

Management standards for native vegetation offset sites



August 2025

Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



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Contents

Introduction	2
Fencing management standards	4
Weed management standards	7
Pest and deer management standards	10
Planting management standards	13
Scattered trees management standards	17
Soil erosion standards	19
Ecological thinning standards	21
Over-abundant macropods	25
Further reading	27

These management standards replace the BushBroker 2013 management standards detailed in Table 1

Table 1: BushBroker management standards replaced by the standards in this document

Management standard	BushBroker standard for management
Fencing management standard	Standards for management – Fencing, Information sheet number 12
Weed management standard	Standards for management – Weeds, Information sheet number 8
Pest animal management standard	Standards for management – Rabbits, Information sheet number 7
Planting management standard	Standards for management – Supplementary planting, Information sheet number 9
	Standards for management – Revegetation, Information sheet number 10
Scattered trees management standard	Standards for management – Scattered trees, Information sheet number 11

Introduction

These are management standards for native vegetation offset sites.

The management standards detailed in this document replace the 2013 BushBroker information sheets specified in Table 1 and apply to all offset sites in Victoria. Where there is a conflict between these standards and other management standards or guidelines, these standards apply for offset sites.

Offset sites must provide permanent protection and management of native vegetation. To achieve this a landowner enters into a security agreement with a statutory body, that is a local council, the Department of Energy, Environment and Climate Action (DEECA) or Trust for Nature. The security agreement includes landowner obligations and a management plan that details management commitments and actions. The actions must be done to the standards described in this document.

Accredited native vegetation assessors help landowners identify threats and determine management actions. DEECA has a list of accredited native vegetation assessors (site assessors) that have signed an agreement to provide this service when DEECA is the statutory body. Trust for Nature should be contacted if they will be the statutory body. In this document this specialist is called an assessor.

Landowners must refer to their specific security agreement and management plan to understand their specific obligations, commitments and management actions required to maintain or improve the quality and/or extent of native vegetation at their offset site.

Landowner obligations

Obligations of the landowner are detailed in the security agreement and are summarised below:

Landowners must:

- protect and manage native vegetation in perpetuity
- complete management actions and all works required to implement the management plan
- install, upgrade or maintain fencing to exclude stock and unauthorised people where they are likely to have access to the offset site
- eradicate or prevent the growth and spread of weeds or other plants listed in the management plan

- comply with section 20 of the *Catchment and Land Protection Act 1994* that requires landowners to take all reasonable steps to:

- eradicate regionally prohibited weeds
- prevent the growth and spread of regionally controlled weeds
- prevent the spread of, and as far as possible eradicate, established pest animals.

Landowners must not:

- apply or allow the application of fertilizer to any part of the offset site
- erect or allow the erection of any buildings or structures on the offset site
- cause or allow:
 - removal of, or interference with, native vegetation, fallen vegetation, logs or rocks
 - livestock onto the offset site
 - other animals onto the offset site, except for controlled pet dogs
 - any act that alters the natural state of, or flow of, water in any waterway or waterbody onto or from the offset site
 - the dumping of any rubbish or the storage of any materials on the offset site
 - removal, introduction or disturbance of soil, rocks or other minerals
 - construction of dams or modification of existing dams
 - subdivision
 - the operation of any trade, industry or business on the site
 - recreational use of trail bikes or four-wheel drive vehicles
 - the carrying out of works or other activities not consistent with the security agreement
- permit extractive industry and utility installations unless required by law.

Minimum management commitments

The *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) are incorporated into all planning schemes in Victoria and outline the minimum management commitments for an offset site. These include:

- retain all trees, including dead trees that are standing
- exclude stock and other threats
- ensure that weed cover does not increase beyond the current level
- monitor for new and emerging weeds and eliminate to less than one percent
- retain all logs, fallen timber and organic litter
- control rabbits
- for grassland vegetation types biomass management may be a requirement
- when the offset is scattered trees, at least five recruits need to regenerate or be planted in the area around each protected scattered tree
- for revegetation offsets, the revegetation must be in accordance with the minimum planting standards specified in the *Native vegetation gain scoring manual Version 2* (December 2017)
- report annually on management actions.

Management plan

All offset site security agreements include a management plan that details how the site must be managed over a tenyear active management period. It also includes ongoing landowner commitments to improve the quality of native vegetation at the site in perpetuity.

An assessor will develop the management plan with a landowner and detail management actions to address specific threats identified on site.

Changing threats or management

A landowner must be able to control significant threats for land to be eligible as an offset site.

Threats at an offset site can change over time so that the described management actions may no longer deliver the agreed management commitments. When this happens, the management actions may need to change to ensure the management commitments are achieved and landowner obligations are met. This may be to address a new threat or because the current actions are not controlling the threat or achieving the required outcome.

Any landowner must obtain written approval from the statutory body if they propose changes to the management plan. The new actions with specified timeframes will be detailed in a management notice issued by that body. The landowner is responsible for complying with all works and activities detailed in the management notice.

Managing offset sites using grazing and burning

In some limited cases, when landowners have appropriate skills and resources, and the site conditions support it, ecological grazing and/or ecological burning may be appropriate management actions for biomass management and weed control. The assessor must obtain the required standards from the relevant statutory body when this is an accepted management method.

Health and safety

Landowners are responsible for ensuring all works are conducted safely. All works must comply with the requirements of any authority, and with all acts, regulations and other laws which may apply.

Specialist help from someone with a current Agricultural Chemical User Permit or firearm accreditation may be needed.

Call 1100 – “Dial before you dig” – to determine if there are underground pipes or cables on your property. This is a free referral service from anywhere in Australia.

Fencing management standards

Introduction

Landowners have an obligation to install, upgrade or maintain fencing to exclude stock or other threats, and unauthorised people where they are likely to have access to the offset site.

Fencing helps manage threats to native vegetation from:

- unauthorised human access
- overgrazing by native herbivores
- pest animals
- grazing by domestic stock.

The requirement for and type of fence should be discussed with an assessor and the relevant statutory body. The management plan may detail which type of fence is required, or specify that the fence be constructed to this standard. The management plan will also specify the timing for erecting and maintaining the fence. Signs may be required to alert neighbours and the public of the offset site and that entry is not permitted.

Landowners may require approval from the local council to erect a fence or signage.

Timing

Fences must be installed or repaired within three months of commencing the security agreement, unless stock and other threats are not present.

If an access threat arises, immediately install a fence to the required standard to protect the offset site.

Type

Maintain/install the type of fence best suited to manage the threats present at the offset site. This could be detailed in the management plan unless the threat is a new threat. Talk to the statutory body whom your agreement is secured with to discuss the best fence type if it is a new threat or you are unsure (eg. Council, Trust for Nature or DEECA).

*Remember all fences must include a gate for management access. To prevent adverse impacts on wildlife, the top wire should be white to increase visibility and a gap should be retained at the bottom to allow native animals to pass underneath. The fence **cannot** include any barbed wire, and the bottom strand must not be electrified.*

All offset sites established from October 2019 onwards must remove any barbed wire and remove any electrified wires in the bottom strand. Remember that in all cases the bottom strand must not be electrified, and no stands may be barbed

Kangaroo and wallaby exclusion plots

Refer section titled “Over-abundant macropods”, page 25.

