Rabbits:

A threat to conservation & natural resource management

How to rapidly assess a rabbit problem and take action

The problem

It takes less than one rabbit per hectare to prevent the successful regeneration of many of our common native trees and shrubs. This means that many rabbit-infested patches of remnant native vegetation can't sustain themselves naturally and are in slow decline - but unfortunately this often goes unnoticed. Whether you are a land-owner who conserves some uncleared woodland on the farm or belong to a Landcare group managing vegetation along a roadside, this quick assessment method will help you decide if rabbits are a problem and what action you need to take. National Park managers will also find this a useful tool for alerting them to problems.

How to monitor

Take 15 – 20 minutes to walk through the patch of native vegetation of interest. You should cover about 2 – 3 hectares in this time. Observe carefully but don't stop too long at any given point.

Use this guide to help you fill in the data sheet on pages 14-15.

STEP 1:
Rabbit abundance score

Record evidence of rabbits as you walk; it will help form an 'average' picture of the whole area in your mind. Rabbit warrens may be present as well as scratches and 'buck-heaps' or latrines but the abundance of rabbit pellets (faeces) is the best measure to use (see **Figure 1**). Score these as follows:

0 - none found in the 15 minute search

1 - isolated pellets and small clumps of 5 - 10 pellets 10 metres or more apart

2 - scattered pellets and clumps less than 10 metres apart

3 - common, pellets in larger clumps and occasional buck-heaps on about half the areas you scan closely during the search

4 - abundant, pellets often in large clumps and buck-heaps obvious but not present across whole area

5 - very abundant, pellets and buck-heaps always apparent

FIGURE 1: Typical small clump of rabbit pellets (faeces) in grassland.

Rabbit 'score' and population density

The score for rabbits (0 – 5 scale) is not a direct measure of rabbit abundance or population density. However, an approximate conversion is as follows:

Rabbit abundance score	Approximate density (adult rabbits/hectare)
0	0
1	0.5
2	1
3	2
4	5
5	10 or more

STEP 2:
Seedling abundance score

Once you are beginning to get the picture on rabbit abundance, look around to see if there are seedlings of the common native trees and shrubs present in the area. They can be 'scored' in a similar way to the rabbits:

0 - none found during 15 minute search

1 - very few, only 1 - 5 individual seedlings encountered

2 - uncommon, 6 - 20 seedlings encountered

3 - common, 20 - 100 seedlings encountered

4 - abundant, 100 - 200 seedlings encountered

5 - very abundant, many hundreds of seedlings encountered

The presence of seedlings is a measure of the health of the vegetation community and a mix of seedlings of different tree or shrub species indicates broad community health.

Common trees and shrubs damaged by rabbits

These can be useful 'indicators' of rabbit browsing but you will find many other examples.

- Acacia (Wattles):
  Acacia ligulata, A. oswaldii

- Bursaria (Sweet Bursaria):
  Bursaria spinosa

- Casuarina (Sheokes and Bulokes):
  Allocasuarina verticilliata

- Callitris (Native Pines):
  Callitris glaucophylla and *C. gracilis*

- Dodonea (Turpentines):
  Dodonea viscosa

- Hakea (Needlebush):
  Hakea leucoptera

- Myoporum (Boobialas):
  Myoporum insulare

STEP 3:
Rabbit damage score

Closely inspect smaller seedlings, less than 0.5 metres high, for evidence of rabbit damage. Oblique 45˚ 'secateurs-like' cuts through smaller stems, defoliation and gnawing of bark are tell-tale signs (see **Figure 2**). Another sign can be twigs cut from seedlings and then discarded without being eaten – and again look for the 'secateurs-like' cut to confirm that rabbits were responsible. The severity of rabbit damage should be ranked as follows:

0 - no evidence of rabbit damage

1 - slight damage to some seedlings

2 - obvious damage but confined to some seedlings

3 - many seedlings moderately damaged

4 - heavy general damage, some seedlings retain foliage

5 - foliage, twigs and bark stripped from all seedlings

FIGURE 2: Rabbit damage showing stripping of bark and 45º 'secateurs-like' cuts through twigs.

In some instances rabbits may have eaten all of the seedlings but the severity of grazing can still be ranked at '5' from the presence of a distinct 'browse-line' 500 millimetres above the ground on older saplings or mature shrubs with lower foliage within reach of the rabbits (see **Figure 3**).

FIGURE 3: Absence of small seedlings and a distinct 'browse-line' 500 millimetres above the ground on older saplings indicates severe rabbit impact (Damage score = 5).

FIGURE 4: Native pines with: (a) little damage (score 1); or (b) complete defoliation (score 5).

STEP 4:
Corrected regeneration score

Use the **Table** below to work out a 'corrected regeneration score' from the seedling abundance and rabbit damage scores you have obtained.

Two examples are provided:

- Example 1: Seedlings were abundant (score 4) and very little rabbit damage was noted (score 1); the corrected regeneration score is 2.

- Example 2: Seedlings were again abundant (score 4) but rabbit damage was very heavy (score 5); the corrected regeneration score is 0.7 (which can be rounded up to 1).

Rabbit damage	Seedling abundance					
	0	**1**	**2**	**3**	**4**	**5**
0	0.20	1.00	2.00	3.00	4.00	5.00
1	0.20	0.50	1.00	1.50	2.00	2.50
2	0.20	0.34	0.70	1.00	1.30	1.70
3	0.20	0.28	0.50	0.80	1.00	1.30
4	0.20	0.20	0.40	0.60	0.80	1.00
5	0.20	0.20	0.30	0.50	0.70	0.80

Use the corrected regeneration score obtained from the **Table** for the next Step.

