | Crop protection permit               |
| Wombat                            | <i>Vombatus ursinus tasmaniensis</i> | Partly Protected | Crop protection permit               |
| Brown quail                       | <i>Coturnix ypsilophora</i>          | Partly Protected | Game Licence                         |
| Common pheasant                   | <i>Phasianus colchicus</i>           | Partly Protected | Game Licence, Crop protection permit |
| Wood duck                         | <i>Chenonetta jubata</i>             | Partly Protected | Game Licence, Crop protection permit |
| Mountain duck                     | <i>Tadorna tadornoides</i>           | Partly Protected | Game Licence, Crop protection permit |
| Chestnut teal                     | <i>Anas castanea</i>                 | Partly Protected | Game Licence, Crop protection permit |
| Grey teal                         | <i>Anas gracilis</i>                 | Partly Protected | Game Licence, Crop protection permit |
| Pacific black duck                | <i>Anas superciliosa</i>             | Partly Protected | Game Licence, Crop protection permit |

This table details species as classified under the **Wildlife (General) Regulations 2010** and management options.

## Hunter Responsibilities

Ensure that you receive the relevant permit from the landowner or manager for the species you are hunting. The permit should be in your possession when hunting and be ready to be produced to an authorised officer upon request.

Prior to the expiry of a given permit, ensure that you supply the landowner or manager with your take figures. If you hunt on a property with a Property based Wildlife Management Plan you will already have done this by filling out the property logbook after each outing.

Return any unused tags to the landowner.

Read the specific permit conditions that relate to the permit and follow them. It is the responsibility of the landowner and hunter who is issued with a new permit to read the conditions and be familiar with any changes or special conditions. The conditions of permits are subject to change as a direct result of any changes to the law, government policy, management practices or agreements.

### Remember, a permit is different to a licence.

A licence is purchased by the hunter to undertake daytime hunting during specified game seasons. Licences are issued for wallaby, fallow deer, wild duck, brown quail, ringneck pheasant and muttonbird. These licences should not be confused with commercial licences which allow for the sale of wildlife products.

## Wallaby Licences

When hunting wallaby under a **permit** (provided by the landowner or land manager) a hunter will most likely require, and need to purchase, a wallaby game **licence**. This allows Bennett's wallaby and Tasmanian pademelons (rufous wallaby) to be taken during daylight hours. All hunters (agents) other than full-time employees or members of the property owner's or manager's immediate family, **or person under the age of 18 years who is not shooting**, must hold a current wallaby licence during the open season. This means that those individuals who are 18 years and over, who may be involved in spotlighting, driving or carcass collecting require a wallaby licence, whilst those under the age of 18 and involved in the fore mentioned activities do not. There is no bag limit for either of these species of wallabies. Non-commercial (recreational) or commercial licences are available, but only a commercial licence authorises the sale of wallaby products. Harvesting wallabies at night from a vehicle with the aid of a spotlight requires the landowner to obtain a permit and issue copies of this permit to the property hunters.

## Firearm Calibre Requirements

Forester kangaroo require a minimum calibre of .222.

Fallow deer require a minimum calibre of not less than 6 mm and which is capable of delivering a projectile having kinetic energy of 1350 joules at a distance of 100 metres from the rifle. It is suggested a calibre .243 or greater be used.

Wild duck must be shot with steel shot unless permit conditions advise otherwise.

## Landowner and Hunter Code of Ethics and Conduct

1. Hunters must obey all firearm laws, wildlife regulations and fire regulations.
2. Only legal firearms with appropriate ammunition may be used to harvest wildlife. Check the current version of the **Firearms Act 1996** and **Wildlife (General) Regulations 2010** for further details.
3. Wallaby hunters should be familiar with the **Animal Welfare Standard for the Hunting of Wallabies in Tasmania**, June 2003. Wallaby hunting in Tasmania is permitted to be carried out using either a rifle or a shotgun.
4. Duck hunters should be familiar with the **Code of Practice for the Hunting of Ducks in Tasmania**.
5. Landowners/Hunters/Agents involved in the live trapping and destroying of browsing animal species under crop protection permits must be familiar with the **Code of Practice for the trapping and destruction of wallabies and brushtail possums in Tasmania**; (May 2010) and have received training and demonstration in trap use.
6. All target animals must be clearly visible before firing.
7. When using a rifle the target animal must be stationary, or nearly so, and within range as to allow for an accurate shot.
8. When using a shotgun the target must be within 30 metres and in a position where a clear shot can be fired at the head, neck or chest. In the case of wallabies, it is recommended that shotguns of 12, 16 or 20 gauge using No. 2 or larger shot be used for Bennett's wallaby and No. 4 or larger shot be used for Tasmanian pademelon (rufous wallaby). Use a minimum load of 28g or greater for these gauges.
9. Every effort should be made to hit all target animals in the brain, neck or chest.
10. Endeavour to locate all wounded animals. If a wounded animal crosses onto adjacent private property, the landowner of that property must be notified prior to retrieving the animal. In the case that no one can be contacted, a member of the hunting group or joint management committee should be notified.
11. All wounded animals must be dispatched in the most humane manner. Acceptable dispatch methods include a sharp blow or shot to the brain, or a shot to the heart. In the case of marsupials, females must be examined for pouch young, and if present it must be killed by decapitation or a sharp blow to the brain.
12. Make use of all game and wildlife harvested whenever possible either for human or pet consumption.
13. Ensure that all harvested animals are concealed and not visible to the public prior to leaving the property.

# Shooting and Hunting Effectively - Right Approach, Right Gear, Right People



## Species

Shooting is the most common form of wildlife browsing control undertaken in Tasmania, and is applicable to all the wildlife species that cause crop and pasture losses.

This does not mean that all shooting is effective in achieving crop protection. A recent survey of crop protection activities on farms showed that only 1% of landholders found their shooting to be completely satisfactory, and only a further 11% found it satisfactory. That means that 88% of landholders surveyed found their current shooting effort to be either partially or wholly unsatisfactory in achieving crop protection control.

## Shooting Options

Shooting covers a broad range of control options. It can be done during the day using teams of shooters and dogs to flush animals, or at night with the aid of spotlights.

Most landholders and their immediate families in Tasmania undertake their own shooting control, but others use commercial harvesters or use the presence of game species on their property to encourage external shooters onto their property to undertake crop protection efforts. A small, but increasing number of landholders, are starting to pay, or at least subsidise, shooting efforts on their properties.

This booklet looks at all of these options in an attempt to provide landholders with different options they may not have considered for wildlife control.

## What Makes An Effective Shooting Strategy?

Probably more than any other control option, it is really important to know what you want to achieve from your shooting control effort, because of all the control strategies shooting is the easiest one to just implement and hope it's working, and not realise that it isn't. Several trials carried out under the Alternatives to 1080 Program have shown that even apparently intensive shooting strategies where very large numbers of animals were culled have had little or no positive effect on pasture growth.

So if you are going to implement a shooting strategy, you need to monitor it and make sure it works. If you're shooting to protect new crops, it is going to be important to ensure that your shooting strategy is reducing local population numbers in the area where you're intending to plant your crops **before** these crops are planted.

You need to plan ahead, don't wait for an emerging crop to be put under pressure from browsing wildlife and then attempt to control the damage.

If however your strategy is based around protecting existing pasture, then it's important to know where your pasture losses are. Commonly 40-80% of your property's financial losses will be in the pasture areas in the first 200 metres from the bush edge. So an effective shooting strategy has to reclaim this area – it's no



*Bennett's wallabies are one of three key browsers.*

good shooting the small number of Bennett's wallabies or a few Forester kangaroos that are ranging out across the property, if they are having a minimal impact.

You have to concentrate your shooting effort where the damage is occurring but also understand where the animals are coming from and determine what sort of shooting will deliver the desirable results such as a recreational dogging team in small remnant vegetation areas inaccessible to spotlighting.

Also, like cropping, there are certain times of year that pasture availability is more important, so concentrating your effort before and during these periods will likely result in better pasture protection outcomes.

Understanding the species breeding and dispersal cycle can lead to more effective control. For example extra shooting effort during winter and early spring, prior to joeys leaving the pouch, will be well rewarded as this can result in considerably less work from mid – December on as you then don't have to deal with both the existing adult population and their dispersing young.

## Farm Setup

If shooting as a control tool is your primary choice, then it makes sense to set your farm up for shooting. This might involve ensuring vehicle access to all areas, making adjustments to wallaby proof fencing designs like adding wings or doors in the fence to reduce the incidence of fence breaches as well as facilitating wallabies to be held inside the fence on set nights to increase shooting efficacy. Shooting against a barrier such as a fence will improve results markedly with little additional effort.

It is always worth discussing control options with your neighbours to see if collaborative strategies can be formed.