Rabbit-proof fencing

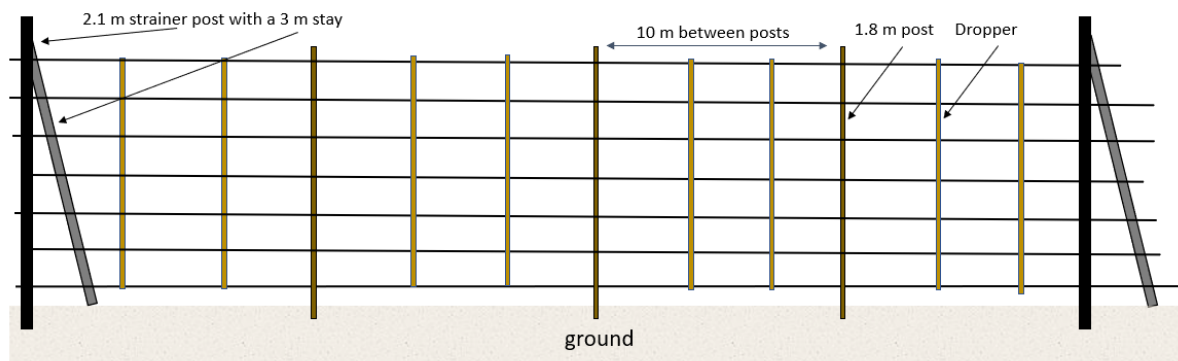
For more information on rabbit-proof fencing standards, see section on pest animal control.

Stock-proof fencing

To exclude stock, install or replace a fence as follows (see Figure 1):

- Fence (top wire) is a minimum of 1.1 metres high
- Posts are at least 1.8 metres long and of treated pine or steel, no more than 10 metres apart and with two droppers in between.
- Strainers posts are 2.1 metre long of either 150 mm wide treated pine, railway iron or large diameter steel.
- Stays are 3 metre treated pine.
- Wires are as follows:
 - dairy cattle: three strand plain wire with at least two electrified strands or seven strand plain wire
 - beef cattle: four strand plain wire with at least two electrified strands or seven strand plain wire
 - sheep: five strand plain wire with at least two electrified strands or seven strand plain wire.

Remember that in all cases the bottom strand must not be electrified.



Dropper – a light vertical part supported by wires, not embedded in the ground to keep the wires spaced and increase visibility of the fence
Post – a vertical rigid fence part used to support fence wires, firmly embedded in the ground

Stay – a brace for a strainer post
Strainer post – a large post, embedded in the ground that holds the fence wire tension
Wires – usually thin, metal and less than 4mm diameter

Figure 1: Typical seven strand wire fence showing fence part terminology

Human/vehicle-access fencing

People (other than management/monitoring personnel) must be excluded from any offset site. A number of measures may be undertaken to prevent access, including signage, fencing and other means. Whichever solution is used, it must be of a standard that prevents ready access. Should the initial solution not prevent ready access, additional measures must be undertaken to prevent access (e.g. install additional or upgraded fencing and/or additional signage).

DEECA have templates for signage should landowners require.

Different fence designs may be required in different situations, as the likelihood and type of access may differ.

For example, a site in a remote location with dense vegetation, and no nearby roads or tracks may not be necessary, as the site context prevents ready access.

Whereas, an open woodland in a less remote location may only require a plain wire fence with appropriate signage, as the likelihood of access may be low, and access is more likely to be from recreational vehicles, rather than pedestrians.

An open woodland in an urban environment may require 1.1 metre-high mesh fence with additional signage, as the risk of access is more likely, and access is more likely to be pedestrians who may climb through a plain wire fence and create new tracks and disturbance.

Please contact the statutory body administering the agreement if you are unsure what fencing may be required.

Location

Locate the fence to ensure the whole offset site is protected from threats. If the area is prone to flooding discuss fencing options with the assessor. Position the fence:

- outside the offset site so the vegetation within the site is not impacted during fence installation and maintenance
- to avoid or minimise disturbance of native vegetation outside of the offset site
- to avoid steep slopes and watercourses
- at least 10 metres from the top edge of the bank of any waterway.

See the scattered trees management standard for fencing around scattered trees.

Maintenance

Fencing must be maintained to the required standard in perpetuity. Landowners must:

- Conduct at least seasonal monitoring to ensure that fences continue to meet the standard.
- Repair or replace fences or portions of fences that have become damaged and are no longer effective in managing threats to the offset site.

Replacing, removing or repositioning fences

An existing fence that does not meet the described standards, may be maintained in its current condition provided it remains impermeable to stock and other threats, and does not pose a risk to wildlife. It is preferable that fences be upgraded to the required standard, but as a minimum, for offset sites established from September 2019 onwards, barbed wire must be removed and bottom strands must not be electrified.

Existing fences around native vegetation offset sites must not be removed or repositioned without written approval from the statutory body administering the agreement.

More information

For more information on fences see:

- the Agriculture Victoria website at <http://agriculture.vic.gov.au>
- *DELWP Output delivery standards for the delivery of environmental activities (2015)*.

Remember where there is a conflict between this standard and other information, this standard must be used for offset sites.

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts, regulations and other laws which may be applicable to the security agreement.

Call 1100 — “Dial before you dig” — to determine whether there are any underground pipes or cables on your property. This is a free referral service from anywhere in Australia.

Weed management standards

Introduction

Landowners must comply with requirements to control or eradicate weeds listed under the *Catchment and Land Protection Act 1994*.

Landowners have an obligation to:

- eradicate regionally prohibited weeds
- prevent the growth and spread of regionally controlled weeds
- eradicate or prevent the growth and spread of weeds and other plants listed in the management plan.

Landowners must also commit to ensure that weed cover does not increase beyond the current level and to monitor for new and emerging high threat weeds and eliminate them if found. It is advisable to monitor for any new and emerging weeds and to remove them to ensure they cannot pose a threat to native vegetation condition.

Weeds can out-compete indigenous (native to the local area) plants and reduce habitat quality for native animals. They are plants that do not belong in the area.

Managing weeds protects and improves biodiversity and can significantly enhance the results of revegetation projects. It may be necessary to hire suitably qualified and experienced contractors to help manage weeds, especially when special licences or permits are required for herbicide purchase and use. This may also be applicable in sensitive environments or when managing difficult weeds.

Site assessment

It is best to discuss weed management requirements and options with an assessor or the relevant statutory body so that advice can be tailored to the specific threats at the offset site.

When a management plan is prepared by an assessor it will include:

- estimates of the total cover of weeds (woody and herbaceous) when the initial site assessment was done (*this is the reference point for commitments to ensure weeds do not increase beyond current levels*)
- details of woody weeds to be eliminated
- details of herbaceous weeds that must be eliminated or controlled

- details of the management method and timing for weed management
- a requirement to monitor and eliminate any new and emerging woody weed or high threat herbaceous and grassy weed.

In some limited cases the management plan may describe high threat herbaceous and grassy weeds that must be eliminated. Elimination of these weeds is very difficult and requires ongoing and dedicated management.

Terminology

Eliminate

Eliminate means to reduce weed cover to less than one per cent with no mature individuals present. This means that by the time stated in the management plan the presence of the weed or weeds is negligible. The presence of occasional scattered seedlings still constitutes negligible cover.

New and emerging weeds

A new and emerging weed is any weed not detailed in the management plan tables.

High threat weeds

High threat weeds include any introduced species (including non-indigenous natives) with the ability to outcompete and substantially reduce one or more indigenous life forms in the longer term. At offset sites, high threat weeds include:

- all perennial weeds (including all woody weeds)
- any weed listed as high impact on the bioregional Ecological Vegetation Class (EVC) benchmarks
- all weeds listed under the *Catchment and Land Protection Act 1994* (Remember no gains apply for these weeds)
- any annual species that an assessor may identify during the site assessment.

Management standards

Appropriate weed management techniques are determined by the site conditions and weed species. Weeds can be managed using chemical, manual or mechanical methods (or a mixture of these). Tables 2 and 3 describe some of the common management actions that appear in management plans.

In limited cases, with specialist help, and within high rainfall grasslands and grassy woodlands these

standard methods may be used in conjunction with burning and/or grazing.

Landowners must:

- Control weeds before seeds are set.
- Prevent or minimise disturbance to native vegetation and soil especially in remnant patches.
- Focus management activities on the control or eradication of high threat weeds specified in the management plan.
- Stagger weed removal (especially woody shrubs like Boxthorn) that provides otherwise absent habitat for native animals. Discuss the planting of indigenous shrubs prior to removing the weeds with the statutory body or an assessor.
- Undertake follow-up monitoring and treatments (in the case of woody plants for at least 24 months) until indigenous plants are well established.
- Monitor the site at least every season to detect new and emerging high threat weeds.

