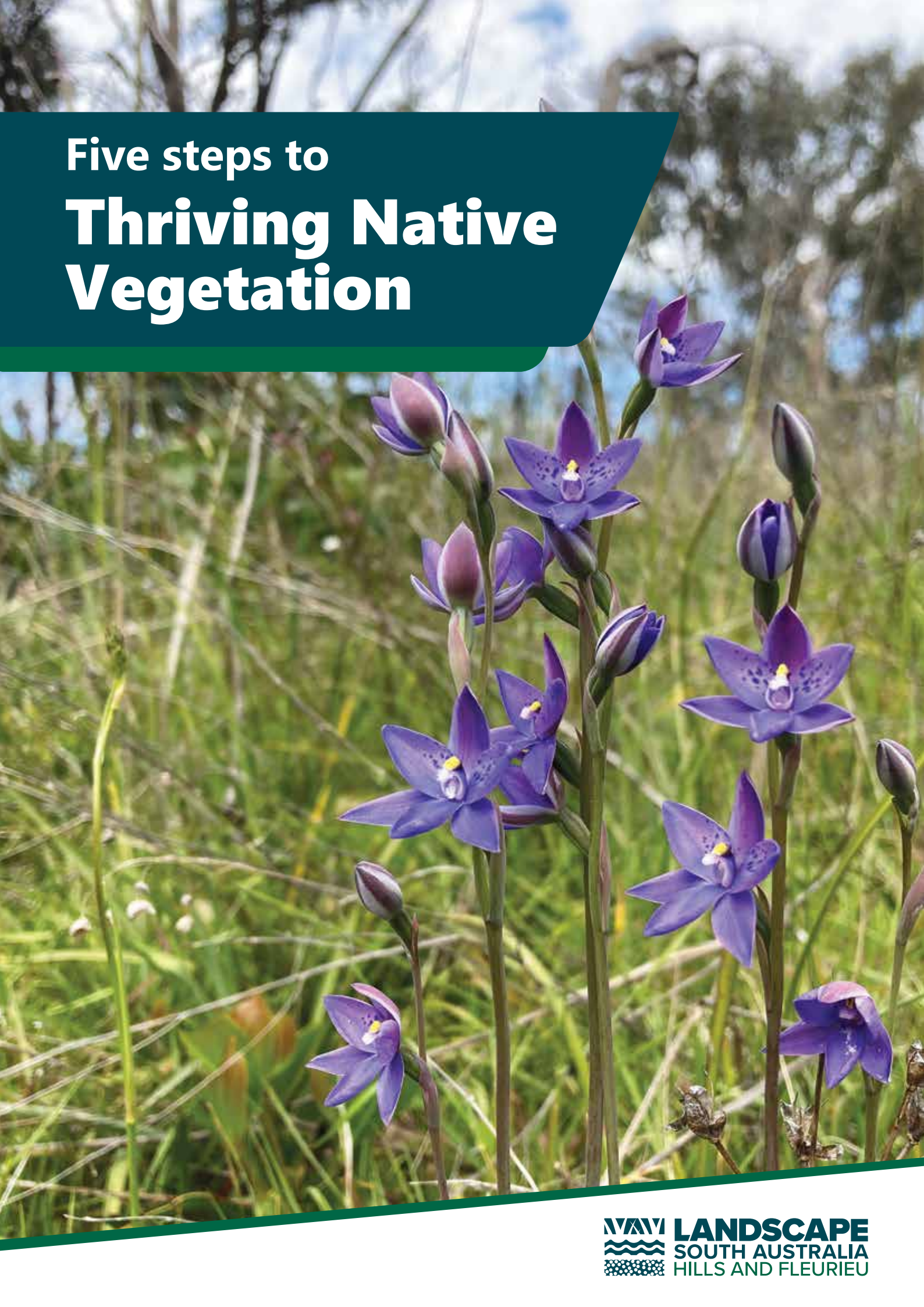


Five steps to Thriving Native Vegetation

LANDSCAPE SOUTH AUSTRALIA HILLS AND FLEURIEU

Acknowledgement of Country

The Hills and Fleurieu Landscape Board acknowledges First Nations as the first people of the lands and waters where we live and work. We respect the Peramangk, Kaurna, and Ngarrindjeri peoples, past and present, who have cared for Yerta/Ruwe for generations, nurturing its life, stories, and landscapes. We recognise their deep knowledge, spiritual belonging, and enduring connection to Country.

We are committed to walking alongside First Nations, listening, learning, and working together to protect and restore these lands and waters.

Welcome

You're here because:

- You manage native vegetation and want to protect it
- You're making decisions to reduce threats
- You want a clear, efficient plan of action
- You're ready to commit time and/or money to make it happen

If you're reading this, you're one of the few with a rare chance to care for vital native vegetation – a crucial role in halting biodiversity loss and supporting critical ecosystem services.

This guide walks you through five simple steps to help you protect and manage the vegetation in your care. You can also download the **Thriving Native Vegetation Action Plan template** from our website to map out when and where to act. The plan links directly to sections in this guide.

About this guide

This guide is part of a series designed to support smart, well-timed land management actions for key areas on your property and programs:

- **Soil**
- **Native vegetation**
- **Watercourses**
- **Weed control**
- **Revegetation**

Using one or more of these guides will help you make informed decisions, care for natural resources, and boost your efficiency as a land manager. Choose the guides that suit your needs — or use all five to create a complete stewardship plan for your property.

The content draws on the knowledge and experience of our stewardship team, local landholders, and partners working across the Hills and Fleurieu region.

We wish you every success.

Contents

STEP 1

Plan to succeed

The first step in caring for native vegetation is to make a plan. You can download the **Thriving Native Vegetation Action Plan** template from our website.