*Barrier fences can be an essential part of a shooting program.*

Try and eliminate problem patches of vegetation – such as gorse and blackberries that can harbour game and adversely affect your shooting effectiveness.

## Measuring Losses

If you get nothing else from this brochure then hear this message:

**‘You need to monitor your pasture losses to wildlife to know where you are losing pasture, if your controls are being effective or not, and whether wildlife grazing really is an issue on your property that needs control.’**

Counting animals or historical information will give you an insight into possible wildlife losses, but the only real way to quantify pasture loss is to measure it.

The Alternatives to 1080 Program has monitored farms which have shooting strategies in place which are still losing 60-80% of their pasture in the first 100 metres from the bush edge. If this is your property, then this could be one of your largest management problems.

## The Basics Of An Effective Shooting Strategy

Shooting can be done with the best of intentions, but actually achieve very little. The reality is that unless the right approach to shooting is adopted for a property and then implemented well, the regular activity of just shooting may not provide any real benefit in terms of pasture protection.

The main cause behind an ineffective shooting strategy is simply not undertaking enough effort, especially initially, to get the local population levels down. In simple terms if a property is ‘feeding’ a population of hundreds, or even thousands of native animals, and borders onto areas which are also likely to be supporting similar population densities, then any shooting strategy needs to both reduce the resident local population to a level where pasture losses are acceptable (initial knockdown) and then must sustain the ongoing effort at a level where the number of animals culled is equal to or greater than numbers moving onto the property.

Shooting 10-20 wallabies once a fortnight may sound like it is achieving something, but if a property has a population in the high hundreds, the reduction of 250-500 wallabies is very unlikely to have any significant pasture protection benefit. The Alternatives to 1080 Program GPS collared wallabies in north east Tasmania, then implemented several control options. The results showed after an initial shooting effort the remaining populations of wallabies began spending more time on the pasture areas.

So in framing a shooting strategy, realise that if you believe you have a problem that has got out of hand then you



*Recreational hunters can be part of a shooting strategy, at no cost to landowners.*

will need to plan for a lot more effort up front to reduce the problem to an acceptable level. For example, it might be necessary to shoot effectively twice a week for a 12 months period, or longer, or attract outside assistance such as recreational hunters and dogging teams until such time that exclosure plots are demonstrating that pasture lost to browsing animals has been reduced to an acceptable level. It may be that a one off 1080 poison operation could be implemented to help in knocking down the population followed by a sustained shooting effort to keep on top of the problem and reduce losses to an acceptable level.

Then you need to implement an ongoing shooting effort, and it is also a good time to look at the option of installing strategic wallaby fences around the property to protect high value areas or to block up those areas where animals are coming from. Good quality and reliable recreational hunters who are willing to come onto your property to shoot animals for various purposes can be a real asset in these maintenance phases, but always monitor, monitor, monitor and if losses are increasing, review and amend your strategy.

One particular issue to be aware of is that surviving animals will learn avoidance behaviour to shooting, and again this is why pasture monitoring is so important, just counting animals may be giving you a false confidence about your strategy’s effectiveness. Good shooting practices and varying the way you shoot will also help get around this, as will encouraging dogging teams onto your property, or trapping occasionally.

## Shooting Approaches

There is no best way of shooting, and whilst commercial harvesters are the only shooters who have to pass competency tests in Tasmania, there are many excellent recreational and professional shooters in the State.

The approaches used by different shooters can vary immensely. For instance a recreational wallaby hunter may use dogs and a shotgun and be an invaluable tool for property areas with open forest vegetation or gullies across the property where wallaby populations can build up and which are hard to shoot using spotlighting techniques. Recreational deer hunters often pay property access rights and perform wildlife culling in return for property deer management and deer hunting rights, sometimes at no cost to the landowner; and at other times the landowner supports the wildlife culling due to the

magnitude and cost of the job, for instance, ammunition reimbursements. Recreational hunters are strong advocates for utilising shot game.

Culling contractors will cost more money, but often for that cost you will get someone who will come on site and employ very effective shooting techniques learned from many years of experience.

## Recreational Hunter Management

Recreational hunters are only as effective as a landowner and the hunter group allow themselves to be, and when these relationships fail it is generally due to poor communication between the hunter groups and the landholder.

The properties that work well under a landowner/hunter agreement are those that communicate, set clear goals, monitor and provide reward for effort.

Therefore it is important to discuss with any hunter group the objectives you want to get out of the effort, and for you to clearly understand what they want out of the relationship, whether it be access to the site at certain times, exclusion of others from the site, or access to game.

The importance of establishing and maintaining a good hunter – landholder relationship is essential.

## Day Time Hunting

Day time hunting usually involves a group of hunters with trained dogs who flush wallabies, and to a lesser degree possums, from bush areas. There are a wide range of these groups across Tasmania ranging from individuals who have a few dogs, to extremely large groups of hunters and animals.

This approach can be more effective than spotlighting in terms of reward for effort on both wallaby species, especially in areas where wallabies are easily able to flee into adjacent bushland or reedy areas during spotlighting. As a knockdown tool before crop plantings or at key times of year, this method can really come into its own. It's also very effective where spotlighting may not be practical (where spotlighting poses safety, terrain, vegetation, shy/educated population constraints) or be done in conjunction with a spotlighting program across a property.

You do of course have to be able to attract such a team onto your property, and if you do not have direct contact with a dogging group Game Management Officers within the Wildlife Management Branch may be able to assist.

If you do get in contact with a good group, it is worth developing a relationship with them as the most effective



*Quality Deer Management is implemented on many Tasmanian properties.*

crews are those that know the property intimately (more specifically things like the gully systems), and how to approach a shoot on any given day so they can be efficient and as such adopt the 'shoot effectively' philosophy.

No technique is a panacea. If using dogs then activity is usually restricted to operation during cooler months, and there are also hunter management, coordination and safety issues to consider. Again Game Management Officers should be able to assist with a number of useful pro-formas.

Finally, wallaby shotgun shooting has been stopped in all states now except South Australia and Tasmania because of welfare concerns with the practice. Whilst animal welfare and good shooting practices should be a foremost priority in all shooting practices, this is particularly the case with day time shooting, so make sure that any group that comes onto your property has a good ethic and shoots within the code of practice.

## Property Based Game Management Strategies

Landholders who have fallow deer, or other game, on their property can choose to manage their browsing animal management problems with recreational game hunters in the state who are seeking access to game on properties.

The essence of this approach to wildlife management is that landholders and hunters or hunting groups enter into agreements where the landholder agrees to provide for sustainable hunting opportunities on their properties, usually linked to quality deer herd management, and in exchange the hunters undertake various tasks, usually including a commitment to undertaking a prescribed number of visits to the property to control browsing

## The Good Shooter Test

Here's a very simple test to know whether you should let someone on your property to shoot.

Draw small 3-5cm circle targets on a few pieces of paper (the size of a wallabies head) and place them at the distance that they'll be shooting from. Get them to sit in the vehicle they'll be shooting from and shoot each target 5 times. If they can't place their shots (in ideal conditions) inside that circle then their effort is unlikely to be effective. They should consider ways to improve their accuracy.

A good shooter will never "blast away at them". They'll only take shots they know they'll get, with the knowledge that they'll get another chance at the ones that they didn't wing or scare away another day. Injuring an animal is inhumane; missing one is just teaching it to hide.



animals, as well as property maintenance and property security to reduce trespass and illegal hunting. Properties interested in this approach, can use the attachments (Appendix 4 Planning Guide) to the property based wildlife management plan which contains pro-formas for hunter agreements, compliance with codes of practice, safe firearm use, legal waivers, property protection principals etc. Game Management Officers are available to help landowners and hunters in drafting these plans and setting up such a process.

## Commercial Harvesters

Commercial shooters utilise shot game for either human or pet meat consumption. Commercial shooters provide the highest level of humaneness in lethal control options as they are required to cleanly head shoot animals and they must obviously collect shot animals so they can be sold. They will however have a tendency to target properties with high animal numbers as their objective is to harvest a required number of animals in the shortest possible timeframe.

The relationship between commercial harvesters and landholders is often therefore a short term relationship as the two have very different objectives.

Commercial harvesters may be useful as part of a knockdown strategy, or as a supplement to other control activities when numbers on a property are adequate.

## Incentive Based Shooting

Incentive based shooting is becoming more popular across Tasmania, as landholders realise the impacts of wildlife damage on farm productivity, and look for ways to increase their control effectiveness.

At the extreme end of incentive-based shooters, are the contract culling contractors who are paid to shoot designated areas.

These contractors often have years of experience, good equipment, and the incentive to achieve good shooting results. It is a good idea to ask for references prior to granting access.