When using herbicides:

- Comply with current legislation.
- Remember that an Agricultural Chemical Users Permit (ACUP) is required for the use of specified 'restricted use' chemicals.
- Apply herbicide according to the label instructions.
- Ensure that the herbicide is registered for the particular use and situation.
- Apply herbicide when weeds are actively growing, not when they are dormant, or drought stressed.
- Do not spray weeds when they are in full flower or when bees are active.
- Use aquatic-friendly herbicides and wetting agents when working in creek-line areas.
- Avoid off-target damage to native species.
- Apply appropriate mitigation measures for direct or in-direct impacts to threatened flora and fauna, including appropriate buffers when applying herbicide application including taking account of weather, application method and herbicide characteristics .

Threatened species are described or listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act (1999)* and *Flora and Fauna Guarantee Act (1988)*.

More information

For more information on weed management see:

- the Agriculture Victoria website at <http://agriculture.vic.gov.au>
- *DELWP Output delivery standards for the delivery of environmental activities (2015)*.

Remember where there is a conflict between this standard and other information, this standard must be used for offset sites.

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts, regulations and other laws which may be applicable to the security agreement.

Specialist help from someone with an ACUP may be needed.

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Blackberry

Credit: Richard Boon



Spear thistle

Credit: Richard Boon

Table 2: Some management actions to control woody weeds

Method	Suitability
Felling or ringbarking	Use on trees and large shrubs that won't resprout, for example pines.
Cut and paint with suitable herbicide	Use on trees, shrubs, scramblers and climbers that are likely to resprout from cut stumps. Cut stem and paint cut stump within 20 seconds with systemic herbicide. Add brightly coloured dye to the solution to mark treated stumps. For large trees, treat only the rim of the stump to target the cambium layer below the bark. The solution should be applied immediately after bruising the trunk circumference with the back of an axe.
Drill or frill and fill with suitable herbicide	Use on trees, shrubs and very large climbers that are likely to resprout. Drill several holes or make cuts at an angle of 45 degrees into the sapwood (moist wood below bark) and immediately fill the hole with systemic herbicide. As these methods kill woody weeds where they stand, they should be used where weeds can be left to die in place or where they can be felled later. Dead weeds may provide native animal habitat and stabilise soil.

Table 3: Some management actions for the control of herbaceous and grass weeds

Method	Suitability
Spot-spraying and wick-wiping	Due care is required to minimise impacts on non-target species from overspray when spot spraying or wick-wiping selected weeds with appropriate herbicide. Spray to the point of runoff; all leaf cover should be wet but not dripping. Dye additives should be used to ensure all necessary areas have been treated. This technique should be limited or avoided where there is potential for adverse impacts, for example close to waterways and native vegetation. Consider using a drift guard to target spray and reduce negative impacts.
Hand weeding and chipping	Removing selected plants by hand or chipping using a hoe is useful where populations are small or where herbicide use is not desirable. This method does not prevent growth of new seedlings, so soil disturbance must be minimised.
Slashing and mowing	May be used to stop seed set and to allow for easier herbicide application. Use only where there is a dense weed infestation and when detailed in the management plan.
Grazing and burning	May be appropriate in limited cases and only with appropriate ecological advice and assistance.

Pest and deer management standards

Introduction

Landowners have an obligation to prevent the spread of, and as far as possible eradicate, established pest animals. They must also commit to controlling rabbits.

Pest animals pose a major threat to native vegetation. They may also harm and compete with native wildlife for food and shelter. Pest animals can also reduce the success of management actions including weed control, revegetation, and supplementary planting and affect the natural regeneration of native plants.

Common pest animals that landowners will need to manage include rabbits, foxes, deer and feral cats. Management of over abundant native herbivores (kangaroos, wallabies and possums) may be required in some cases.

An integrated approach to pest animal management is required. A combination of control techniques will achieve the best outcomes because different methods will target different sections of the pest populations at different times. Persistent and co-ordinated action at a landscape scale provides large-scale and long-term pest animal control.

When undertaking pest animal control aim to effectively control pest animals without damaging the native vegetation within the site. Regardless of the control option(s) used, these must be the most effective, safe and humane methods available.

Site assessment

It is best to discuss pest animal management requirements and options with an assessor or the relevant statutory body so that advice can be tailored to the specific threats at the offset site.

When a management plan is prepared by an assessor it will detail:

- the pest animals that must be controlled
- the management method and timing.

This document only provides management standards for rabbit and fox control.

Rabbit and fox control management standards

Rabbits compete with native wildlife for food and shelter, eat native seeds and plants and increase soil disturbance and the spread of weeds. Riparian zones with soft soils are especially susceptible to rabbit damage.

Foxes predate on native wildlife which is listed as a threatening process under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Integrated control includes destruction of surface harbour, fumigating and hand collapsing rabbit warrens and fox dens, baiting and shooting. Control and monitoring should be undertaken throughout the year. Myxomatosis and rabbit haemorrhagic disease (also known as rabbit calicivirus disease) will not alone provide effective rabbit control.

Removal and destruction of surface harbour

- Remove all surface harbour such as rubbish, weeds and artificial piles of logs and rocks.
- Do not remove indigenous plants, fallen logs and natural rocks.
- Ensure harbour is not providing habitat for native animals before you remove it. Check for ground-dwelling mammals, reptiles or small birds. Discuss options for providing supplementary habitat using indigenous species with the assessor.

Rabbit warren and fox den fumigation

Fumigants are Schedule 7 poisons and an Agricultural Chemical Users Permit (ACUP) is required to purchase them. They may only be used by ACUP holders or persons directly supervised by an ACUP permit holder.

Carbon monoxide fumigants are the only registered product for use on foxes in Victoria. No special training or licenses are required to use carbon monoxide den fumigants. Collapse warrens and dens after fumigation to ensure they are not re-used.

- Comply with the requirements of the *Agricultural and Veterinary Chemicals (Control of Use) Act 1992* and *Agricultural and Veterinary Chemicals (Control of Use) Regulations 2007*.
- Fumigate warrens in accordance with the instructions on the chemical manufacturer's label.
- Fumigate fox dens in August and September when the vixen and cubs are confined to the den.

Hand collapse warrens and dens

- Collapse warrens and dens by hand so they can no longer be used by rabbits and foxes.
- Avoid disturbance to native vegetation as far as possible.
- Do not collapse warrens and dens within 5 metres of known locations of threatened flora and fauna.

Threatened species are described or listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act (1999)* and the *Flora and Fauna Guarantee Act (1988)*.

Mechanical ripping

Mechanically ripping warrens and dens is generally not permitted as it can cause extensive damage to native vegetation and disturb soil. The statutory body may allow mechanical ripping where warren systems are extremely well established, and all other methods have failed. Written approval must be obtained before mechanically ripping.

Baiting

- Baiting poisons must only be purchased and used by operators holding a current ACUP.
- Comply with the legislation (*Agricultural and Veterinary Chemicals Code Act 1994*) if chemicals are used.
- Use bait products in accordance with the directions for use and the product label.
- Take appropriate precautions to minimise risk to native wildlife, the user and other:
 - notify neighbours
 - erecting warning signs
 - maintaining minimum distances to dwellings and waterways.
- Free-feed using un-poisoned baits first to establish a feeding pattern, determine population size and the amount of poison feed required.
- Dispose of carcasses to reduce risk of secondary poisoning of native animals and birds of prey.

For rabbits

- Only trail bait in furrows cut by hand with due care to minimise impacts on non-target species.
- Apply baits at the timing specified in the management plan, it is usually most effective in summer or early autumn when rabbits are least territorial, and food is scarce.