Creating a plan will provide guidance and ensures your efforts are strategic, well-timed and meaningful. A plan can help you stay in control and set you up for manageable actions.

Manage your expectations

Writing down a comprehensive action plan will bring full visibility to the time and financial budget required to care for native vegetation.

Consider...

- Do you have any rare or threatened plant or animal species?
- What are the most degrading influences, e.g. livestock access, weeds, overabundant kangaroos?
- Some actions may require multiple years of follow-up, e.g. weed control
- Your time and money - will you hire a professional contractor or DIY or both?

These considerations will help you form a vision of what your plan is trying to achieve. The remaining four steps of this guide will help you to complete the Thriving Native Vegetation Action Plan and create a realistic schedule for your activities.

Diamond firetails are declining in our region (photo: Martin Stokes)

Too many kangaroos can degrade native vegetation

Exclude livestock from native vegetation

Boneseed is a common woody weed in bushland

STEP 2

Identify your native vegetation

Identify the native vegetation on your property, such as:

- **the type of native vegetation**
- **the dominant plant species**
- **location and extent across your property**

What type of native vegetation do you have?

Use table 1 to help work out what broad vegetation type(s) you have, e.g. forest, woodland, heath. You may have more than one type depending on the physical attributes (for example, varying aspect, soil type, topography) and size of the property.

Also keep in mind that vegetation may have been cleared or grazed which can result in the absence of vegetation layers. Past grazing may have reduced the shrub layer of a heathy woodland, causing it to now appear more like a grassy woodland.

Dominant plant species

The following two steps will allow you to access a description of your vegetation community type from a scientific database, as well as a list of native plants that historically grew at your location and are generally available from local native plant nurseries.

Step 1: locate your native vegetation site on NatureMaps to obtain the code for your historic vegetation community.

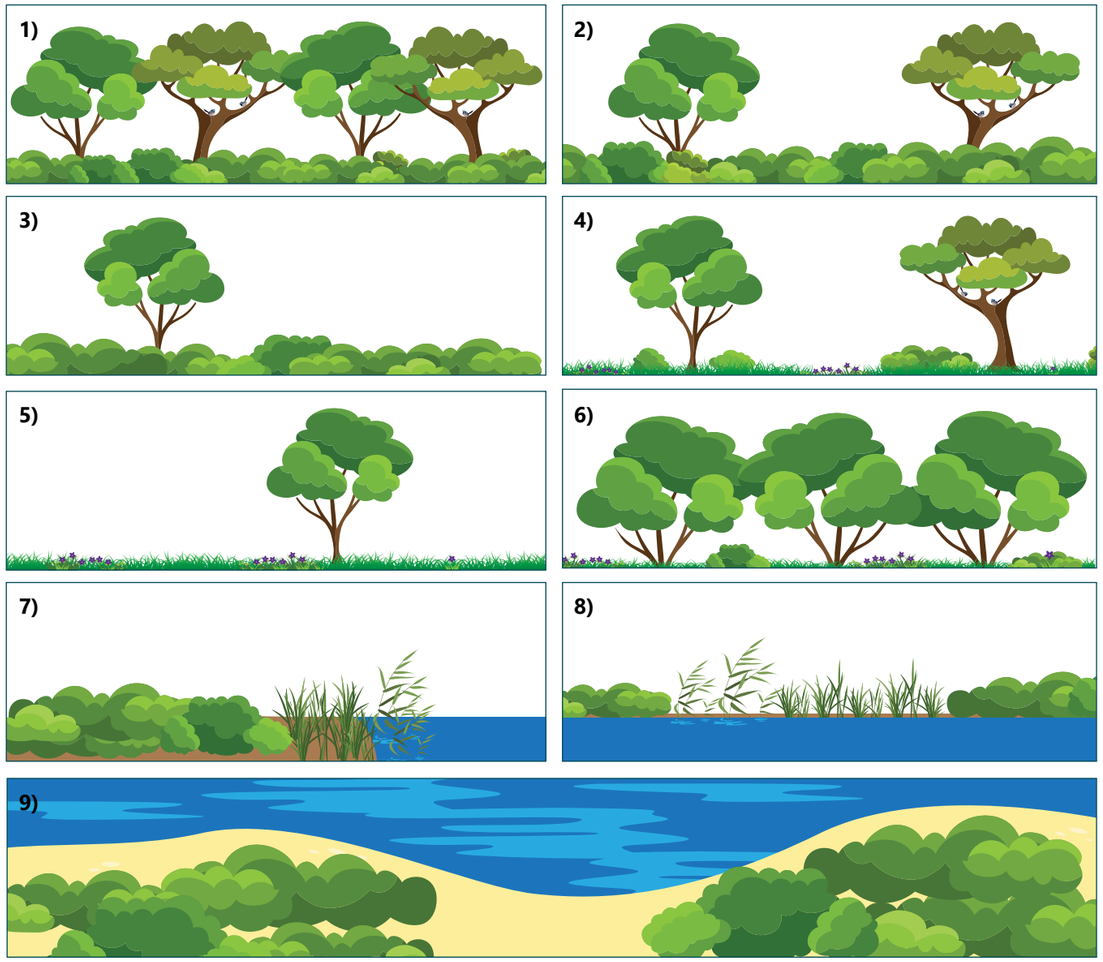
Step 2: use that code to find and print your plant list on the native vegetation page of the Landscapes Hills and Fleurieu website. Your property may have two or more vegetation communities if landscape characteristics change (for example, hill tops versus creek lines).