## Encouraging Shooters

- 1. Ammunition.** If you have shooters on your property, providing ammunition and/or a tank of fuel to encourage shooters to come out and shoot particular species (eg brushtail possums) or to shoot at certain times of the year;
- 2. Accommodation.** If you've got some form of accommodation such as shearers quarters on the property, doing this up a bit so that recreational groups can come away for a weekend can attract shooters to your property;
- 3. Bartering.** A bit of bartering for a few sheep or cattle at slaughter time could be enough incentive for shooters to put in a bit of an effort;
- 4. Dollar value.** With shooters you know and trust, putting a dollar value on each animal shot can be as effective as game access incentives – even if it is just \$2 or \$3 per animal, it might produce a bit of extra

effort or time on your property. You can also get more sophisticated in this, for example if you're about to plant a crop, let shooters know that there will be an extra \$1 or \$2 paid per animal for the first 200 animals shot during the next month in this area;

- 5. Neighbours.** If you have neighbours or forest companies who are undertaking shooting programs on adjacent land, consider seeing if they might be interested in shooting on your land as well. Forest companies in particular which may be suffering forest damage, may see shooting on your property as an excellent way of controlling their plantation browsing, or at worst the shooter may be willing to spend an hour or two on your property whilst they're out there and only charge you for time spent shooting, not travel to and from the site.

These are just some ideas, the key to any incentive based program is to know what you want to achieve, and then finding out what would attract a shooter onto your property to achieve that.

## The Importance of Good Shooters and Good Gear

The best shooting strategy will still fail, if it isn't implemented well, and the key to an effective shooting strategy is to only let good shooters with good gear onto your property – and that includes yourself and your family.

Quality shooting will deliver much more effective results than just lots of shooting. It's better to have 3 or 4 good shooters on your property than 20 average shooters, especially if those other 16 shooters are just making it hard for the good shooters to do their job.

**It is a worthwhile exercise to train yourself to judge distances correctly at night. This is essential for accurate shooting.** Greg Blackwell – Project Officer

If you don't have the skills, time or inclination to learn to shoot effectively, look at other options such as encouraging recreational shooters onto your property, or even paying someone to do the shooting for you. Alternatively look into whether you could get a dogging team to do the work, or if none of these are viable, look at other options like fencing and trapping.

## Get The Right Gear

If you're looking to do the shooting yourself, and you know you can't pass the good shooter test, then it might be time to buy yourself a new rifle or scope.

**A good scope should cost at least as much, if not more, than the rifle.**

The key to this is to buy a good rifle and buy a darn good scope with good mounts. The reason for this is simple: you can't shoot what you can't see.

Selecting a rifle and scope is not as easy as it sounds. Do your homework. Consider the target species and the



*An ATV setup with rifle holder, shooting rest and spotlight with a coloured filter.*

regulations including animal welfare, to ensure your firearm selection is the most appropriate and cost effective choice.

Make sure that mounts for the scope are good quality.

A good rifle and scope combination will come into its own as you knock down the population and the game get harder to shoot. A good scope will allow you to view and shoot your target without the spotlight having to be pointed directly on the animal. A quality rifle and scope is also probably tax deductible. Depending on the species present, you may need several different firearms.



*An ATV clip on shooting rack for transport of shot game.*



*A bolt on shooting rest with ammunition storage.*

## Plan And Organise Your Vehicle

Set your ATV or vehicle up for shooting. The best shooter with the best rifle and scope, hanging out a window, whilst trying to hold onto his spotlight, and who has to stop and fumble around in his glove box for ammunition isn't going to be effective.

Install good shooting racks and rifle rests to your vehicle. Buy or build a good quality spotlight holder, and think about where to store ammunition so it is easily at hand.

## Clean And Sight In Your Rifle Regularly

A poorly maintained rifle won't consistently shoot straight.

It is necessary to take the time to become proficient with your 'outfit' – rifle and scope, vehicle, shooting racks and spotlight. Primarily this means your rifle and scope, and secondly, your ability to operate your outfit and correctly judge distances.

The reality of adverse weather conditions and terrain also need to be considered.

## Think Safety, Safety, Safety

Shooting at night from either a vehicle or ATV can be dangerous. If you have others on your property, you are also likely to have a duty of care for their safety. Make the effort to ensure anyone shooting is doing so safely.

If you have concerns about this, then we'd recommend contacting Workplace Standards Tasmania.

## Vary Your Approach

Even if you can't get others onto your property to help with shooting effort, if you are just spotlighting, varying the way you shoot can be the difference between an effective shooting strategy and an ineffective one. Here are some ideas to try to improve your shooting strategy:

- 1. Vary your route each time you go shooting.** Don't become predictable. If you normally just do a single lap around your property, every now and then do a second lap. Shooting trials have shown that it can take as little as 40 minutes before the animals are back out again. One simple option if it is hard to vary your route is to drive it in different directions.
- 2. Vary the time you shoot each night.** At one Alternatives to I080 Program monitoring site, weekly counts of wildlife were being done one hour after sunset, and consistently counting 15-25 animals on the site. One night a count was done at midnight and at 3 am and at both times more than 140 animals were counted.
- 3. Use a coloured filter on your spotlight.** Or consider putting coloured filters over your vehicles headlights. Some professional shooters just shoot with a small rimfire rifle, a very quiet bike, and use a red spotlight to just sneak around sites shooting animals off grain feed lines. This strategy is particularly suitable for smaller sites.
- 4. If you can, use different vehicles.** Muffle your engine or occasionally go shooting on foot. Animals will learn to associate specific fear cues such as your engine noise with the need to flee, so anything you can do to vary this may help your shooting effectiveness.



*A light, but continuous line of feed can be effective.*

- 5. Consider different strategies.** Driving around at dusk and sprinkling out grain will encourage animals to feed. The best approach is to very lightly sprinkle out a continuous line of feed (add aniseed or cinnamon if you have some) along the bush or creek edge where they tend to come out from. This strategy is particularly effective during times when there is little feed around, and has the advantage that if it is done over the course

of a few weeks the animals start to associate your engine noise with food, not shooting.

- 6. Record conditions.** Record moon phases, seasonal variations, crop plantings and weather conditions in your shooting logs, or keep a diary or wall planner; and see if you can see patterns when greater or smaller numbers are seen. Use this to guide future shooting efforts.
- 7. Use your fences.** Shooting against fences, creating one way gates and other techniques will greatly improve the life of wallaby fences, whilst at the same time cut down on your maintenance effort.
- 8. Understand where the animals are coming from.** Determine what sort of shooting will deliver a desirable result, for example the use of shotguns and dogs during daylight hours as opposed to spotlighting at night. Remember, the amount of effort that can be afforded to shooting effort is reflected in the results and further to that the right timing of this effort can result in a better return for the effort.
- 9. Timing is important.** Effort prior to joeys leaving the pouch will be well rewarded as this can result in considerably less work from mid December on.
- 10. Keep a shooting log for evaluation purposes.** Include such things as property area, hours spent hunting, plus species seen and shot.

## Be Legal, Be Ethical

### Firearm's licence.

Ensure your firearm's licence is current, specified categories are correct, firearms and equipment used are registered, legal and compliant.



**Permits.** Obtain crop protection permits prior to embarking on a shooting program. They are required for most of the species in Tasmania that cause browsing damage to crops and pasture and are obtainable from the Wildlife Management Branch.

**Game licenses.** Are available for wallaby, wild duck, fallow deer, ringneck pheasant, brown quail and muttonbird. Most hunters in Tasmania are required to purchase a wallaby game licence for use in conjunction with a wallaby crop protection permit. Some exemptions do apply.

**Firearm calibre.** Ensure firearm calibre used is species appropriate.

**Codes of practice.** Hunting codes of practice exist for several hunted species in Tasmania. Ensure shooting practices are within the guidelines specified within these codes.

*Whilst inconvenient for landowners who have property divided by a public road, compliance with firearm and ammunition transportation requirements is essential.*

## Legal Requirements

Bennett's wallaby and Tasmanian pademelons (rufous wallaby) can be taken during the day or night with the appropriate licence or permit.

All agents (hunters) other than full-time employees or members of the property owner's or manager's immediate family, or person under the age of 18 years who is not shooting, must hold a current wallaby licence during the open season. This means that those individuals who are 18 years and over; who may be involved in spotlighting, driving or carcass collecting require a wallaby licence, whilst those under the age of 18 involved in the fore mentioned activities do not.

There is no bag limit for either of these species. Non-commercial or commercial licences are available, but only a commercial licence authorises the sale of wallaby products.

Harvesting wallabies at night from a vehicle with the aid of a spotlight requires the landowner to obtain a crop protection permit and issue copies of this permit to the property hunters.

In 2003 the 'Animal Welfare Standard for the Hunting of Wallabies in Tasmania' was approved under the **Animal Welfare Act 1993**. This standard is a set of recommendations designed to provide guidelines for the hunting of wallabies in Tasmania and accommodate the special circumstances and environment that impact on wallaby hunting in Tasmania.