For foxes

- Baiting can occur year-round.

- Best results are achieved by intermittent baiting, with poison used for one to two months followed by one to three months of no baiting.

Shooting

Shooting may be appropriate as part of an integrated approach to rabbit control but is only effective when numbers are low.

Shooting foxes is target-specific and the most humane method of fox control. However, foxes become wary of shooting and this alone will not control foxes.

- Shooting can be carried out year-round but is best avoided when baiting is in progress.
- Firearm users must be licensed and hold current accreditations.
- Shooting must be undertaken by experienced, skilled and responsible shooters.
- Adhere to all relevant laws and restrictions.
- Locate and dispatch wounded animals as quickly and humanely as possible.

Rabbit-proof fencing

A rabbit-proof fence may be required if native vegetation is highly sensitive to herbivory by rabbits or where there is a high risk of rabbit invasion from areas adjoining the offset site.

- The minimum standard for rabbit-proof fence netting is 1 050 mm wide, 30-40 mm mesh diameter and 1.4 mm wire diameter (see Figure 2).
- Fix rabbit netting so that it reaches at least 900 mm above the ground and is either buried (to 150 mm depth) or laid down to a width of 300 mm on the ground and secured with pegs, rocks or timber.
- Support the fence to withstand stock or native animal forces.

Monitoring

- Monitor the success of the control program once per season.
- Follow up regularly to rapidly deal with new signs of rabbit and fox activity as pest animal populations rebound after control.
- Adjust the program based on the monitoring results.

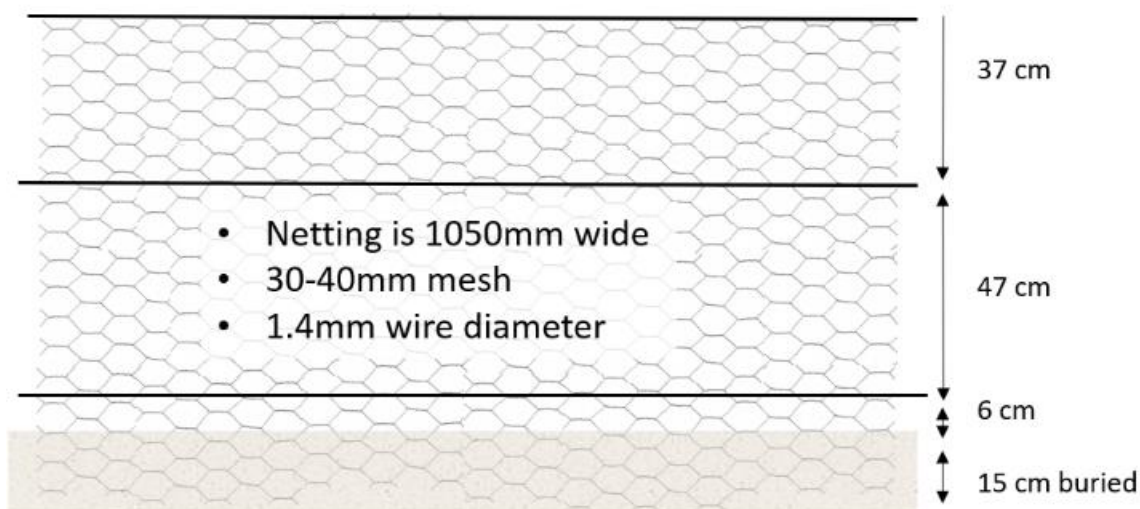


Figure 2: Rabbit proof fence structure

Deer management standards

Deer are a high threat to native vegetation as they can over-graze, rub and trample native plants, degrading the ecological condition of the site, e.g. by causing erosion or damaging wet depressions when they use them as wallows.

You may be required to control deer because:

- your management plan specifically outlines a requirement to do so, or
- your management plan specifies a requirement to 'control all high threats'. While deer may not have been identified as a current threat at the time the management plan was prepared, they may have since been identified as a threat, and as such the threat must be controlled.

Deer are preferably controlled by shooting, which should be used as the primary means of control in most instances. The abundance of deer must be reduced to negligible levels. Person(s) undertaking the activity must hold relevant permits, licences and approvals (such as a Game Licence), follow the approved hunting methods and hunting times. You may also engage the services of appropriately licensed volunteers or contractors. Organisations such as the Sporting Shooters Association of Victoria may be able to assist in engaging local volunteers or contractors.

Where shooting is not possible, deer fencing around the site (where appropriate) or exclusion plot fencing may be alternative ways of reducing the threat. If

this is proposed, please contact the administrator of your security agreement (DEECA, Trust for Nature or Council) to discuss an agreed approach to fencing arrangement and requirements.

More information

For more information on pest animal management see:

- the Agriculture Victoria website at <http://agriculture.vic.gov.au>
- *DELWP Output delivery standards for the delivery of environmental activities (2015)*.

Remember where there is a conflict between this standard and other information, this standard must be used for offset sites.

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts, regulations and other laws which may be applicable to the security agreement.

Specialist help from someone with an ACUP or firearm accreditation may be needed.

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Planting management standards

Introduction

A landowner can commit to undertake supplementary planting in woody vegetation or to undertake revegetation where there is limited or no native vegetation present and when all high threats can be controlled.

Supplementary planting and revegetation at an offset site must comply with the *Native Vegetation Gain Scoring Manual Version 2 (2017)* Appendix 1 – Minimum standard for revegetation and supplementary planting. Experienced landowners can use the optional higher standard for species diversity.

Site assessment

It is best to discuss supplementary planting and revegetation proposals with an assessor or the relevant statutory body so that advice can be tailored to the conditions at the offset site.

When a management plan is prepared by an assessor it will include:

- lists of species to be used for each life form category (canopy trees, medium shrubs or small shrubs)
- species diversity targets (the number of different species required)
- yearly management actions to prepare plants, prepare the site, conduct planting and manage the site after planting
- ten-year survival targets (the number of plants in each life form that must survive after 10 years).

How to plant

An assessor will advise which method is best or if a combination of planting types should be used. Two options are available:

Direct seeding

Can be cheaper and less labour intensive for larger areas. Success is less likely as the method depends on environmental conditions. Species selection may be limited, and it may not be possible to prevent disturbance to existing native vegetation.

Tubestock (seedling) planting

Is more effective for small areas and planting within remnant native vegetation as it causes less disturbance and it is easier to achieve the desired species densities.

Tubestock is planted in holes of a suitable depth and width to allow root penetration of the loosened soil.



Plant tubestock at a nursery

Credit: Penny Croucamp

Supplementary planting

Supplementary planting of indigenous (local native) species in remnant native vegetation can help restore the structure and species diversity of the vegetation. It is generally only recommended for woody vegetation.

Supplementary planting may be recommended by an assessor when:

- it is unlikely that natural recruitment will occur
- life forms or native plant species have been lost from a site
- there are significant gaps in the vegetation outside the canopy tree drip line
- site conditions mean it is likely to be successful
- it is likely to improve the biodiversity of the site.

Successful supplementary planting requires good quality planting stock, good site preparation and follow up management including fencing, weed control and pest animal control.

Revegetation

Revegetation is the planting of indigenous (local native) plant species in a formerly cleared site. It can create habitat for native plants and animals, assist wildlife movement and reduce soil erosion.

Revegetation offers the greatest biodiversity benefit when sites are large, wide and connected to existing native vegetation. Refer to section 9.1.5 of the *Guidelines for the removal, destruction or lopping of*

native vegetation (DELWP, 2017) for eligibility criteria.

An assessor will identify suitable revegetation locations, planting options and likely success at a site.

Successful revegetation is difficult to achieve and requires good quality planting stock, careful site preparation and ongoing management, including fencing, weed and pest animal control, and may require watering until plants are well established.

Revegetation may be appropriate for an offset site when:

- the vegetation type to be revegetated is woody, for example heathlands, forests and woodlands
- the site conditions mean that plants could survive
- there will be an improvement for biodiversity.