Map your native vegetation

Map your native vegetation to show where it is on your property and how big or small the areas are. For small areas you can simply hand draw a 'mud map'. For larger areas, use Google Maps to find an aerial image and then use your computer's 'Snip & Sketch' tool to copy and paste a satellite image into your action plan. You can then write or digitally mark it up using the 'Microsoft Word Drawing Tool'. Online mapping tools, such as 'NatureMaps' can be used for more sophisticated mapping. See our Landscapes Hills and Fleurieu website for links to 'NatureMaps' and instructions on how to use it.

Table 1: Descriptions of broad vegetation types

Broad vegetation type	Notes	Definition
1) Heathy forest	Shrub-dominated understorey	Canopy dominated by even coverage of *Eucalyptus* tree species with a dense understorey of low shrubs, often with small leathery hard leaves.
2) Heathy woodland		Similar to heathy forest, except with a discontinuous tree layer, where *Eucalyptus* or other tree species are more widely spaced.
3) Shrubland (Heath)		Few to no trees and dominated by open to dense shrubs, up to 2 metres in height.
4) Grassy woodlands	Non-shrub	Canopy consisting of a discontinuous tree layer usually dominated by *Eucalyptus* species with a scattered shrub layer and an understorey of grasses, herbs (for example, daisies, lilies) and sedges.
5) Grassland		Few or no trees. Dominated by native grasses, sedges and herbs.
6) Mallee		Canopy of low, multi-stemmed *Eucalyptus* trees. Understorey depends on soil and rainfall but may be shrubby, grassy or both.
7) Riparian	Freshwater	Found in the transition between land and freshwater along watercourses and flood plains.
8) Wetland		Areas that are seasonally or permanently waterlogged or inundated. Freshwater wetlands are often dense and shrub dominated.
9) Coastal vegetation	Coastal	Vegetation subject to the influences of coastal environments, for example, cliffs and dunes.



STEP 3

Map threats, condition and values of your native vegetation

Displaying information on a map can help you identify and prioritise actions. It is important to:

1. **Map the location of threats within the native vegetation (for example, patches of weeds, rabbit warrens, areas of overgrazing by herbivores)**
2. **Mark the condition of the vegetation (for example, good, fair, poor)**
3. **Map significant natural values (the special things)**

Threats to native vegetation

There are many threats to native vegetation and identifying them will help you to prioritise management actions in your plan.

Note: Some threats may impact all areas of the vegetation site, so it might not be practical to highlight them on a map.

European gorse

Weeds

Weeds can smother native vegetation, take over creeklines, provide shelter for feral animals and increase fire risk. If weeds are a significant and widespread issue on your property, you might find it helpful to prepare a property-scale weed management plan. Please see *Five Ways to Effective Weed Control* on our website for further information. Within native vegetation, weeds are classified in two ways:

1. Declared weeds are pest plants that pose a significant threat to agriculture, the natural environment and/or public health and safety. Landowners have a legal responsibility to manage these plants under the Landscape South Australia Act 2019. Examples include blackberry and European gorse. A full list of declared weeds and control measures can be found online in PIRSA Weed Control Handbook.
2. Environmental weeds are pest plant species that threaten the natural environment. These can include introduced or Australian native plants from other areas and states. Examples include east coast plants such as Cootamundra wattle and Sydney golden wattle.

Blackberry

Local native - Sweet appleberry *(Billardiera cymosa)*

Interstate invader blubell creeper *(Billardiera heterophylla)*

Spot the local: *Local native sweet apple-berry has flower petals that are fused at the base to form a tube and its leaves do not have stalks. Western Australian bluebell creeper has free petals that form a bell shape, and its leaves have small stalks that may require a hand lens to see. WA bluebell creeper is an invasive weed in the hills and Fleurieu region!*

Local native - golden wattle *(Acacia pycnantha)*

Interstate invader Sydney golden wattle *(Acacia longifolia)*

Record the weeds present in your native vegetation - mark them on your map.

Note the areas that are least infested (a few scattered plants) through to the areas which are very weedy.

Weeds tend to grow on the edges of native vegetation, near sites of previous disturbance, in narrow strips of vegetation, such as roadsides, and in moist areas, like watercourses. Many grassy and herbaceous weeds are annuals which only occur seasonally. Understanding the life cycle of a weed helps to control it. Check you've identified weeds correctly before trying to control them – many local native plants have weedy look-alikes!

Herbivores

Overgrazing by herbivores can change the overall structure of vegetation and cause some species to disappear. Livestock can also alter soil structure through compaction and changing the soil nutrition. You may not notice these gradual changes occurring until there is significant damage.

Herbivores include:

- Livestock - cattle, sheep, goats and horses
- Feral animals - rabbits, goats and deer
- Overabundant native wildlife, for example kangaroos (which can cause significant damage to native vegetation by overgrazing).

Plants that are being chewed, crushed or pulled out can be an obvious sign animals are eating grasses, shrubs and young trees.

Record the signs of herbivore presence and grazing - mark them on your map.

Animal footprints, tracks and trails

The hoof prints from cattle, sheep, deer and goats are generally obvious in sandy soils or on tracks after rain. Kangaroo trails may be present through the vegetation and appear as depressions at access points under fences. Deer also create distinctive tracks through vegetation.

Scats (dung/poo!)

Cow pats for cattle. Rabbits leave pellet piles near their diggings. Kangaroo scats are distinctive. Deer, goat and sheep scats are subtly different

Rabbit burrows (warrens), diggings and buck heaps

Rabbit warrens often have multiple access holes. Rabbits mark their territory by depositing their dung pellets in piles, which are easy to identify. Their diggings look quite different to those of echidna or native bush rats.

Ring barking, gouging of trees and 'smashed up' shrubs and saplings

Fallow deer and red deer rub their antlers on vegetation to remove the velvet covering, which can damage smaller plants and shrubs. Larger trees can suffer deep gouging scarring and even death caused by ring barking.