Further Information and Contacts

### Wildlife Management Branch

Reception Phone: 03 6233 6556

Reception Fax: 03 6233 3477

Email: [wildlife.enq@dpiwwe.tas.gov.au](mailto:wildlife.enq@dpiwwe.tas.gov.au)

[www.dpiwwe.tas.gov.au/browsingmanagement](http://www.dpiwwe.tas.gov.au/browsingmanagement)

GPO Box 44, HOBART, TAS, 7001

Published by: Department of Primary Industries, Parks, Water and Environment.  
Wildlife Management Branch.

Copyright: State of Tasmania: 2010

First published: May 2010

# A Sub-Catchment Approach Coordinating Browsing Damage Management

Farmers in Pyengana in Tasmania's northeast have participated with NRM North in a project to see what alternative opportunities can come from integrated browsing management at a catchment scale.

**A sub-catchment approach involves adjoining farm businesses working together.**

Management at the property scale remains important, but the project is coordinating fencing efforts across the highly productive pastures of Pyengana valley and has engaged enterprises in the latest in best practice research and experience to ensure profitability and animal welfare go hand in hand.

A sub-catchment approach involves adjoining farm businesses working together on understanding their browsing management experiences, answering the question: 'what impact is browsing having on farm production?', and planning smart and coordinated efforts. Three key strategies have emerged from the Pyengana experience:

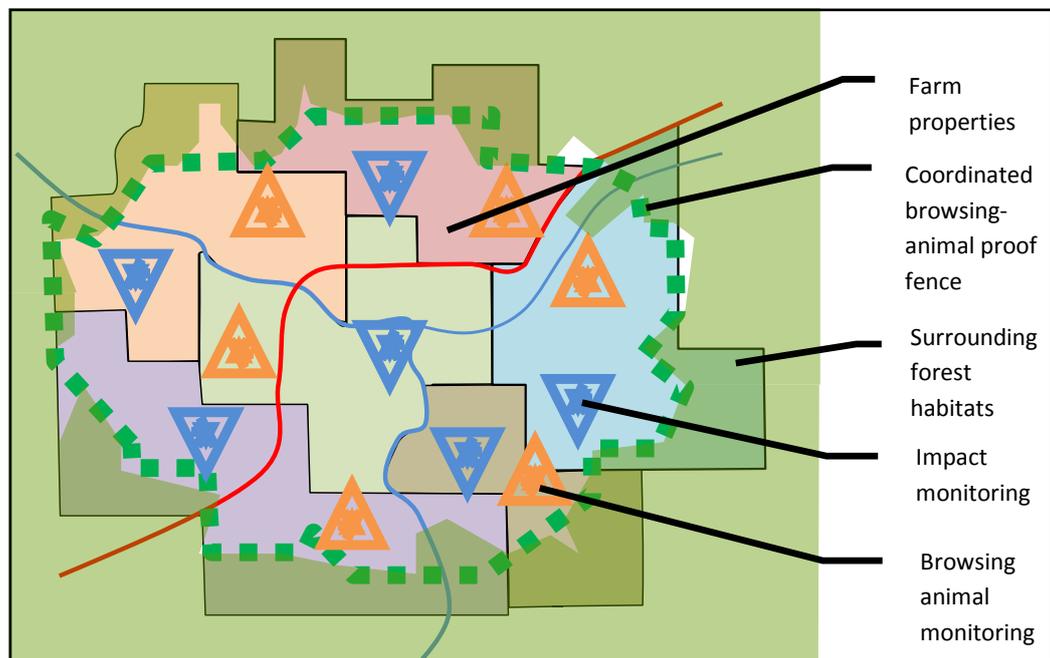
- monitor and evaluate browsing impact on the farm enterprise



*Pyengana farmers on a field day as part of their integrated browsing management project. Photos: Polly Buchhorn NRM North.*

- coordinate browsing animal proof fencing across the sub-catchment to separate high productivity land from animal populations
- adopt best practice browsing animal population control, including monitoring

By working as a group farmers may be able to attract the support and information needed to plan more efficient and cost effective fencing and the additional browsing management strategies required.



For further information: NRM North.  
Property Management Planning Coordinator  
Phone: 03 6333 7777

# Trapping

## A Niche Management Tool for Tasmanian Pademelons (rufous wallaby) and Brushtail Possums



## Species

Trapping is only effective for brushtail possums and Tasmanian pademelons (rufous wallaby). It is not an effective tool for Bennett's wallabies which are very trap shy.

## When

The effort and cost that goes into setting up and running a trapping program for wallabies and possums can seem high compared to shooting.

It can however be effective in many situations for example:

- where there are high populations of Tasmanian pademelons (rufous wallaby) or brushtail possums that are either difficult to fence out or shoot and are causing unacceptable levels of browsing damage;
- as a complement to shooting in areas where the terrain makes shooting very difficult, such as in marshy areas or near rivers and gullies,
- where land managers do not have the skill, time or equipment to manage an effective shooting program,
- on smaller land holdings, eg. market gardens where it is quick and easy to get around the traps on a regular basis,
- where land managers are simply sick and tired of going out shooting after a long day's work and can't find others who would be willing to shoot for them,
- where land managers have neighbours who do not appreciate shooting at night. Trapping still allows a land manager to capture and remove pest animals, but the control activity can be done in the morning with a quieter, low calibre firearm,
- as a complement to shooting or fencing, e.g. trapping could be used during the summer months when long days and short nights make shooting a less viable option, and then shooting could be done in winter.

## Trap Designs

There are currently two approved trap designs available in Tasmania for capturing and destroying wallabies. The Mersey Box Trap and the Stubby Tent Trap, which has evolved from the Edwards Tent Trap. The Mersey Box Trap was designed within the Mersey District of Forestry Tasmania and is widely used by Forestry Tasmania to control browsing wildlife on coupes as an alternative to 1080 poison. The Edward Tent Trap has been discontinued.



*The Mersey Box Trap; Note the modified extra bottom wire which is now a requirement which prevents the animals head protruding from the cage.*

The Australian Government funded Alternatives to 1080 Program conducted trials comparing the two different trap designs for capture effectiveness and found high variability in catch-effectiveness for both trap designs at different sites, so it comes down to availability of traps and which trap design suits your needs.

## Mersey Box Trap

This is a simple metal trap, based on the design of possum traps but with a closing lid that prevents animals panicking and injuring themselves in the traps. They are very easy to set up, quite durable, though welds and springs will wear out over time and will require fixing or replacing. Anyone with some basic welding equipment can make running repairs to these traps for most problems, though an adult wombat will destroy a trap quite easily trying to dig their way out.

On the downside, when it comes to putting out and collecting these traps, they are quite heavy (10 kgs) and bulky to handle and transport. The traps are 60 cm long, 32 cm wide, and 31 cm high, so even a large dual axle trailer with a cage can only carry up to 125 traps. If putting them out in rough country you can be doing a lot of shuffling back and forth to get them on site.

Operationally, these traps have a very well thought out shooting cage, which makes day to day operation quick and simple, and when you want to leave the traps open without being set, you just need to remove the door, then

## Trapping Effectiveness

The effectiveness of trapping can often be under-estimated.

The **Alternatives to 1080 Program** ran a trial on a small property where, in the previous 12 months, the owner had shot 70 wallabies, but was unable to get the browsing problem under control.

After two weeks of free feeding, 68 wallabies and possums were captured in three days of trapping. Virtually the same number as in a full year's shooting.

An owner on another trapping trial property in the North East noted that after the trapping operation, he was able to "get back on top of the problem by shooting". Partly because trapping had removed the gun-shy / light-shy animals, but also because it had broken the back of the control problem.

Even though it is costly, trapping can be cost-effective, especially in conjunction with other control options such as shooting and fencing, and when combined with other farm activities.

place it back when you reset the traps. Cleaning out and replacing spoiled bait is very easy as you can just lift the cage and either move the grain, or just reposition the whole trap.

Catch efficiency can be a problem with these traps when not set up correctly due to animals pushing the door up with their backs when entering the trap, thus releasing the trigger mechanism, with the animals then being able to back out of the cage and escape. Heavy wind can trip the trap. Factor this in by setting traps late in the day, protecting them from wind or don't set at all during periods of prolonged strong wind.

One other small issue is that food (particularly chopped carrots) can be caught under the treadle preventing the trap going off, but like all things, with a bit of training and experience this can be overcome.

These traps have been used for several years now by Forestry Tasmania, so are well proven and tested, and there is a commercial provider (Tas Wire Products, Spreyton) who sells these traps.