Revegetation requires planting of larger woody plants and large tufted graminoids (grasses, sedges and rushes) because smaller plants usually die.

Local species are used because they:

- are normally better suited to local environmental conditions
- are usually easier to establish and maintain
- recruit better and develop self-sustaining populations without becoming weedy
- provide more suitable habitat for native fauna
- contribute to local landscape character.

Revegetation of grasslands is rarely approved as an offset site because it is difficult to achieve the required survival targets.

The planting management standards below apply to supplementary planting and revegetation.

Table 4 at the end of this section provides a typical revegetation or supplementary planting schedule of actions that will be set out in the management plan.

Species selection and plant numbers

An assessor will recommend a range of suitable indigenous plant species for each life form and determine survival targets in discussion with the landowner. The agreed species and survival targets will be specified in the management plan.

A range of species will be specified for each life form. Aim to establish the greatest diversity of indigenous species possible, but plant at least one

overstorey species and six understorey species (understorey trees, shrubs or large graminoids).

Species will be chosen based on:

- the diversity and structure of the vegetation type
- local environmental conditions
- ease of propagation
- what grows locally
- availability from local nurseries
- area available for planting.

Seed collection and sourcing plant stock

An assessor can provide guidance on the most appropriate way to collect seeds or the best place(s) to purchase plants. Landowners can collect their own seeds and grow their own plants or buy them from a nursery or seed bank provided there is evidence that the plants are from a local, indigenous source.

- Source seeds and plants well in advance (up to a year) depending on the species and quantities needed.
- Source all tubestock or seed from species indigenous to the site.
- Source seeds or plant material as locally as possible and from the same soil and vegetation type (permissions or permits will be required for collection on public land).
- Keep accurate records for annual reporting, including collection date, location and information on the vegetation type, position in landscape (creek, valley, hilltop), soils, rainfall and aspect.

Site preparation

- Fertiliser must not be used when preparing the soil.
- Treat weeds in the planting areas at least twice prior to planting or direct seeding. Treatment should take place well in advance (a year before planting, in the weed growing season) with follow up a month before planting to improve success. Refer to the weed management standard.
- Control pest animals like rabbits and hares. Refer to the pest animal control standard.
- Prepare the soil as required for the site, ensuring all standing trees (dead or alive) are retained.
 - For supplementary planting, ripping is not acceptable and soil disturbance must be kept to

a minimum. No soil disturbance is allowed within the tree canopy dripline.

- For revegetation sites soil preparation may be required well in advance of planting, particularly on sites with clay or compacted soil. Ripping is acceptable but must not occur within an area twice the diameter of the canopy of existing trees on site.
- Soil disturbance outside the tree canopy dripline but within an area twice the diameter of the canopy of existing trees must be to the minimum extent necessary. Any preparation works for tubestock planting in this area must be done by hand.

Planting design

An assessor will identify areas that are suitable for revegetation or supplementary planting. This will generally be in areas with low or no coverage of native species and outside the tree canopy dripline.

- Avoid impacting any native vegetation, including native ground cover and grasses.
- Plant only in gaps (natural or created by weed removal) in the existing native vegetation and outside of the tree canopy drip-line.
- Aim for a result with a natural appearance by avoiding planting or direct seeding in straight lines.
- Plant shrubs and grasses in clumps of at least four metres by four metres. This usually results in better survival rates than planting isolated individuals.
- Dense shrub planting may be needed in weedy areas to gain a competitive advantage over the weeds.
- Staged planting is encouraged at revegetation sites as this results in more than one age class on the site.
- Revegetation must be at least ten metres wide along riparian areas.

Post planting management

Management will be required after planting to ensure success.

- Control weeds around the new plants.
- Control grazing and browsing by introduced and native herbivores including deer, rabbits, kangaroos and wallabies (ensure necessary approvals are obtained).
- Water plants if conditions require it.

- Plant more plants or thin plants to ensure neither too few nor too many plants survive, and survival targets are met.

Protection of planted vegetation

- Guards or exclusion fencing may be required to meet survival targets where plants need to be protected from grazing by rabbits, hares and other animals.
- Guards provide a microhabitat for young plants and may increase the chance of survival.
- Remove guards once they have served their purpose because they are unsightly and can foul watercourses and the environment.
- Exclusion fencing will be required when there is a threat of over-herbivory. Refer to fencing management standard.

Survival targets

Ten-year survival targets are the minimum plant numbers that must survive for each life form at the end of ten years. Indigenous plants that recruit naturally on site may count towards survival targets.

Landowners may choose to plant more plants than the number stated in the 10-year survival targets to allow for the death of plants (note if they all survive you may need to thin them out). Alternatively, they may plant several times over the length of the security agreement, replacing dead plants where necessary, to ensure the survival target is reached.

Reporting planting success

Count how many plants and which species have survived in each life form and include this in annual reports.

More information

For more information on revegetation and supplementary planting see:

- minimum standards for revegetation and supplementary planting in Appendix 1 of the *Native vegetation gain scoring manual Version 2 (2017)*
- FloraBank www.florabank.org.au.

You can also contact your local Landcare Coordinator, Catchment Management Authority or Local Council.

Remember where there is a conflict between this standard and other information, this standard must be used for offset sites.

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts,

regulations and other laws which may be applicable to the security agreement.

Call 1100 — “Dial before you dig” — to determine whether there are any underground pipes or cables on your property. This is a free referral service from anywhere in Australia.

Table 4: Potential schedule of actions, timing is indicative only and will vary dependent on local conditions and weeds present

schedule of actions	year 1	year 2	in perpetuity
collect or source seed and tubestock	as soon as possible	if required	as necessary if required for additional plantings
fence site (if required)	within 3 months of signing security agreement		maintain to standard
on-grow or propagate plants (if required)	autumn – on-going	if required	as necessary if required for additional plantings
plant out sites (guard plants) or direct seed		after autumn break or as suitable for environmental conditions	supplementary plant into site as required to meet survival targets
weed control	ongoing	ongoing	ongoing
rabbit/hare/grazing control	ongoing	ongoing	ongoing as required
monitoring	ongoing	ongoing	count and record annually how many plants and which species are surviving for each lifeform.



An area that has been planted, some trees are well established, and understory planting is now occurring

Credit: Penny Croucamp

Scattered trees management standards

Introduction

When scattered trees are protected at an offset site the landowner must commit to plant at least five recruits around each tree if these do not naturally regenerate within two years of protecting them.

A scattered tree is a native canopy tree (dead or alive) that does not form part of a patch of native vegetation.

Site assessment

It is best to discuss how to protect scattered trees with an assessor or the relevant statutory body so that advice can be tailored to the conditions at the offset site.

When a management plan is prepared by an assessor it will:

- include survival targets and number of recruits required based on the number of scattered trees protected
- list the species that can be considered canopy trees
- include actions to fence the management area if threats to scattered trees exist
- require monitoring to determine if recruitment targets have been met naturally within two years.

Scattered tree management standards

A scattered tree must have a diameter at breast height (DBH) of at least 75 percent of the large tree DBH benchmark for the relevant bioregional Ecological Vegetation Class (EVC).

Refer to section 9.1.4 of the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) for eligibility criteria.

Facilitate natural regeneration

The following management actions are required to facilitate natural regeneration:

- exclude stock
- control weeds and rabbits
- retain logs, fallen timber and leaf litter.

Plant canopy trees to supplement natural regeneration

Canopy trees must be planted when natural regeneration does not result in five new recruits per scattered tree within two years of protection.

- Propagate or purchase tubestock plants from seed sourced as locally as possible and from the same bioregional EVC and soil type.
- Plant outside the drip-line of all trees.
- Avoid impacts on native vegetation, including native grasses.

Protection area for scattered trees

Each scattered tree must have an area of land protected around it to provide space for recruitment or planting.