Bare soil patches under trees and networks of worn trails

Obvious signs of kangaroos in native vegetation include bare soil patches beneath shady trees where they lie and well-worn trails through vegetation.

Learning to recognise the different diggings, scats and footprints of a few feral and native animals will tell you a lot about who is really living on your land.

Wildlife/trail cameras can be used to capture photos of herbivores as well as native fauna.

Deer print

Deer tracks

Deer scats

Acacia pycnantha - smashed deer damage

Rabbit warren in native vegetation

Dieback

Dieback is a term used to describe the long-term decline in health, or gradual death, of native vegetation. While causes may not be easy to identify, they may include:

- insect attacks
- plant pathogens such as *Phytophthora*
- soil compaction
- salinity
- dry conditions
- herbicide spray drift
- accumulation of soil residual herbicides.

Plants growing in isolation, such as paddock trees, often suffer poorer health because they no longer receive the benefits of a community of other flora and fauna species.

Phytophthora (or 'PC root rot') includes a range of introduced microscopic water mould organisms that infect the roots and stems of plants, affecting their ability to take up nutrients and water. These organisms are found and spread in soil and water, causing decline and death of a wide variety of plant species.

Phytophthora cinnamomi is now present across the Mt Lofty Ranges and the Fleurieu Peninsula and is more widespread than has been officially mapped. Care should be taken to avoid introducing it.

It is often spread on earthmoving machinery, vehicles and bikes that move wet soil. Usually, an infected area will show increasing rates of plants dying, with a pattern of dieback indicating progressive movement downhill from roads, tracks and below dam walls. Plant death usually starts with discolouration (often red or yellow) in leaves and may take weeks for smaller plants and several years for large plants trees.

Signs of *Phytophthora* are often first noticed in susceptible native plants such as grass trees/ yaccas, myrtle wattle, cone-bush, messmate stringybark, brown stringybark, Mount Lofty bush-pea and pink ground-berry.

Isolated paddock trees often suffer poorer health without the benefits of a vegetation community

Dieback from herbicide drift

Dieback from dry conditions

Dieback caused by root-rot *(Phytophthora cinnamomi)*

Farm management practices

Some farm management practices can affect the health of native vegetation, including:

- Livestock can compact soils, spread weeds, and increase nutrients through faeces and urine. These additional nutrients, mainly nitrogen and phosphorus, promote the establishment of weeds. Excess nutrients can flow into water courses and water bodies, reducing water quality.
- Off-target spray drift of agricultural chemicals such as herbicides, fungicides and pesticides may cause plant poisoning and disruption of important insect and fungal associations. Symptoms of leaf discolouration and dieback will be particularly noticeable in plants growing on the edges of native vegetation next to paddocks.
- The addition of fertilisers to neighbouring land can run off into native vegetation, wetlands and watercourses, resulting in increased nutrients. This may result in algal blooms causing death of aquatic life, and the dominance of certain plant species, for example, monoculture of common reed (*Phragmites australis*).
- Overstocking on grassy pastures where native grasses, herbs and trees continue to grow. The shrubby/small tree component of these ecosystems is likely to have already been removed over time if there has been long-term livestock grazing.
- Soil compaction from machinery which damages root systems and their fungal associations, creating water and oxygen deficiencies. Soils are particularly susceptible to soil compaction when wet.
- Storage and dumping of farm equipment and materials which can harbour pests, smother native plants and leach chemicals into the soil.

Lomandra grazed by livestock

Record farm management practices negatively affecting native vegetation - mark them on your map.

- not maintaining fences
- damage to vegetation from off-target spray drift of chemicals
- nutrient runoff
- lack of a shrubby layer and young seedlings from livestock grazing
- soil compaction from livestock or machinery
- storage and/or dumping of farm equipment.

Altered fire regimes

Fire was purposefully used by First Nations people to optimise food production and hunting grounds. Many native plants and animals rely on fires to survive and reproduce due to this long history of fire regimes. The frequency of fires in the landscape will influence the structure of vegetation communities and the group of species found, and changes in fire regimes will impact vegetation in the following ways:

- A lack of fire in ecosystems that need it, such as heathy woodland, stringybark and swamps. Fire dependent ecosystems that aren't burnt for long periods generally lose their shrubby layer over time as there is no stimulation of germination for many species.
- High frequency of fires can cause overstimulation of the soil seed bank while repeatedly burning young fire-dependent species can lead to a reduction/removal of sensitive species. A too-frequent fire regime might not allow enough time between fires for some species to mature and set seed for the next generation.
- The right fire frequency to maintain vegetation communities, will depend on the broad vegetation type and may also depend on what species are present and their competing requirements, particularly threatened species.

Record indications of fire history - mark them on your map.

- Indications of past fire may include charring on older trees or hollow burnt out trunks.
- Long unburnt areas often have large amounts of old fallen timber and sometimes a lack of a shrub layer.
- Recently burnt areas (0 to 2 years) usually have sprouting of small new branches on
- Eucalyptus trunks (epicormic growth) and carpets of seedlings.
- Check the "Fire" layer in NatureMaps to see when your patch was last burnt and, if there is a recorded fire history for your property, and how many times areas have been burnt.
- Very old, large hollow trees, especially red gums were sometimes selectively burnt by Aboriginal people for the shelter value that the hollow would provide. The openings of these trees were most often northern or eastern facing. For more information on finding out whether cultural heritage has previously been registered on your property, or if you'd like to record a discovery, please see page 18.