*Bait caught under the treadle plate can prevent effective trap operation.*

These traps can be a bit more finicky to set up for the inexperienced user, and new users in particular should be aware of the potential of the traps being set off accidentally. Some other small things to be aware of with these traps include that they can be blown about in strong winds, they can collect water after heavy rain, and because the food is inside the trap, cleaning out and changing feed is slightly more time consuming than the Mersey Trap.

These traps come with a shooting net, which takes a little more getting used to than the Mersey Shooting Cage, but which is very serviceable once you are used to it. It also has the advantage that because the animal is readily confined within the net, it is very easy to shoot.

### **Animal Feeders**

These particular feeders have been designed to look like the traps. They can be filled with approximately eight kilos of grain with the aim of reducing the number of site visits during the pre-feed period.



*Animal feeders are used for pre-feeding prior to trapping.*

## **Stubby Tent Traps**

The Stubby tent trap comprises a metal skeletal frame with a 'springshut' mechanism covered by a nylon wool pack. They are open on three sides when set and weigh 2.1 kgs. The trip weight for these traps is adjustable. Animals are trapped when they tread on a trip plate, causing the trap to collapse and contain the animal in the pack.

The Stubby Tent Traps are easier to transport to and from site. The nylon covering only take ten minutes to replace should they become damaged.



*Stubby Tent Traps are easily transported and erected.*

## **Approaches to Trapping**

Like shooting or fencing, trapping can be done in different ways. It can be used as an intensive knock down tool where a large number of traps are used to intensively reduce numbers in a particular area or traps can be used as an ongoing permanent control tool, much like shooting, where traps are left in place, but only set and checked every fortnight, month or whatever is appropriate.

### **Intensive Trapping**

A typical intensive trapping program would involve up to a day's effort to set up. This initial work involves free feeding the animals and putting out the traps. Once in place, trials have shown that it takes one to two weeks for the animals to get used to the different foods, so the traps need to be left open, and the food in the traps needs to be refreshed every 3 or 4 days, until it is obvious that food is being taken from quite a number of the traps.

There is no hard and fast rule about how many traps to use, or how far apart they should be placed. A rule of thumb is every 10-30 metres, but some operators like to place traps on every run or every major run, and sometimes several traps are placed on a single run.

Essentially the cost of additional traps needs to be weighed against the extra time it takes with fewer traps. An Alternatives to 1080 Program Trial was run in the north east of the state to look at the issue of optimal trap density: Mersey Box Traps were used in this trial. This trial indicated that with 120 traps, spaced at 10-15 metre intervals, the trapping success (catch per trap) did appear to drop off compared to another site with just 60 traps, but in absolute terms more animals were caught when more traps were present. On a third site, where only 20 traps were used, virtually every trap was full every night,

mainly with possums, requiring a lot more trapping nights to clear the area.

Some operators recommend free-feeding along the proposed trapping line for a couple of weeks before putting out the traps to 'tune' animals into the feed, thus speeding up the time it takes to get animals used to the traps. This may be particularly appropriate if hiring traps and wanting to minimise these costs, or if moving a smaller number of traps progressively around your property to maximise the efficiency of trapping.

**If you have lots of possums in the area, you will tend to catch mainly possums in the first week of trapping, simply because they are a more curious animal, and more likely to go into a trap.**

Again, if time is a factor, it may be worth considering shooting along the trap line (particularly effective after two weeks of free feeding before setting out the traps) to try to remove as many possums and the easier to shoot wallabies before setting out the traps.

Trapping in forestry situations is normally done over 2-3 nights, followed by resting the traps for 3-10 days before repeating the trapping effort. However, historical data is showing that the first nights trapping is usually the highest in a 2 to 3 night trapping cycle, and so a single night per week trapping cycle may be more time effective for farming situations.

On the first day, the bait in traps is freshened up or replaced and the traps set. As early as possible the next morning, the trap line is checked for any traps that have been set off. Any captured target species are dispatched using the appropriate shooting cages. Non-target species are released and traps and baits are reset.

Depending on catch success this is repeated for a second or third day, after which the traps can be left open with food in place for 3-10 days and the whole process repeated as many times as required to knock down the local population.

Once this has been done, ongoing sustained control will still be required. This could be achieved through longer term permanent trapping, shooting or fencing. The timing of this needs to reflect your operational and business requirements. As young wallabies and possums disperse



*Example of an intensive trapping operation.*

throughout summer, this can be a good time to catch new animals moving onto your property. Winter, when females are with pouch young or young at foot, can also be another very effective time for trapping, so long as the young are humanely dispatched.

## Permanent Trapping

This can be used as a follow up to an intensive trapping program, or as a substitute or complement to a shooting or fencing program.

Much the same approach is used as in an intensive trapping program, except traps, generally fewer than in an intensive trapping program, are left in key places around a property. These might be where there are high numbers of target animals, or spots which are particularly sensitive to losses. To minimise the time taken to travel to the traps and maintain them, traps may be sited in places that are frequently visited during routine farm operations.

The advantage of this approach, is that once set out, traps can be locked open, and then it can be quite a simple job to free feed them on a regular basis (in conjunction with other routine jobs) and carry out periodic trapping operations. But remember set traps must be checked and cleared each morning.

## Record Keeping

The purpose of keeping a trapping log is to have information that can be used for evaluation purposes. The amount of information recorded is really up to the individual. For example, just keeping a record of effort and the number of animals caught may be sufficient for one individual, whereas another may prefer to also record sex and pouch young. This additional information may be used to monitor breeding cycles or the increased efficiency gained by trapping prior to young dispersal.

Labelling traps and monitoring individual trap performance is another option so that trap performance based on location is optimised.



*Mersey Box Traps ready for distribution.*

## What Feed Should I Use?

There has been no obvious difference in a particular bait's ability to attract wallabies or possums into a trap. Based on this, the recommendation is that you use whichever bait is most accessible and affordable to you, and if you've got a secret recipe, all the best with it.

Two caveats on this are that

- (1) some feed, for example, the Wallaby and Kangaroo Feed you can buy at rural suppliers, becomes a gluggy mess when wet, so it is best to choose more rain resilient feed such as chopped carrots, maize or barley,
- (2) different baits may be better at different times of the year; for example moist carrots may be more attractive during drier times of the year.

Essentially it will be a trade off between what is available, its longevity, and cost. Maize, barley or feeds like horse mix which have a mix of foods are very easy to use as they require no preparation (eg. chopping of carrots) and have quite a long life.



*A variety of baits from top to bottom include: carrots, barley, maize and horse mix.*



*A set Mersey Box Trap using two parts horse mix and one part barley.*

## What About The Costs?

The Mersey Box Trap costs around \$175 per trap to purchase. The Stubby Tent Traps costs around \$85 to purchase or \$3 per week to hire from December 2010. Replacement nylon packs are \$25.

Holding devices to shoot the animals once caught are an additional cost. The shooting cages used for the Mersey Box Traps are \$220. A shooting net for the Stubby Tent Trap are \$95. Additionally, you may need a trailer to move the trapping equipment on site, plus the costs of free feeding, ammunition and of course the time it takes to trap. Keeping a trapping log will enable the trapping program, including costs to be evaluated.

## Legal Requirements

Crop Protection Permits are required when trapping brushtail possums and pademelons. Permits and advice can be sought from the Wildlife Management Branch, (DPIPWE) by phoning reception 03 6233 6556 or emailing [wildlife.enq@dPIPWE.tas.gov.au](mailto:wildlife.enq@dPIPWE.tas.gov.au).

There is a *Code of Practice for the trapping and destruction of wallabies and brushtail possums in Tasmania* which is available from the Wildlife Management Branch.

Anyone trapping and shooting must comply with all sections of the *Firearms Act 1996*, including section 113 that requires the consent of the occupier of the dwelling house if shooting within 250 metres of a dwelling house.

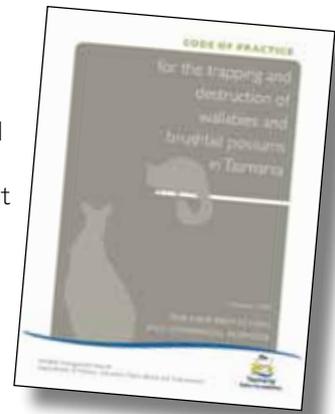
## Trap Manufacturers

### Mersey Box Trap

Tas Wire Products  
286 Mersey Main Road  
Spreyton TAS 7310  
Ph: 03 6427 2575  
Email: [tas-wire-products@bigpond.com](mailto:tas-wire-products@bigpond.com)

### Stubby Tent Trap

Ivo Edwards  
Tyenna Peak Nursery  
3777 Gordon River Rd.  
Maydena TAS 7140  
Ph: 03 6288 2102  
Email: [ivo.edwards@aussiebroadband.com.au](mailto:ivo.edwards@aussiebroadband.com.au)



Further Information and Contacts

### Wildlife Management Branch

Reception Phone: 03 6233 6556  
Reception Fax: 03 6233 3477  
Email: [wildlife.enq@dPIPWE.tas.gov.au](mailto:wildlife.enq@dPIPWE.tas.gov.au)  
[www.dPIPWE.tas.gov.au/browsingmanagement](http://www.dPIPWE.tas.gov.au/browsingmanagement)  
GPO Box 44, HOBART, TAS, 7001

Published by: Department of Primary Industries, Parks, Water and Environment.  
Wildlife Management Branch.