STEP 5:
Assessing overall rabbit impact

Where does the site you have assessed fit on **Figure 5** below? Use your corrected regeneration score and the score you obtained for rabbit abundance to do this.

Again, two examples are given:

- Example 1: Corrected regeneration score about 3 and rabbit abundance score 1.

- Example 2: Corrected regeneration score about 1 and rabbit abundance score 4.

Most assessments should fall roughly around the *dotted black line* which is based on observations from over 200 sites assessed in south-eastern Australia.
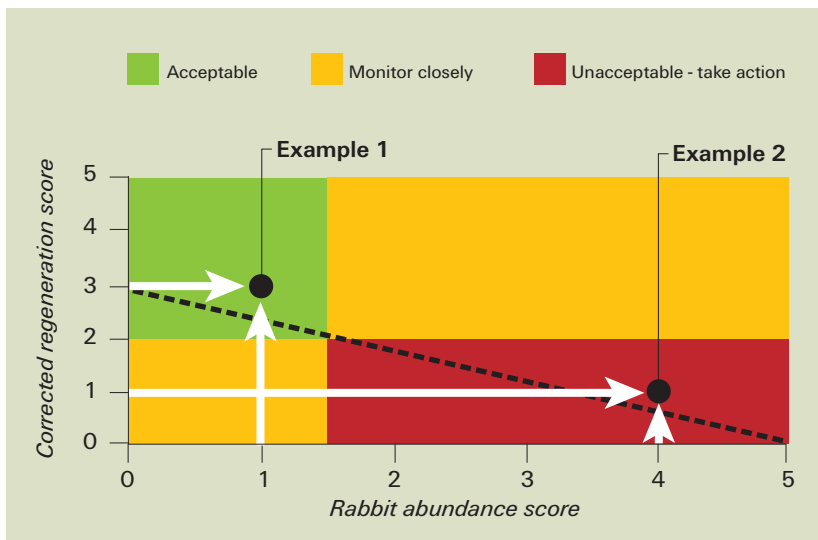

FIGURE 5: Assessing overall rabbit impact.

If your assessment falls within the green zone, rabbits are not having a significant impact on native vegetation regeneration. The yellow zones indicate where rabbits should be watched more closely and the red zone indicates that rabbits must be controlled to avoid serious biodiversity losses.

Removing rabbits

Where rabbits are damaging vegetation, and action to reduce their impact is needed, it is important to remember that the '*cure should not be worse than the disease*'. Where rabbits are living amongst thick remnant native vegetation, the control methods chosen should not irreparably damage trees, shrubs and native herbage.

Several different methods of control often need to be combined to achieve the best results among roadside vegetation:

- poison in summer or autumn to eliminate most rabbits;
- destroy readily accessible warrens by ripping with a suitable small tractor or back-hoe, preferably while soil remains dry;
- fumigate inaccessible rabbit holes and any that re-open after ripping.

This combination of techniques means more work and initial expense, but the low costs of keeping rabbits down in subsequent years quickly brings accumulated costs below those of repeated annual treatments. Treating re-opened rabbit holes by fumigation 'on the spot' during annual inspections will keep costs down and ensure that rabbits do not regain damaging numbers. Ask your local Natural Resource Management Board, Catchment

Management Authority or Rural Lands Protection Board for advice on availability and use of poisons and fumigation equipment.

More information on rabbit management is available at: **www.feral.org.au**

Measuring achievement

This simple method of assessing rabbits can be useful for measuring progress in rabbit control. Note the results in your diary so that you can measure progress by repeating the assessment again a year from now. Success should not be measured in terms of reduced rabbit numbers alone. The health of the native vegetation — measured in terms of its ability to regenerate — is the main aim.

Rabbit and vegetation data sheet

Site name or reference: *(e.g. local name, owner's name details)*	
Name of assessor:	
Date:	**Inspection time:** am/pm
Location: *(e.g. nearest town)*	
Latitude: *(from GPS)* ° S	**Longitude:** ° E
Altitude: *(from GPS)* metres	
Approximate area inspected: ha. **Total area of land if known:** ha.	
Land use(s): *(e.g. grazing, cropping, rail reserve)*	

General description of site: *(e.g. remnant native vegetation adjacent to cropland)*

	Score
Rabbit Abundance	
0 = none found in 15 minute search; 1 = small, isolated clumps >10m apart; 2 = clumps <10 m apart; 3 = common; 4 = abundant, still patchy; 5 = very abundant, faeces always apparent.	
Seedling Abundance	Score
0 = none; 1 = very few; 2 = uncommon; 3 = common; 4 = abundant; 5 = very abundant.	
Rabbit Damage	Score
0 = no damage; 1 = slight damage; 2 = obvious damage confined to some seedlings; 3 = many seedlings moderately damaged; 4 = heavy general damage; 5 = foliage and small twigs and bark stripped from almost all seedlings. If there are no seedlings and there is a browse-line on low foliage, score as 5.	
Corrected Damage Score	Score
Final decision on rabbit control:	

Australian Government

Bureau of Rural Sciences

• australian wool
innovation
• limited

mla
MEAT & LIVESTOCK AUSTRALIA