Erosion

A lack of native vegetation will exacerbate the erosion of sand, soil or rock caused by wind, water, and animals. Loss of topsoil can stop new plants establishing and undermines existing plants, creating a cycle of vegetation loss and further erosion. Soil erosion caused by lack of vegetation on steep slopes leads to increased sediment being washed into watercourses. Erosion can be a vicious cycle!

Examples of erosion, or areas at risk of erosion, include:

- gully erosion, showing exposed and/or collapsed soil banks
- trampling or damage of dune vegetation, particularly by vehicles and livestock
- loss of fringing creek line vegetation
- tracks carved by livestock on steep hill slopes lead to significant soil erosion over time
- overgrazing of paddocks will reduce pasture cover and expose soil.

The root systems of some introduced plants exacerbate erosion because they don't hold soils as well as native species do, particularly on sites with sand or loam soils.

Changes to water

Changes to groundwater or surface water can impact native vegetation along wetlands, swamps and watercourses. These changes can reduce the availability of water to plants and affect clarity, salinity, pH or nutrient levels. Changes can be caused by:

- over extraction of ground water
- extraction and diversion of surface water from watercourses
- retention of water in dams.

Vegetation clearance

Vegetation clearing has resulted in habitat loss, causing the extinction of numerous species in Australia. This remains the number one cause of decline for many threatened species. In addition, the fragmentation of native vegetation often caused by grazing further degrades what vegetation remains by driving the threats listed above.

Native vegetation (including dead plants in certain circumstances) is protected from clearance under the *Native Vegetation Act 1999*. The Native Vegetation Council (NVC) can impose substantial penalties for illegal clearance. There are some exemptions for native vegetation removal in certain situations.

Activities classified as vegetation clearance are:

- grazing by livestock without approval from the (NVC)
- burning without NVC approval
- direct killing, destruction or removal by cutting down or poisoning whole plants
- partial removal of branches, limbs, stems or trunks of trees and bushes, or slashing understorey plants
- draining or flooding land which leads to harm or death of native vegetation.

Climate change

There may not be many obvious signs of the impact of climate change to native vegetation on your property. Some exceptions include sea level rise and associated storm surge impacts on coastal dunes, and mass death of tree species caused by extreme weather events (for example, prolonged extreme heat or prolonged drought).

Climate change will bring more frequent and extreme weather events. Increased temperatures and reduction in annual rainfall will lead to increased droughts, increased fire risk, and may exceed the tolerance limits of some plant and animal species. Sea level rise may swamp and erode coastal sites.

Illegal vegetation clearance

Dieback from dry conditions

Vegetation condition

Use the table below to help assess the condition of your native vegetation. The condition may not be uniform throughout native vegetation sites, with some areas in better condition than others.

Table 2: Condition descriptions for native vegetation

Good condition	Fair condition	Degraded condition
• numerous and diverse native plant species	• low numbers of diverse native plant species	• native plant species lost or reduced
• few weeds	• abundance of weeds	• abundance of weeds across large areas
• little to no overgrazing	• evidence of overgrazing	• high grazing pressure
• a good range of different life forms, for example from fungi through to trees	• a moderate range of plant life forms	• limited range of plant life forms (for example, just trees and pasture grasses, or an extensive monoculture of one or two species)
• natural regeneration	• evidence of some natural regeneration	• little to no evidence of natural regeneration • small size, and fragmented
• stable natural water sources (particularly relevant for wetlands/swamps)	• extensive modification of water sources but with some remnant vegetation.	• extensive modification of water sources (for example, drain network drying a swamp)

Significant natural and cultural values

Significant natural values may include such things as a population of rare plants, a rocky outcrop, large hollow bearing trees or nest sites for birds. Some natural values, such as orchids, may only be seasonally visible.

First Nations scar trees

Scar trees represent places where an event took place - to mark sites of ceremonial significance such as birthing, initiation or burial sites. They are also places where tools were made such as coolamons, canoes and shields.

Of great historical and current significance, the markings on these trees can be dated back to as early as the 1700s.

For a long time, many landholders believed that they should not share with anyone the presence of cultural heritage on their properties for fear that their land could be taken away. This is not the case! Under all circumstances native title is extinguished if that land is private property. The fear of reporting cultural heritage has resulted in cultural heritage rarely being recorded on private land. Knowing the nature and whereabouts of cultural heritage can help First Nations to further piece together the movements and activities of their ancestors.

The presence of cultural heritage on any land should be celebrated. It is evidence of occupation by First Nations people – the oldest continuous living culture on earth.

Cultural heritage is protected under the *Aboriginal Heritage Act 1988*.

If you would like to find out if cultural heritage has previously been recorded on your property, you can for a small fee search the 'Taa Wika' online portal.

Scar tree

STEP 4

List your priorities and actions

Which threats to manage first?

While all threats to native vegetation should ideally be managed as soon as possible, this is not always feasible, so you'll need to prioritise your actions.

When filling out this section of your action plan, higher priority should be given to addressing threats that can seriously impact native vegetation and involve legal responsibilities (for example, controlling declared weeds).

Prioritisation within a threat will also be required, for example, choosing which weed species to control first and where to start. For larger areas of native vegetation, staging works will be necessary to allow time for follow up in future years.

You should also consider the impact that threats identified on your property may have on your neighbours. For example although an erosion issue, or a weed or feral animal problem may not be a high priority for you, it may be adversely impacting neighbouring properties.

Taking action

Actions should be determined by addressing the threats you have identified, while some actions may address multiple threats.

Many of the threats to native vegetation will cross property boundaries like feral herbivores, weedy patches and erosion issues. Working on common actions with neighbours can be beneficial in pooling resources, maintaining motivation and sharing knowledge.