The area protected around each scattered tree must be a circle with a diameter of at least 30 metres, with the tree in the centre of the circle. For site assessed native vegetation credit sites, the area protected must be the greater of twice the canopy diameter or the 30 metre circle as shown in Figure 3.

Fencing for stock or other threat exclusion

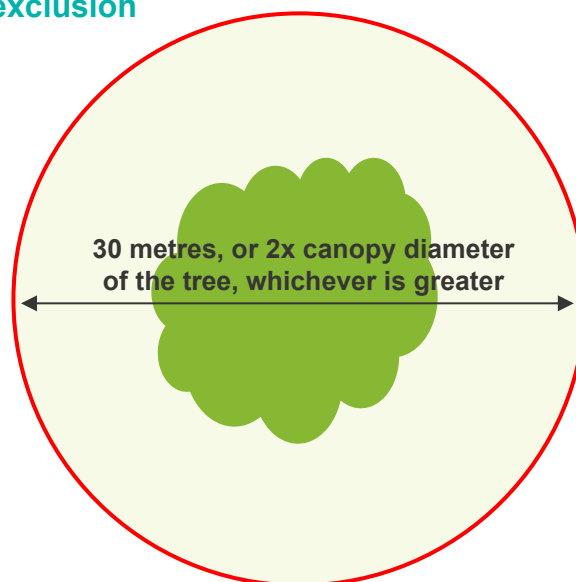


Figure 3: Protection area for a scattered tree

- Landowners can fence individual trees, groups of trees growing close together or the whole site provided the fence includes the area to be protected around each tree (see Figures 3 and 4), and the fence ensures that stock and other threats are excluded.

Construct stock exclusion fencing to the fencing management standard within three months of signing the security agreement.

More information

For more information on scattered tree management see:

- minimum standards for revegetation and supplementary planting in Appendix 1 of the *Native vegetation gain scoring manual Version 2 (2017)*
- FloraBank www.florabank.org.au.

You can also contact your local Landcare Coordinator, Catchment Management Authority or Local Council.

Remember where there is a conflict between this standard and other information, this standard must be used for offset sites.

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts, regulations and other laws which may be applicable to the security agreement.

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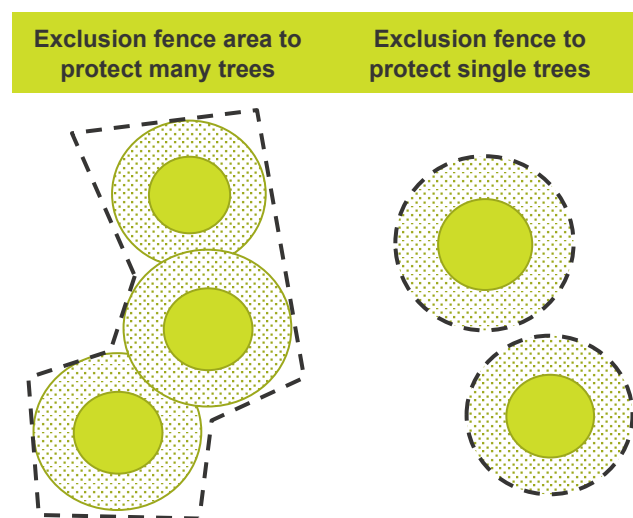


Figure 4: Options for threat exclusion fences for scattered trees

Soil erosion standards

Introduction

Erosion is a process where rocks are weathered into smaller particles and transported with soil elsewhere. The main agents of erosion are water and wind. While erosion is a natural process, human activities can greatly increase erosion rates. The rate of soil erosion depends on many factors including climate, soil types, slope, vegetation cover and past and present land-uses.

Soil erosion is present on many native vegetation offset sites and impacts vary from minor to very significant. It may be overlooked as a threat and management actions are sometimes not included in management plans, especially older ones. As soil erosion can have significant impacts on native vegetation and broader biodiversity values, failing to address soil erosion can lead to environmental degradation and damage may be expensive to remediate.



Impacts

Impacts of increased soil erosion can be local or detected some distance away. Topsoil is lost when soil is eroded. This is the fraction of soil which contains most nutrients, organic material and beneficial soil microorganisms. Less topsoil reduces land productivity and impacts native plants and animals. Serious soil erosion may undermine large trees and damage infrastructure like tracks and fences. Excess sediment may reduce water quality, clog watercourses, smother wetlands and reduce the volume of dams. Safety risks may also be increased.

Types of soil erosion

Water is probably the most common erosion agent on native vegetation offset sites. It can cause:

- splash erosion where exposed soil particles are moved by the impact of raindrops
- sheet erosion where water moves as a sheet across the land surface carrying soil particles with it
- tunnel erosion where dispersive soils containing clay are moved in underground channels. This is particularly common in dispersive soils
- rill erosion where water is concentrated into small rivulets and carries soil particles in miniature gullies
- gully erosion where water cuts deep, steep-sided channels with more or less vertical heads at the upstream end.

Splash erosion may contribute to sheet erosion which often progresses into rill and then gully erosion. Tunnels can collapse to produce gullies.

Preventing soil erosion

Prevention is far easier than cure. Interventions may be ineffective unless it is possible to address the causes, which could be outside of the landowner's control. Regular monitoring helps identify problems early. It can be very useful to be present during good rainfall to observe how water moves through the offset site.

Some measures that can be effective include:

- minimising bare soil
- improving cover in the catchment to slow water runoff and encourage water percolation
- using deep-rooted plants to increase water use and reduce runoff
- dispersing water runoff and increasing the number of discharge points
- monitoring high wear areas like animal and vehicle tracks
- preventing animals, including livestock and deer, from having uncontrolled access to drainage lines
- using slashing instead of burning if erosion is present and burning is a management action in the management plan.

Monitoring

Where soil erosion is present on native vegetation offset sites, it must be monitored to see if it is improving, deteriorating or stable.

There are some simple ways to do this:

- establish one or more dated photopoint sites, where erosion is present or might occur, and monitor regularly as part of the required photopoint monitoring programme.
- include markers to measure changes in the gully depth and the position of the headcut. Where erosion is active, headcuts migrate upstream. Changes in the sides of the gully can also be observed. Gullies with vertical sides tend to be active, while those that are stable have a gentler gradient.
- bang a peg into the ground and use a permanent marker to mark the ground level. If there is erosion, a gap will develop between the mark and the ground level.
- lay a long piece of wood flat on the ground across the slope. Ensure that there are no gaps between the wood and the soil surface. Inspect regularly, especially after heavy rain, to see if soil builds up behind the wood.

Management

If soil erosion is serious, or it is increasing, it must be addressed within offset sites to minimise impacts on native vegetation and other biodiversity values.

Management of soil erosion requires expertise and where serious it should be guided by qualified

professionals. Soil Science Australia is a professional association for Certified Professional Soil Scientists (CPSS) and details of accredited members can be obtained from their website <https://www.soilscienceaustralia.org.au/>. The relevant Victorian Catchment Management Authorities (CMAs) may also be able to assist (<https://viccatchments.com.au/contact-us>)

Remember to get DEECA's prior approval for works that are not included in the management plan. Landowners need a Conservation work exemption from DEECA where works will or might impact native vegetation. The exemption allows native vegetation to be removed, destroyed or lopped to achieve conservation outcomes without a planning permit or securing native vegetation offsets (see <https://www.environment.vic.gov.au/native-vegetation/native-vegetation-removal-regulations/exemptions-from-requiring-a-permit>).

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts, regulations and other laws which may be applicable to the security agreement.

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Ecological thinning standards



Introduction

Disturbances like floods, fire, grazing or resource extraction (e.g. timber or mining) may cause extremely dense regrowth of eucalypts. Where this occurs, plants compete for resources like light, water and nutrients. The intense competition affects the development of individual plants. This may result in a less diverse ecosystem as:

- trees mature more slowly
- key animal habitat such as large branches, tree hollows and fallen timber take longer to develop
- dense canopies make habitat unsuitable for some plants and animals, e.g. bats may need open areas to feed and reptiles may need warmth from sunlight to be active
- growth and recruitment of understorey plants may be impacted
- trees may be less resilient to drought, fire, pathogens and insect attack
- trees produce less nectar as a food source for fauna.