Copyright: State of Tasmania: 2010  
First published: May 2010

# Browsing Wildlife Management with Fallow Deer

A key consideration for landowners in Tasmania is the utilisation of Fallow deer as a viable property resource, intrinsically linked to the management of Bennett's wallaby, Tasmanian pademelon (rufous wallaby), brushtail possum, Forester kangaroo and the deer themselves. Arrangements between landowners and hunters are property specific and aim to result in win-win opportunities for both.

One way landowners do this is to manage the deer on their properties using the principles of Quality Deer Management (QDM). The approach encompasses total herd management involving the management of males, females and fawns, habitat, hunters and hunting experiences. The aim is for healthy deer in balance with surrounding habitat, agricultural and forestry land uses and stakeholder partnerships. Ethical conduct, quality hunters and clear landowner/hunter agreements underpin the whole program.

Fallow deer are the only deer species in Tasmania. They are scheduled as partly protected wildlife under the *Wildlife (General) Regulations 2010*.

## Core Principles

The core principles of QDM involve;

- the voluntary restraint in the harvesting of young males (*resulting in the presence of mature male deer to breed and for trophies*),
- an increased harvest of female (or antlerless) deer (*to achieve a female to male deer ratio of no greater than 3 female animals for every 1 male animal*),
- good record keeping (*for decision making purposes and monitoring achievement of landowner/hunter objectives*).

A common misconception under QDM is that fewer deer will be harvested. Initially, the restraint in harvesting young, immature males will result in fewer males being taken whilst the harvest of antlerless deer often exceeds the usual annual tally.

The adoption of QDM usually equates to deer herds being kept at lower densities than under traditional management practices. This means that landowners can reduce the impact of deer on their production, yet utilise a desired managed population as a property asset. It is important to remember that every situation is different and as such it is advantageous for properties/regions to identify population targets. These targets become the basis for determining annual harvest quotas in conjunction with the data obtained from good record keeping.



## QDM Landowner Benefits

Some benefits are:

- Deer utilised as a viable property resource
- Attraction of skilled hunters
- Property specific landowner/hunter arrangements
- Development of a structured approach to managing the impacts of browsing wildlife
- Limited reliance on non preferred methods of browsing wildlife management such as 1080 poison.

QDM is not for everyone and every situation. Whilst the biological principles and concepts associated with QDM are not difficult to understand, success is very much people dependent. In fact the success of QDM is heavily reliant upon sound communication between landowners, hunter representatives and government. Through maintaining a mutual understanding of the needs of all parties involved desired outcomes can be achieved. For example, a requirement to reduce male deer may be used as an opportunity to take immature or inferior adult males and in doing so can be done to satisfy both landowner and hunter objectives.

## A Tasmanian Case Study

'Charlton' is located near Ross in the Central Midlands of Tasmania. Approximately 80% of the property is either native eucalypt forest or mixed light bush. Sheep are grazed throughout these areas. Improved pasture and intensive cropping activities make up the remaining land uses on the property.

*'Game management is working extremely well for Charlton. If we didn't have those 80 hunters, it would be a nightmare.'* Allan Cameron, Charlton.



*A good result for hunters and land owners.*

## Pre QDM

The impact of browsing animals has long been recognised as a serious impost on farm production for 'Charlton'.

During 1989-90 a 1.8 metre game proof fence was built to divide the intensively managed agricultural area of the property from the bush area. This fence proved highly effective in reducing pasture and crop yield losses to wildlife—deer and wallaby specifically. This strategy however did not solve the browsing problem 'on the other side of the fence', another strategy to reduce these browsing losses and to minimise the pressure on the fence was still required.

In 1996, the deer population on 'Charlton' was estimated to be between 1500 to 1800 animals and heavily skewed toward female animals, very few males were present. Essentially, damage from deer was unacceptable due to their numbers and trophy bucks did not feature. The seasonal take of bucks entailed 4 animals, with an average of 9 antler points.

The browsing control regime for the property was irregular and there was limited onus on the hunter to participate. Joint ownership of the property's browsing problem was not shared and as a result little was being done to cooperatively mitigate browsing wildlife losses.

based Wildlife Management Plan) and began implementing QDM. This approach addressed the needs of both the landowner and the hunter and as such a cooperative relationship quickly emerged.

Improved management of the fallow deer herd on the property is recognised as the underpinning factor in the success of this plan as the deer were the catalyst for attracting and motivating quality hunters. This provided a pathway for managing browsing animals including female fallow deer, Bennett's wallaby, Tasmanian pademelons (rufous wallaby), brushtail possum, rabbits and Forester kangaroo.

*'We endeavour as a property to not only control game on Charlton but to also work with other properties in the district and DPIPW to maintain viable communities.'* Allan Cameron, Charlton.

## Implementation of QDM

*'Quality Deer Management on Charlton has resulted in great relationships and a fantastic recreational hunting area and a genuine improvement for property owners.'* Andrew Winwood, Charlton Hunters President.

In November 1996, a proactive management strategy set out to counter the browsing problem. The landowner in conjunction with property hunters and the Game Management Unit developed a Property based Game Management Plan (now known as a Property

## Today

In 2010 'Charlton' carries approximately 350 deer. This constitutes a 76 - 80% reduction since the commencement of QDM. The presence of mature male deer has increased with a 2010 seasonal take of 21 bucks with an average of 19 antler points. There has been quite a transformation in the numbers, dynamics and quality of the deer herd.

Approximately 80 hunters invest in excess of 3000 hours of browsing control work on the property annually thereby removing any impost on the landowner or property employees to conduct this work.

A formal hunting club exists whereby a head of committee liaises with the landowner to negotiate hunting privileges, address concerns and to self manage the hunting group. Both short and long term goals are set and regular review of property planning occurs. Property improvements by the hunter group has involved the construction and renovation of various property assets including houses, huts and a meat cool room for collective use by hunters and property employees. Working bees are held to assist with property road works, fence maintenance and vegetation management.

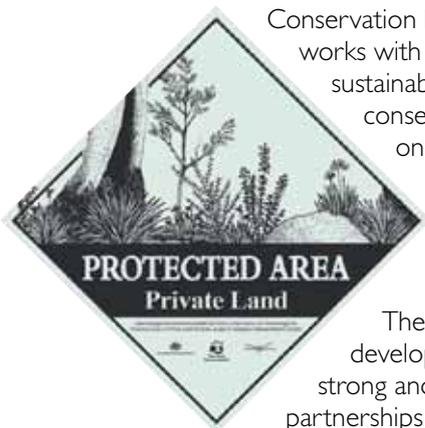
*'We aim to have native and introduced animals and plants in balance. The QDM system and hunting club is helping to reach this balance. We still need to be able to use such products as 1080 or equivalents, to help balance nature and sustainability.'* John Cameron, Mona Vale.



*Constructed meat cool room on 'Charlton'.*

# Conservation on Private Land

The Department of Primary Industries, Parks, Water and Environment, via the Private Land Conservation Program (PLCP), works with landowners for the sustainable management and conservation of natural values on private land. The PLCP is committed to helping landowners look after those values now and into the future.



The PLCP is focused on developing and maintaining strong and constructive partnerships with landowners and other organisations.

To date Tasmanian landowners have committed to protect over 74,000 hectares of native vegetation and natural features on their properties under approximately 500 perpetual conservation agreements with the State Government.



*Eucalyptus globulus Dry Forest.* Photo Private Land Conservation Program.

## Covenants – Perpetual Protection

The main form of agreement is a Conservation Covenant under Tasmania's *Nature Conservation Act (2002)*, which is registered on the title of the land. Conservation covenants document the agreed use of the land within the reserve area, and define some specific land management responsibilities.

The PLCP has a team of people that assists people to meet these responsibilities, conducts biological monitoring, and provides general support for their conservation work.

Covenanted areas contain significant natural values and are considered to be part of Australia's National Reserve System. For this reason, some ordinary activities are either not permitted, or have strict guidelines applied to them. The intent of these restrictions is to conserve the habitat of Tasmania's unique flora and fauna; and for most participating landowners, little change is needed to their existing land management practices.

As an example, many covenants allow firewood gathering for domestic use, but set down rules about the tonnage, types of trees and specific locations where it can occur in the reserve. This is to ensure that conservation reserves retain hollow logs and dead trees that often provide good habitat for a range of fauna.