Action – control weeds

The control of different weed species will often require the use of different techniques. These include hand-pulling, cutting, biological control, herbicide spraying or swabbing, and crash grazing (in some circumstances).

Keep these weed control prioritisation principles in mind:

- Control weeds in areas of better-quality native vegetation, and progress towards more degraded areas.
- Stop the spread first - prioritise weed species with low abundance before they spread and become established.
- To avoid spreading weed seeds, begin weed control in areas where there are less of them and work towards bigger patches.
- Prioritise follow-up weed control where it has been undertaken in previous years before starting new areas.

Avoid or minimise the use of herbicides in native vegetation where possible. Selective herbicides and non-residual herbicides can sometimes be used to control weeds. When this is required, consider employing a specialist contractor or seek expert advice (see our online Resources list).

Avoid using herbicide near water as some can kill aquatic wildlife. If you must use it, ensure the product is registered for use near water and follow the instructions on the label.

NOTE: A staged weed removal process is important if a native fauna species is depending on the structural habitat provided by the weed (for example, bandicoots utilising a large patch of blackberry). Staged removal involves controlling a portion of the weedy area and replacing the habitat with structurally similar local native plants (either via natural regeneration or revegetation) before moving to the next section.

Follow-up weed control will be required for many years. Regularly inspect native vegetation areas and look for new weed incursions while they are less abundant and easier to control, particularly beside vehicle, walking tracks and animal tracks.

Action – remove livestock from native vegetation

Put up suitable fencing to keep out livestock.

To reduce costs, choose alignments that provide multiple benefits. Incorporate other significant natural features or assets inside the fenced area and provide a buffer between the fence and the vegetation. This will help to minimise threats and promote regeneration on the edges of your patch.

Fencing tips:

- Avoid placing new fences beneath large trees to minimise potential damage from falling limbs.
- Before fencing watercourses and dams, you may need to consider installing other water sources for livestock.
- Fencing near watercourses should ideally be placed above the flood level and be located parallel to the direction of flow.
- Regularly inspect fencing and undertake maintenance when required.

Sheep proof fence

Extra high fencing to stop kangaroos

Note: In some situations, periodic grazing of native grassy vegetation may be necessary to maintain habitat structure and species, particularly where there has been a long history of grazing and invasion of exotic pasture grass. To avoid damage, seek advice from Landscapes Hills and Fleurieu about appropriate timing and stocking rates.

Fenced creek-line with permanent pool, trough and cow

Action – control feral and overabundant animals

Feral herbivores and overabundant kangaroos can be culled if they are a threat to native vegetation (particularly if not excluded by fencing). Control is usually cheaper than exclusion fencing, depending on the size of the area in need of protection.

There are a variety of different control methods depending on the animal, but ensure they are undertaken in a humane way:

- Rabbits: a combination of methods is best with priority given to warren destruction to reduce their ability to breed and escape predators. Removing refuges such as wood heaps and woody weeds, baiting, trapping, fumigation of warrens and biological control agents such as calicivirus, should all be used.
- Feral deer and feral goats: control through trapping and shooting.
- Over abundant kangaroos: requires a destruction permit from the Department of Environment and Water in order to cull them. In some situations, a fence may be required to help keep them out, particularly where lethal control is not possible.

Action – address causes of dieback

Use the table below to try to identify and manage stressors that may be causing dieback:

Stressor	Potential action
Grazing, soil compaction	Reduce grazing pressure via fencing and/or controlling herbivores.
Loss of understorey	Reduce grazing pressure, by fencing or lethal control of herbivores, to support natural regeneration and, if required, undertake revegetation.
Plant pathogens	Implement pathogen hygiene practices - see *Phytophthora* management below.
Dry Conditions	Refer to the restoring watercourses section.
Insect damage	Identify relevant insect and seek appropriate advice. Improve habitat for insectivorous birds.

Action – *Phytophthora* management

There is no cure for *Phytophthora* so the best way to avoid introducing is by preventing or limiting movement of infested soil or plant material. This can be done by:

- Avoiding driving, walking or riding in areas when soils are wet.
- Staying on designated tracks when walking or using machinery.
- Cleaning vehicles, bikes, boots and equipment that have been in contact with soil prior to entering and when exiting natural areas. Ensure all soil has been removed and use an appropriate disinfectant, such as 70% methylated spirits diluted with water.
- Make sure any plants you buy for your garden or landscape are grown in clean/fresh potting mix from reputable companies to minimise risks of introducing it to your property.

It can be difficult to know if *Phytophthora* is present or not, as soil testing can be inconclusive. If you think you might have it on your property, it is best to treat the site as if it is infected and follow our recommendations for On-farm Biosecurity, available from the Landscapes Hills and Fleurieu website.

Dieback caused by root rot *Phytophthora cinnamomi*

Action – ensure best practice farm management

- Include best practice farm management in your overall property plan to reduce the impact on native vegetation. Things to include are how you will:
- Maintain livestock exclusion fences to protect native vegetation.
- Pay close attention to stocking rate and grazing period especially when grazing native grassy ecosystems.
- Remove stored equipment or dumped refuse from native vegetation areas.
- Concentrate vehicle movement along dedicated tracks, and not through vegetation.
- Minimise the use of agricultural chemicals such as fertilisers, herbicides, fungicides and pesticides. Consider how erosion, soil run-off, groundwater, volatility or windblown soil particles can move fertilisers and residual chemicals beyond initial application.
- Adhere to legislative responsibilities to avoid spray-drift when spraying agricultural chemicals. Only spray agricultural chemicals under suitable weather conditions and never spray during surface temperature inversion events.

Action – consider fire for biodiversity

An 'ecological burn' refers to the burning of native vegetation to enhance or preserve ecological processes. Long unburnt native vegetation may need fire to promote germination of shorter-lived, fire dependent species.