Ecological thinning (also known as eco-thinning or restoration thinning) is the selective removal of some trees to allow others to grow and mature faster and improve the structure and diversity of vegetation communities. Self-thinning occurs naturally, but very slowly, by which time some plant and animal species

may be permanently lost from a site. It may take decades to see the effects of eco-thinning, but results should be achieved more quickly than through natural processes. Revegetation projects may also benefit from eco-thinning where the density of young eucalypts is much higher than natural benchmarks.

Eco-thinning must be undertaken if it is a specified action in your management plan unless it is listed as a voluntary action. If eco-thinning it is not specified in your management plan, the action may be undertaken voluntarily, subject to relevant approvals. These include:

- approval from the statutory body administering the agreement (DEECA, Trust for Nature or Council), to ensure you remain compliant with your offset site security agreement
- a Conservation Works exemption from DEECA under Clause 52.17 of the local Planning Scheme (see www.environment.vic.gov.au/native-vegetation/native-vegetation-removal-regulations). The exemption allows for the removal, destruction or lopping of native vegetation to achieve conservation outcomes without a planning permit or securing native vegetation offsets. It ensures you remain compliant with the *Planning and Environment Act 1987*.

DEECA can provide guidance to assist landowners preparing applications for these approvals on a case-by-case basis.

There is insufficient knowledge of other tree and large shrub genera to set thinning management standards for them. As such, these standards apply to Eucalyptus species only.

Ecological thinning principles

Knowledge of local, healthy native vegetation and historical land-use is helpful for decision-making. The following principles must be considered when planning and conducting ecological thinning on native vegetation offset sites. If ecological thinning is part of your security agreement, these principles may have already been considered and incorporated into the management plan.

- Ecological thinning on native vegetation offset sites is not permitted for non-ecological purposes, e.g. flood or fire mitigation, firewood collection or access.

- It is generally most cost effective and ecologically beneficial to intervene early.
- Objectives must be defined, e.g. to improve habitat for rare or threatened species, facilitate growth of hollow bearing trees, and/or to promote the diversity and cover of understorey plants.
- A risk assessment must be undertaken which considers the vegetation to be thinned, rare or threatened species and any other specific habitat features. Measures should be implemented to reduce risks. Risks that can't be eliminated should be assessed for likelihood and potential consequences. Thinning must not be harmful to other flora and fauna, or impacts must be minimised to an acceptable level. In all cases, there must be a net benefit to biodiversity.
- retained on-site as habitat unless the quantities will impact understorey plants. If it is proposed that timber is to be removed, this must first be approved by the statutory body who administers your security agreement
- spread thinly to avoid providing harbour for pest animals, creating habitats that may promote weed growth, or smothering the ground-layer.
- Leafy material and fine branches should be allowed to decay on site unless there is a risk that excess amounts will smother small ground flora. Where practicable, excess material can be spread or removed from site, provided that does not cause undue disturbance.
- The current approximate proportion of different tree species should be retained unless there are good reasons to vary. In some instances, one species may be over-abundant, in which case this species should be thinned preferentially.
- Retained trees should be distributed over the whole area, but not evenly. Creating a 'patchy' mosaic is desirable because some understorey plants may benefit from increased light while others, like moisture-loving, winter-flowering orchids, will not. A few dense patches should be retained to provide cover for native wildlife where there are no or few understorey trees and shrubs.
- Several factors affect the structure and composition of vegetation at a fine scale, e.g. large trees may be concentrated near water.
- The whole remnant must be considered and not just a small patch of dense regeneration in a larger area.
- Many plants die before maturing and sufficient trees must be retained to cover losses from sources like storms, disease, fire or insect damage.
- Only enough stems may be removed to allow natural processes to be restored.
- When thinning, create space for trees to spread laterally and to allow light to penetrate to the ground layer.
- Consider stem density at ground level too to ensure sufficient gaps between trees and reduced root competition.

Other considerations

- In selecting trees to retain, prioritise larger and key habitat trees, such as:
 - mature and senescing trees, including all or most trees with a diameter at breast height (dbh) of >40 cm¹
 - trees with a large canopy
 - standing dead trees
 - trees containing hollows, even small ones, or split trunks and trees with the potential to develop these features, e.g. trees with large dead branches in the crown
 - all large stumps
 - trees with mistletoes unless these are overabundant on the site
 - trees with signs of current or recent occupation by fauna.
- Prioritise for thinning:
 - areas where dense trees are creating bare ground
 - areas where smaller trees are likely to compete with larger trees, e.g. where they grow under the canopy of larger trees. Note that the zone of influence of a large tree is likely to extend way beyond its canopy, especially where these trees have grown with little competition from other trees.
- Cut logs should be:

¹ It should be unnecessary to thin any trees with a dbh ≥20 cm.

Additional considerations

- Reduced competition from eucalypts can increase the cover of weeds. Additional weed control may be required following thinning operations.
- It is possible that thinning may allow further eucalypt seedlings to recruit, and these may need to be managed to ensure that thinning objectives are met.
- It may be worthwhile to plant seedlings into thinned areas to promote improved cover and diversity if the understorey is depleted. If supplementary planting is not included in the management plan, remember to obtain permission from the statutory body who administers your security agreement.

Thinning targets

There are few published studies to guide ecological thinning targets for eucalypt trees in south-eastern Australian forests and woodlands. However, ignoring the problem where it is significant, and not thinning, is a decision that will also have consequences. Targets must therefore be set with the best information available at the time. The following information should be considered:

- Ecological Vegetation Class (EVC) benchmarks provide an initial estimate of the appropriate density of trees (<https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks>).
- While the benchmarks do not specify an ideal total number of trees per hectare, they provide some guidance. For example, Box Ironbark Forest of the Goldfields bioregion has a benchmark of 15 large trees per hectare, 30% tree canopy cover and 5% cover of immature canopy trees. Thinning targets should therefore aim to match these attributes.
- Thinning targets should err on the side of caution but not be so cautious as to have limited effect.
- Targets must be determined on a case-by-case basis considering, among others, the vegetation present and fine scale landscape features.
- The whole remnant must be considered and not just a small patch of dense regeneration in a larger area.
- Many plants die before maturing and sufficient trees must be retained to cover losses from sources like storms, disease, fire or insect damage.

- Only enough stems may be removed to allow natural processes to be restored.
- Removing stems so that remaining plants grow 7–10 m apart is unlikely to have negative impacts where there is an abundance of young plants, especially as some areas will not be thinned.
- Where there are existing big and mature trees with large zones of influence, gaps may need to be increased because small trees growing too close are likely to be stunted.

Thinning methods

- Define what vegetation will be thinned and what areas will not be treated (use a map).
- Identify when the works will be done and for how long.
- Clearly mark trees to be retained with temporary markers, or clearly mark trees to be removed. Ensure that contractors are well informed and supervised.
- The following treatment methods may be considered:
 - removing seedlings and young plants with a slasher or brush cutter
 - using chainsaws for felling larger trees.
- To prevent re-growth:
 - paint or spray cut stumps within five minutes with a herbicide registered for controlling woody plants
 - add dye to the herbicide to mark treated areas
 - cut trees should be checked for regrowth over the next 12 months and treated with herbicide as required.
- Do not treat cut stems with herbicide if retaining a coppice stem on a stump and removing others.
- Use stem injection if dead stems are to be left standing. Retaining some trees as dead-stags to provide habitat for fauna (e.g. roost sites for birds), although dropping some trees will probably be beneficial to allow retained trees to spread and produce better form. Felling trees will also produce coarse woody debris faster than allowing the plant to collapse over time. Dead standing trees may also pose a safety risk.
- Cut most stems close to ground level to avoid creating hazards.