Similarly, the population levels of certain native wildlife species may be controlled in some conservation reserves, and of course feral animals must be controlled in all reserves with the aim to eradicate them if possible. But strict provisions ensure that this is done in a way that is consistent with the objectives of the covenant, and in a way that minimizes the risks that the natural values will be damaged in any way.

## Integration with Production

These restrictions and responsibilities are often easy for landowners to accommodate, especially if they live on a bushy property just to enjoy it. However many landowners also have a need to work conservation into their production enterprises, and the PLCP works hard to ensure that conservation agreements can accommodate these needs where they don't diminish the natural values.

Grazing of sheep is one such practice that is often allowed for in covenants, especially in grasslands and grassy woodlands and forests. Many grazing properties have retained fantastic natural values that have long gone on more intensively managed areas, and the grazing itself can actually promote diversity of some plant species, as long as it is controlled to allow for flowering and other natural processes to take place.

In the longer term, PLCP aims to be able to help landowners to maximise the benefits from their conservation activities, so that all landowners can see a compelling reason to look after those unique natural values that make Tasmania such a special place.

For further information about the Private Land Conservation Program, please phone 03 6233 3654.



*Wedge-tailed Eagle.* Photo Leigh Walters, Tasmanian Land Conservancy (PLCP partner organisation).

# 1080 Poison

## Understanding 1080 Poison Use

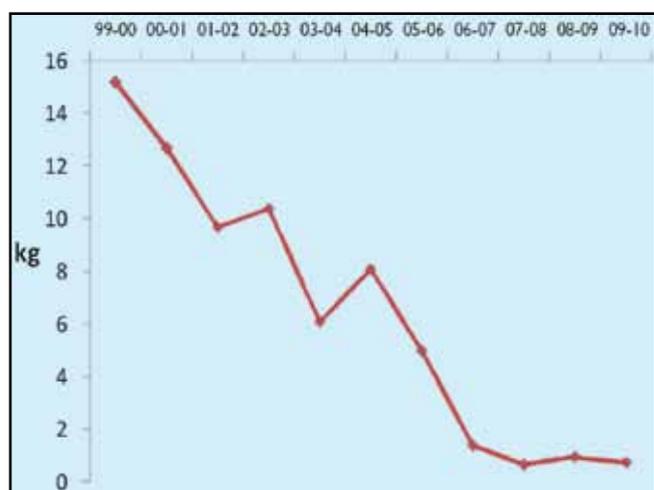


## Background to 1080 Poison Use

A 'Code of Practice for the Use of 1080 Poison for Native Animal Browsing Management' was introduced in Tasmania in December 2005 to try and reach a balance between the need for farmers and foresters to have effective control tools to manage pasture and crop losses from native wildlife browsing and a growing community concern about the use of 1080 poison.

Under the Code of Practice, landholders wishing to use 1080 poison must prove that the use of 1080 poison is a method of last resort.

Specifically, there is a requirement under the Code to have need for 1080 poison use verified by independent, accredited assessors contracted by industry, with the Department of Primary Industries, Parks, Water and Environment's (DPIPWE) Wildlife Management Branch permitting and auditing the whole process. These measures have reduced the usage of 1080 poison in the State (see Graph 1).



*Graph 1. Financial year 1080 poison usage 1999-00 to 2009-10*

There is a perception amongst landholders that 1080 poison is too hard to obtain or too costly to use, although work done by the Alternatives to 1080 Program still suggests that a well executed 1080 poison operation is one of the most cost effective control options available to a landholder.

This brochure has been developed to inform landowners about when 1080 poison can be used, how the process for use of 1080 poison works under the Code of Practice and what costs are involved.

## Allowable Use of 1080 poison

Under the code of practice the use of 1080 poison will only be allowed where:

1. There is an unacceptable risk to crop or pasture
2. The use of 1080 poison does not pose an unacceptable risk to a population of non target species; and
3. Alternative control measures have been adequately considered and implemented as far as practicable and assessed to be ineffective.

## The Assessment Process

### Permit Requirements

Applications for permits to use 1080 poison must meet the following standard requirements as prescribed in the Code of Practice:

1. There must be documented evidence that alternative damage management strategies, including minimum levels of shooting or trapping effort, have been applied.
2. There must be a documented assessment of damage that is evaluated by an accredited assessor who follows standard protocols appropriate to the crop being assessed.

### Initiating an Application for a 1080 Permit

Any landowners wishing to use 1080 poison to manage native browsing animal damage are encouraged to first contact the Wildlife Management Branch on 03 6233 6556 to discuss their problem, and see if there may be alternative methods or approaches for controlling their wildlife problem, as well as to be given an overview of what requirements need to be met by a landowner before they will be able to use 1080 poison, and the names and details of Independent Assessors in their area.

The landholder may also arrange for a Game Management Officer within the Wildlife Management Branch to discuss the property issues and controls on site.

If the landholder wishes to begin the process of using 1080 poison, then the next step is to contact an Accredited Assessor to discuss the information requirements, particularly in relation to documentation of shooting effort to control browsing damage.

Landowners are free to discuss their permit application with more than one Accredited Assessor, and if they have any concerns about the information being provided to them can contact the Wildlife Management Branch for clarification.

The Accredited Assessor will explain in detail any necessary work for browsing damage risk assessment processes such as free feed baiting and browsing plots. If engaged to do the work, they will also carry out a background check to establish if the property has a Forest Practices Plan, Property based Wildlife Management Plan, current Crop Protection Permits and request recent documentation of effort to control browsing damage.

If any documentation deficiencies are identified, the Accredited Assessor will indicate these to the landowner as part of the conversation. If it appears all documentation requirements are met, the Accredited Assessor will make arrangements to conduct an on-site inspection.

### Carrying Out the On-site Inspection

The purpose of the on-site visit is to gather the following information and documentation:

- Copies of current Crop Protection Permits
- Shooting history log
- Map(s) of site

- Photos of damage, presence of animals (runs, tracks and faecal pellets etc.)
- Records of actual browsing damage; or records of browsing damage risk, based on carrot free-feed uptake
- Characteristics of target area
- GPS coordinates of proposed poison line and other significant landmarks.

### Application Submission and Approval

Following the site visit, and if all the required information is available, the Accredited Assessor will submit an application for the use of I080 poison to the responsible Game Management Officer.

The Game Management Officer has two working days to approve or reject the application and if approved, issue a permit to the landowner. If the application is rejected, the reasons for rejection will be provided to the applicant, and if it is due to incomplete evidence or documentation, the landowner, through the Accredited Assessor, may provide the additional required information and resubmit the application for reconsideration.

The Game Management Officer and staff members from the Wildlife Operations Unit also conducts audits on one in every ten applications submitted to ensure that the information provided on the application is accurate and the protocols are consistently being followed.



*Approximately 200 grams of carrots.*



*Free feed chopped carrot is laid in standardised 200 gram piles on two nights during a five day program.*

### Carrying out the I080 Poisoning

Once a permit has been issued, it remains the landowners responsibility to arrange for the notification of use of I080 poison to neighbours, and to arrange with a DPI/PWE Competent Officer to provide the necessary training, check that all notification requirements have been met and provide the I080 poison to the landholder.

If as a landholder you are going to go to the expense and effort of undertaking a I080 poison operation, then it should at least be done well.

When deciding to undertake a I080 poison, landholders are strongly advised to carefully consider the best methods. Too many poisons monitored by the Alternatives to I080 Program cut corners by not undertaking an adequate number of free feeds, doing the poison at the wrong times of year (when there was abundant alternative food sources around) and using a minimum amount of poisoned carrots for the actual poison operation and hence getting a sub-optimal population reduction and not actually solving the problem of high animal densities causing unacceptable browsing damage to crops or pasture.

### A good understanding of just how many browsing animals you are targeting and of what species is fundamental to achieving a good success rate on your I080 poison operation.

The most simple and cost efficient (although perhaps not the most effective) way to do this is by conducting spotlight surveys at varying times (including early am) over the course of a week or so in the lead up to starting your free feeding process. This is a critical measure in ensuring that you don't fall short on the amount of free feed (and eventual I080 poisoned bait) that is required to achieve a successful I080 poison operation for your situation. Fall short on the amount of poisoned bait available and you may have done little to reduce your browsing problem.

Gaining a good understanding of exactly what species are present on a free feed line is equally important. Gut samples from brushtail possum have revealed the potential for individual possums to consume as much as 300 grams of carrot bait in one sitting. Considering this, it is pointless conducting a I080 poison operation for wallabies on a property with a known population of brushtail possum, without an intensive shooting harvest of possums being undertaken. Brushtail possums are easy to shoot and the aim of your I080 poison operation should always be to ensure enough bait is laid, and remains on the ground, to control your wallaby problem.