Several of our First Nations are working through processes to enable the reintroduction of cultural fire practices to country. We anticipate that this will soon become a service available to land managers.

Stay subscribed to our newsletters for updates on these types of land management options.

At present, burning is considered a form of vegetation clearance and requires approval under the Native Vegetation Act 1991. Seek advice from the Department for Environment and Water (DEW) or Country Fire Service (CFS) to determine whether burning of your site is allowed

Action – managing erosion

Minimise erosion by protecting existing native vegetation and encouraging natural regeneration through:

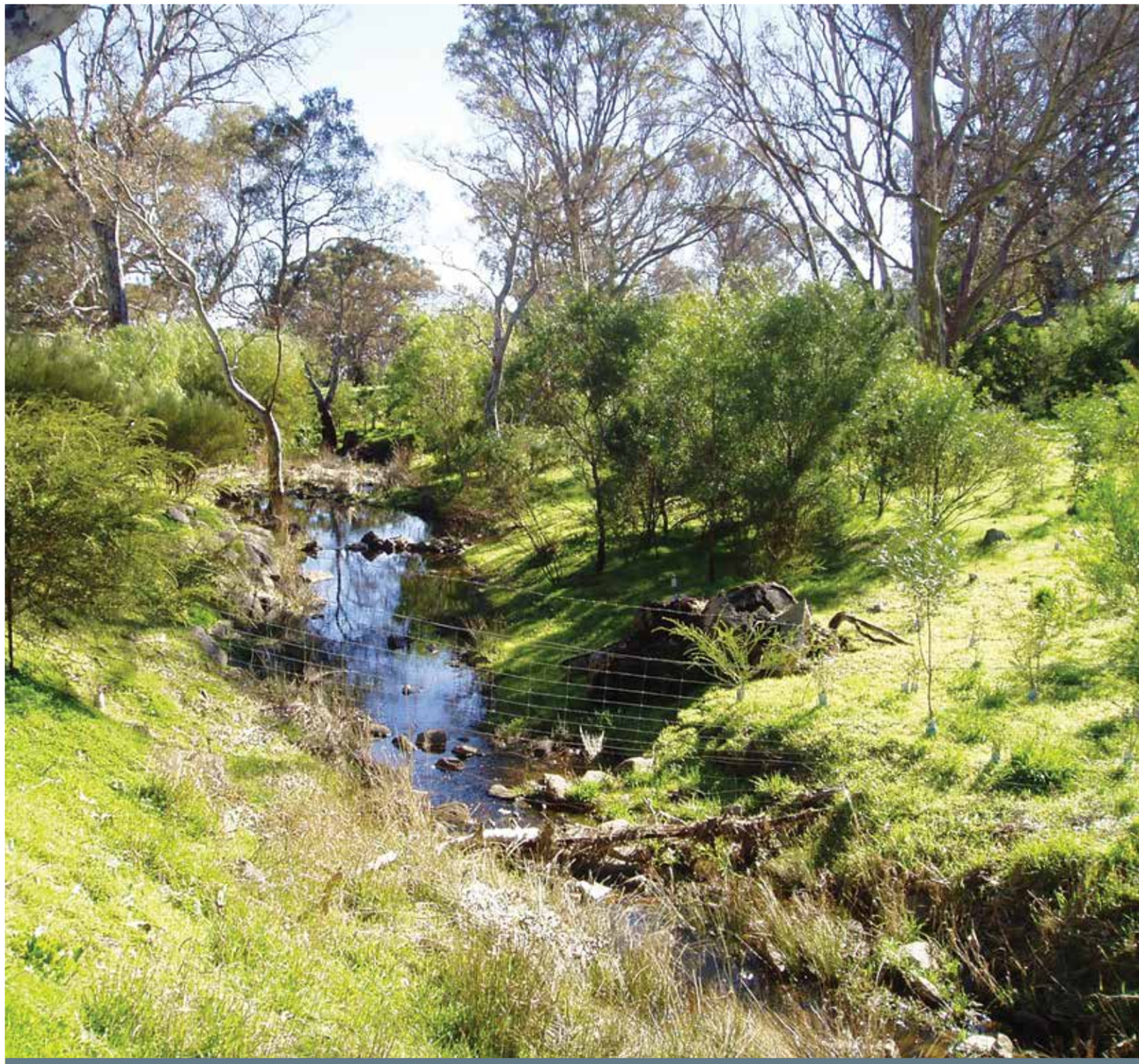
- avoiding creating tracks/driving through native vegetation areas
- fencing out livestock from native areas
- undertaking staged removal of weeds to allow native vegetation to grow in its place
- encouraging suitable (or in some circumstances plant) sedges and rushes to slow water flow, collect sediment and stabilise soil.

Erosion

Action – restoring watercourses

Native vegetation along watercourses is always a high priority for management as it is often critical water resource and habitat for biodiversity. They are also highly susceptible to disturbance and weed invasion, making them more labour-intensive areas to manage. See our Five Steps to a Thriving Watercourse for further advice.

Water resources such as watercourses, floodplains, lakes, dams and wetlands are protected under the *Landscape SA Act 2019*. Section 104(4) of the Act requires a water affecting activity permit application to be submitted to Landscapes Hills and Fleurieu for assessment and obtain written approval before works commence. For further information on water affecting activities head to the Landscapes Hills and Fleurieu website. All works that involve excavation, construction or modification of watercourses and wetlands such as the removal of dams and culverts or infilling of drains require a Water Affecting Activity permit from Landscapes Hills and Fleurieu.