- Cut some stems approximately 1.5 m above ground level for birds like robins to use as perches to hunt from.
- Do not thin trees when the risk of fire is high, when animals are active (e.g. birds are breeding) or when soil is likely to be excessively disturbed, e.g. when it is wet. The best time is generally between autumn to early winter when the ground is hard.
- Ensure that equipment used in thinning is clean to limit the risk of spreading weeds.

Monitoring results

It is important to monitor results to see if the action produced the desired result and to adapt management if necessary. The following methods should be incorporated:

- Establish fixed, permanently marked photopoints (e.g. with star pickets, and photograph the vegetation pre-thinning, post-thinning and annually each year at the same time as the original pre-thinning photographs). If appropriate, photograph the vegetation in each direction from each point. Also establish photopoints where vegetation has not been thinned to compare results.
- Keep records of observations of interest and submit these with annual reports.
- Observations may include how retained trees, smaller native plants, weeds, birds and other animals respond to thinning.
- If thinning does not produce the desired results (noting that a delay is likely before results are seen) consider what can be done to improve the outcome.

Health and safety

Landowners are responsible for ensuring all works required to implement the management actions are conducted safely and comply with the lawful requirements of any authority, and with all acts, regulations and other laws which may be applicable to the security agreement.

Over-abundant macropods

Introduction

Macropods (kangaroos and wallabies) are over-abundant in many areas of Victoria due to artificially increased food and water sources since European settlement. Over-abundant macropods can over-graze native plants, resulting in a decline in native plant growth, diversity and abundance.

You may be required to control the threat posed by over-abundant macropods because:

- your management plan specifically outlines a requirement to do so (this is generally because macropods were identified as a current high threat to the native vegetation quality when the management plan was prepared), or
- your management plan specifies a requirement to 'control all high threats', and over-abundant macropods have been identified as a high threat to the native vegetation quality. While over-abundant macropods may not have been identified as a current threat at the time the management plan was prepared, they have since been identified as a threat, and as such the threat must be controlled.

Options to control the threat posed by over-abundant macropods

The threat posed by over-abundant macropods can be controlled by:

- **reducing the over-abundant population to more natural levels by culling.** Person(s) undertaking the activity must hold relevant permits and approvals, such as an Authority to Control Wildlife Permit from the Conservation Regulator (<https://www.vic.gov.au/wildlife-management-and-control-authorisations>). You may also engage the services of an authorised harvester through the Department of Jobs, Skills, Industry and Regions Kangaroo Harvesting Program (<https://djsir.vic.gov.au/game-hunting/kangaroo-harvesting>), or
- **installing grazing exclusion plots that allow the native vegetation within the plot to regenerate.** The exclusion plot can be moved to another area within the offset site when the native vegetation has reached a height and maturity that can withstand the herbivory.

Culling should generally be used as the primary means of control in the first instance, as it directly addresses the issue (over-abundant macropods). However, exclusion fencing provides an alternative means to minimise the impact posed by the threat.

Exclusion fencing

If installing grazing exclusion plots, the following guidelines apply:

- install multiple 10x10 metre exclusion plots: the number of plots installed based on that indicated in Table 4.
- native vegetation must not be removed or damaged to install the fencing, the precise location and dimensions of the plot may be modified to avoid damage to native vegetation (e.g. an 8x12 metre plot installed, rather than 10x10 metre, to avoid impacting native vegetation).
- plots should be placed where they are considered most likely to benefit establishment and growth of native shrubs, grasses and herbs (e.g. in areas which currently support native shrubs and grasses stunted in growth as a result of over-grazing or areas where threatened or more sensitive plants are present).
- use a fence height and design which inhibits passage of macropods, including use of mesh wire (e.g. sheep-mesh, such as Ringlock® or chicken wire netting/mesh).
- support the fence to withstand native animal forces. Large strainer posts and stays are not necessarily required, such as that as indicted in Figure 1. A simple design may be used, such as straining tight using wire from star picket corner posts to star picket pegs driven into the ground.

Table 4: Number of grazing exclusion plots required to control threat posed by macropods²

Area of offset site	Number of plots required per hectare	
	<5 ha	4
	5 to <10 ha	3 (with a minimum of 20 plots)
	10 to <25 ha	2 (with a minimum of 30 plots)
	≥25 ha	1 (with a minimum of 50 plots)

Fencing as a monitoring tool

In some instances, there may be uncertainty whether macropods are over-abundant and impacting native vegetation growth and recruitment. In which case, grazing exclusion plots may be installed as a monitoring tool to assist determine the impact and threat.

If exclusion plots are installed as a monitoring tool, rather than as a means to control the threat posed by over-abundant macropods, less exclusion plots may be installed than that outlined in Table 4³ (although a minimum of four should be installed).

Plant growth and recruitment in these plots must be monitored and compared to that outside the plots, with results and photographs documented in your annual/periodic reports. Should a significant difference in plant growth and recruitment be observed between the fenced and un-fenced areas, it indicates macropods are likely to be over-grazing native vegetation and over-abundant; the threat of over-abundant macropods must then be managed in accordance with the standards outlined above.

² Where over-abundant macropods have been identified as a current threat (i.e. when directed to control over-abundant macropods by the regulator of your security agreement, or, as outlined in your management plan), the number of plots must be installed in accordance with Table 2.

³ Unless your management plan or the regulator of your security agreement (eg. DEECA, Trust for Nature of Council) has already outlined that a larger amount of plots is required, as the presence of the threat has already been determined.

Further reading

The Guidelines

The *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017) is an incorporated document into all planning schemes in Victoria. The Guidelines:

- describe how native vegetation is valued
- detail eligibility requirements for offset sites, including minimum condition score for patches of vegetation, minimum size requirements for revegetation sites and minimum tree size for scattered tree sites
- set rules for how an offset site is established and managed
- describe how gain is calculated
- set rules for offset site registration and trading of native vegetation credits.

Gain scoring manual

The *Native vegetation gain scoring manual (Version 2)* provides details about gain and how gain scoring is done. It:

- details offset site eligibility requirements
- sets out a landowner's minimum commitments to generate gain
- describes management commitments to generate gain for each vegetation component assessed during a gain scoring assessment.

An assessor will develop a management plan using information collected during a gain scoring assessment. The management plan will include commitments to:

- retain all standing trees
- retain logs and fallen timber
- retain leaf litter
- introduce logs (from an approved source)
- control all high threats
- control rabbits
- exclude stock
- control weeds
- supplementary plant if required
- manage biomass (limited to certain grassland vegetation).

DEECA Website

The native vegetation regulation website contains useful information about the native vegetation removal regulations and offset sites. It is available at <https://www.environment.vic.gov.au/native-vegetation/native-vegetation>

The website includes:

- documents including the Guidelines and Gain scoring manual
- list of DEECA approved site assessors and brokers. Site assessors help landowners establish an offset site, brokers facilitate the trade of native vegetation credits
- various other documents about native vegetation removal and offset sites.

Important terms

Assessor – an accredited native vegetation assessor as defined in the Guidelines. Some of these have signed an agreement with DEECA to provide this service and are called 'site assessors'.

Canopy tree – A mature tree (one that can flower) that is greater than 3 metres in height and is normally found in the upper layer of the relevant vegetation type (EVC).

Diameter at Breast Height (DBH) – The diameter of the main trunk of a tree measured over bark at 1.3 metres above ground level.

Ecological Vegetation Class (EVC) – A native vegetation type classified based on a combination of floristics, lifeforms, and ecological characteristics.

Gain – The predicted improvement in biodiversity value of native vegetation due to active management and increased security provided at an offset site.

Patch – A patch of native vegetation is:

- an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native
- any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy
- any mapped wetland included in the *Current wetlands map*

Scattered tree – A native canopy tree that does not form part of a patch.