Every property or browsing situation is different for one reason or another. It is well worth undertaking some pre I080 poison planning by utilising your full practical knowledge of the property, together with investing some time and effort throughout the free feeding process. The application of I080 poison as a browsing animal management tool can easily fail if it is not done well.



*Any bait remaining after a 1080 poisoning event must be disposed of.*

## Post-poisoning Pick Up

The permit holder or their agent must visit the site on the morning of the day following the laying of the baits and again on the day when any uneaten baits are buried or collected. On each occasion, all reasonable effort must be made to collect and dispose of the carcasses of all poisoned animals present on the permit holders land. The permit holder or their agent must also attempt to collect and dispose of all carcasses on a neighbour's land within 500 metres of the poison line, or to a distance specified by an Authorised Officer; when requested to do so by that neighbour. A Competent Officer, with the permission of a neighbouring landholder, may instruct the permit holder or their agent to attempt to collect and dispose of all carcasses on that landholders land.

Any female wallabies or possums recovered must be examined for pouch young and if one is present it must be humanely destroyed. (Suitable techniques include decapitation with a sharp knife or a heavy blow to the head as recommended in the Animal Welfare Standard for the Hunting of Wallabies in Tasmania). Carcasses that are collected should be disposed of by either burial at least 50 metres from running water or by incineration.

The permit holder or their agent must maintain a record of the number of carcasses of each species found and return this information with the permit within 14 days of the expiry, as specified on the permit. Failure to do so may make the permit holder liable for prosecution and ineligible for a permit to use 1080 poison in the future.

Uneaten baits must be buried to a depth of at least 100 mm or collected and disposed of by burial or incineration within 4 days of the poison being laid. Carcass clean up must occur on 2 occasions, once commencing on the first morning following the laying of the baits and again when baits are covered or collected.

## Follow Up Actions

Although not part of the code of practice, once a 1080 poisoning has been undertaken, it will be necessary to undertake follow up control to ensure the benefits of the poisoning are achieved.

**Post poisoning is an ideal time to erect wallaby proof fencing on a property.**

The pressure against the fence will be very low, and this overcomes humaneness concerns arising from locking wallabies out of their feed source with fencing.

If fencing isn't an option, then some form of follow up shooting or trapping strategy should be put in place immediately following a poisoning in order to obtain further reward and longevity from the poison operation.

A 1080 poisoning event cannot be repeated on the same site for a period of 3 years, so it is vital to do an effective initial poison and then effective ongoing maintenance control of populations otherwise a landholder may soon find themselves with a problem as great as before the poison, but without the option of using 1080 poison.

## Documentation of Alternative Damage Management Strategies

### Required Alternative Browsing Control Measures

Except where it is unlawful or otherwise not feasible, it is a requirement that shooting or trapping be attempted prior to application for a 1080 poison permit. This alternative effort must be fully documented in terms of the method used, effort expended and animals taken and must reach a level judged as appropriate to the circumstances.

An Accredited Officer can provide more information on what methods are appropriate for your situation. Wallaby fencing is not mandatory but when applied strengthens an application for 1080 poison.

### What is the Required Minimum Shooting Effort?

If 1080 poison has not previously been used on the property, then shooting must:

- Take place on no less than 8 days or nights during the preceding 30 day period, and cover at least 75% of the target area (the area proposed to be poisoned).

If the property has previously used 1080 poison, then a Property-based Wildlife Management Plan must be in place and shooting must:

- Take place on a minimum of 4 days or nights per month for 3 months, and then be followed by a minimum of 8 days or nights during the 30 days preceding the application.

NOTE: One day or night = minimum 2.5 hours. Therefore, the following minimum shooting effort (MSE) must be carried out: First 3 months MSE = 10 hours; Final month MSE = 20 hours. Pro-forma shooting logbooks are available from Game Management Officers within the Wildlife Management Branch.

Alternatively a landholder could elect to undertake a trapping program, with an equivalent amount of effort (minimum 8 trapping nights in the preceding 30 day period, with a density of traps of at least 50 traps per kilometre of bush line or boundary as agreed with the Independent Assessor).

## Restrictions on When 1080 May be Used

The repeat use of 1080 poison on or adjacent to the same site within a 3-year period will be permitted only under exceptional circumstances. These include:

- Where the previous attempt failed because of unfavourable weather conditions, or
- Human interference with baits, or
- Where exceptional circumstances prevail such as wildfire or drought, to protect native forest regeneration, or to prevent bark stripping in pine plantations, or
- Where following an initial baiting, browsing damage levels are equivalent to, or greater than those measured at the original damage assessment and only where alternative control methods have been trialed and proven inadequate.

In any case, an argument surrounding exceptional circumstances should be well documented and evidenced within the application. Other circumstances will be considered should they arise.

1080 poison may be used on more than one site within a property within 3 years, so long as both sites are sufficiently separated from each other, and each site must meet all of the criteria under the Code of Practice.

## What is 1080 and How Does it Work?

1080 poison is a metabolic poison which, when ingested interferes with the energy-producing cycle that takes place within an animal's cells.

Mammals are generally more sensitive to 1080 poison than birds, and birds are more sensitive than reptiles. Dogs are extremely susceptible to the poison, as are most other non-marsupial carnivores. Non-marsupial herbivores are less sensitive.

The active ingredient of 1080 poison is sodium monofluoroacetate. This compound is one of many that has evolved in plants as a protection mechanism against browsing. It occurs naturally in many plant species in Africa, South America and Australia, though not in Tasmania.



*Bag of treated carrot ready for use.*

Sodium monofluoroacetate is a relatively stable molecule in sterile water but is readily broken down in water and soil where living organisms are present.

## What About the Costs?

The costs of a 1080 poison will vary considerably between sites, but as an indication of costs, here are some key numbers from December 2010:

- Independent Assessor costs usually fall in the range of \$300 - \$500 per site, but this may vary depending on the requirements.
- On average about 40 kg of carrots are used per kilometre of bait line at each site and landholders are recommended to do at least 3 free feeds (3 or 4 days apart), but may need to do as many as 7 or 8 depending on bait uptake. A poisoning event shouldn't be done until bait uptake is almost total.
- For the poison, approximately 200 mls of 1080 poison is used per 20 kg bag of chopped carrots, so approximately 400 mls per km of bait line.

### Current DPIPWE 1080 poison charges consist of;

\$8.80 per 100 mls of 1080 poison,

\$49.50 per hour for the Competent Officer's time plus a 60 cents per kilometre travel cost charge,

\$22.00 administration fee.

Game Management Levy consisting of \$18.50 per 100 ml of 1080 poison.

The cost and effort of undertaking the pre-1080 poison control, neighbour notification activities, putting out the free feed and poison line, meeting with the Competent Officer to get the 1080 poison and training in its use and of course the time taken to pick up and dispose of poisoned animals should be factored in.



Further Information and Contacts

### Wildlife Management Branch

Reception Phone: 03 6233 6556

Reception Fax: 03 6233 3477

Email: [wildlife.enq@dPIPWE.tas.gov.au](mailto:wildlife.enq@dPIPWE.tas.gov.au)

[www.dPIPWE.tas.gov.au/browsingmanagement](http://www.dPIPWE.tas.gov.au/browsingmanagement)

GPO Box 44, HOBART, TAS, 7001

Published by: Department of Primary Industries, Parks, Water and Environment.  
Wildlife Management Branch.

Copyright: State of Tasmania: 2010

First published: May 2010



## Wildlife Management Branch

Department of Primary Industries, Parks, Water and Environment (DPIPWE)

GPO Box 44, HOBART, TAS, 7001

Reception Phone: 03 6233 6556 Reception Fax: 03 6233 3477

Email: [wildlife.enq@dpipwe.tas.gov.au](mailto:wildlife.enq@dpipwe.tas.gov.au)

Website: [www.dpipwe.tas.gov.au/wmb](http://www.dpipwe.tas.gov.au/wmb)

## Game Management Officers – Contact Details

### Launceston Based

#### *David Leguis*

03 6336 5342 or 0428 535 258

[David.Leguis@dpipwe.tas.gov.au](mailto:David.Leguis@dpipwe.tas.gov.au)

#### *Kate Gill*

03 6336 5196 or 0439 736 314

[Kate.Gill@dpipwe.tas.gov.au](mailto:Kate.Gill@dpipwe.tas.gov.au)

### Hobart Based

#### *Matt Byrne*

03 6233 6473 or 0429 408 103

[Matt.Byrne@dpipwe.tas.gov.au](mailto:Matt.Byrne@dpipwe.tas.gov.au)

#### *John North*

03 6233 3039 or 0427 685 218

[John.North@dpipwe.tas.gov.au](mailto:John.North@dpipwe.tas.gov.au)