Watercourse native vegetation and revegetation

Action – support natural regeneration

If native vegetation is degraded (for example, lacking a mid or understorey due to overgrazing), it may naturally regenerate once threats are managed. Natural regeneration is cheaper and can provide better quality habitat than revegetation.

Natural regeneration is more likely to occur in recently cleared areas or in areas next to existing native vegetation if there are seeds in the soil. Allowing these areas to naturally regenerate creates a buffer for the existing vegetation and reduces harmful 'edge effects'.

Natural regeneration does take time and may not be appropriate in all situations, for instance, if there is no native seed remaining in the soil seedbank. Wait at least two years to see how the site responds following removal of threats before assessing whether supplementary revegetation is needed.

Action – revegetation

If native vegetation isn't regenerating as expected, you can revegetate areas by planting certain species that are missing. Revegetation can also be undertaken to buffer and expand existing patches of native vegetation, and minimise erosion of dunes, watercourses and steep sites.

Revegetation can be undertaken via planting of tubestock seedlings or direct seed sowing. To learn how to do your own revegetation project.

Action – improve resilience in a changing climate

Besides reducing your own carbon footprint, minimise the threat of climate change impacts on native vegetation by making it more resilient. This can be done in the following ways:

- Managing threats (for example, maintaining natural water flow, the quality and quantity of water flow, maintaining the quality and quantity of vegetation present, and removing weeds which may compete with native species for moisture).
- Increasing the size of native vegetation patches through regeneration and revegetation.
- Having areas of native vegetation and revegetation to sequester carbon which helps to mitigate climate change.

Action – protect native vegetation from clearing

It is a legal requirement to seek approval from the Native Vegetation Council for any clearing. Protect native vegetation from unintended clearance by:

- Avoiding any native vegetation removal (including trees, shrubs and understorey)
- Avoiding creating new tracks or removing natural materials
- Not dumping garden refuse within or adjacent to native vegetation as this will risk spreading new weeds
- Not using native vegetation areas to store equipment and vehicles or to dispose of rubbish
- Fencing to exclude livestock and help prevent accidental clearance
- Consider leaving a lasting legacy of protection of native vegetation with a legally binding Heritage Agreement.

Revegetation

Fire-proof, livestock proof steel fencing will prevent vegetation clearance by herbivores

Slashing blackberry

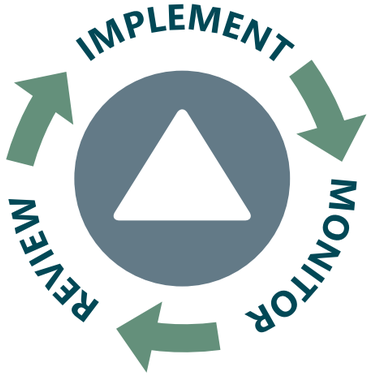
Regenerating paddock trees can be protected by livestock proof tree guards

Regenerating native grasses and trees

Digging out weedy bulbs along vehicle tracks in native vegetation

STEP 5

Implement, monitor and review



Now that you have identified and prioritised your actions, it is time to create your schedule for the year ahead and get started. Many actions can be undertaken year-round (for example, fencing), while some actions can only be done, at certain times of the year (such as timing of weed control).

Regular monitoring will help to see if your actions are succeeding in caring for native vegetation. What success means will depend on your project and is linked to the priorities that you've outlined in your action plan. Monitoring will help you respond to emerging issues and identify successes and whether actions need to be adapted or changed.

Monitoring can be as simple or detailed as you like, and may include:

- Use of photopoints to monitor changes in native vegetation. Photopoints are easy to set up and a great way to see the results of your efforts. They can also be valuable or necessary when applying for grant funding and submitting acquittal reports.

Photopoint before bridal veil control

Photopoint after bridal veil control

- Monitor and map the extent of weed populations to determine how effective your weed control efforts are. This may involve walking around your site at least once a year and re-mapping weeds.
- Look at how vegetation responds after management of threats. For example are there new seedlings coming up following livestock exclusion?
- Look for herbivore presence by searching for animal tracks, scats, wildlife camera footage and make note of any threats.
- Monitoring can also be recorded more rigorously using a range of repeatable assessment programs.

Once you've monitored your site, evaluate the effectiveness of your efforts by asking yourself:

- Have weed control techniques been successful? Is weed abundance reducing? Are there new or unidentified weeds appearing?
- Have herbivore abundance or presence signs reduced? Are they in the same place or has the problem moved somewhere else?
- Are there too few/many new native seedlings coming up following fencing? Does native vegetation have new shoots on plant limbs?
- Has vegetation begun to regrow in areas where soil was previously eroding? Has the erosion halted or is it progressing?
- Do dieback areas appear to be contained or are they spreading?
- Has the condition of native vegetation improved? Is it progressing from Degraded to Fair, or from Fair to Good?

Following this evaluation, review your priorities and decide how you need to update your plan and schedule for the following year.

Would you like to learn more?

For a full suite of links and additional information, tools and references aligned to the topics in this guide, please visit the native vegetation page on our Landscape Hills and Fleurieu website at landscape.sa.gov.au/hf/nativevegetation. This is also where you will find your Thriving Native Vegetation Action Plan template.

Following the steps in this guide, will help you tackle the key challenges facing native vegetation in the Hills and Fleurieu region. Identifying and managing threats is crucial to supporting the health and resilience of native plants and habitats.

With climate change increasing pressure on vegetation, habitats, and biodiversity, every effort you make to reduce these threats will contribute to strengthening their resilience.

Now that you've got the knowledge, it's time to map your native vegetation, identify the key threats and create a tailored action plan.

Download your **Thriving Native Vegetation Action Plan template** from our website and get started today!

LANDSCAPE SOUTH AUSTRALIA HILLS AND FLEURIEU

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