

Caring for our Rural Landscape

Strategic actions for landholders, community groups and agencies caring for Nillumbik's rural landscape

The Purpose of this Guide

Our rural landscapes are a major part of what makes Nillumbik "The Green Wedge Shire". The primary purposes of the Nillumbik Green Wedge, and therefore our rural landscape, are conservation of our natural environment and agriculture. In fulfilling these purposes, our rural landscape also provides opportunities for rural lifestyles, tourism and recreation that benefit societal health and wellbeing and the local economy.

This document has been written for all those who have management responsibilities for private and public land and water in rural Nillumbik. It is aimed at protecting and enhancing the broad components that make the Nillumbik landscape unique and precious.

It is built on the premise that we are all stewards of our shared landscape, from individual rural landholders to the Landcare groups they form, from Nillumbik Shire Council to agencies such as Parks Victoria and Melbourne Water, there are actions for us all, and if collectively achieved, will make Nillumbik's rural landscape healthier and more resilient into the future.

The intention of the document is to provide a logical and easy-to-read version of the strategies and actions developed through these workshops. It is a guide only and should be considered as a "good start". If we collaborate on the implementation of this guide, then our rural landscapes will be healthier.

We are on Wurundjeri land

We acknowledge the Wurundjeri people as the Traditional Owners of Nillumbik and recognise their continuing connection to Country, waters and culture. We pay our respects to all Wurundjeri elders, past, present and emerging. We acknowledge their stewardship of the land, which stretches back many thousands of years.

The development of this document has been led by the Nillumbik Landcare Network. Derived from the draft Nillumbik Landcare Network Strategic Plan that was developed through a series of facilitated Conservation Action Planning (CAP) workshops in 2015, it has been shaped by rural landholders representing eight Landcare groups from across Nillumbik, and representatives from Nillumbik Shire Council, Melbourne Water, Parks Victoria, Trust for Nature, Bush Heritage Australia, VicRoads, Department of Environment and Primary Industries, Port Phillip and Westernport Catchment Management Authority, Yarra Ranges Landcare Network and Middle Yarra Landcare Network, who all contributed their knowledge and expertise.



Different responsibilities and strengths

This document is a guide only. All people and organisations with responsibility for stewardship of land in Nillumbik are encouraged to use this information to assist their land management planning. When deciding what actions you can take, you will need to determine what your priorities are at the scale you are working at in your land management. This applies to assets, threats and actions and will ensure you are having the impact most important to your area of control and interest.

Every land manager has different responsibilities, strengths and resources:

- Individual land owners are typically aware of the threats impacting their land, have authority to take direct action, and can work with their neighbours to achieve shared outcomes.
- Landcare Groups and Networks have social connections and communication lines to their members, so are

well placed to engage and support landowners and communities. They can coordinate on-ground activities, provide information and education, organise demonstration sites and provide important social connections at a local level.

- Nillumbik Shire Council provides information, expert knowledge, education, and incentives and funding for landowners and community groups to undertake land management activities. Council also has responsibility for strategic planning, on ground works, land-use planning, administration of Local Laws, and other regulatory tasks.
- Melbourne Water and Parks Victoria have statutory responsibilities to care for land in Nillumbik. They undertake regional strategic planning, on-ground works, provide grants for certain activities, and can provide expert knowledge and information to land managers.

A note on Climate change

While climate change is considered a threat to all our landscape assets, it is beyond the scope and intention of this document to address the causes.

Analysis of this region from the Climate Change in Australia website shows that the Nillumbik Shire (and around Melbourne more broadly) will be significantly affected by a warming climate. We can expect to see a rise in annual average temperatures, including an increase in the summer maximums and lower rainfall, with winter and spring rainfall declining disproportionately. These changes threaten the health of all the assets and will impact on the species that make up our ecological communities and further impact our creeks and rivers. The creeks, rivers and wetlands will be of even greater importance in providing refuges for species needing wetter and cooler environments.

We are likely to see long term changes in our ecosystems including local extinction of vulnerable flora and fauna and a shift to ecosystems more adapted to drier environments such as grassy woodlands.

We are also likely to experience more severe and greater frequency natural disasters such as bushfire, storms and floods. The changing climate might also change the range of agricultural and horticultural activities that are viable in Nillumbik.

The most important actions that we can take to maximize the resilience of our natural environment to these climate changes are to:

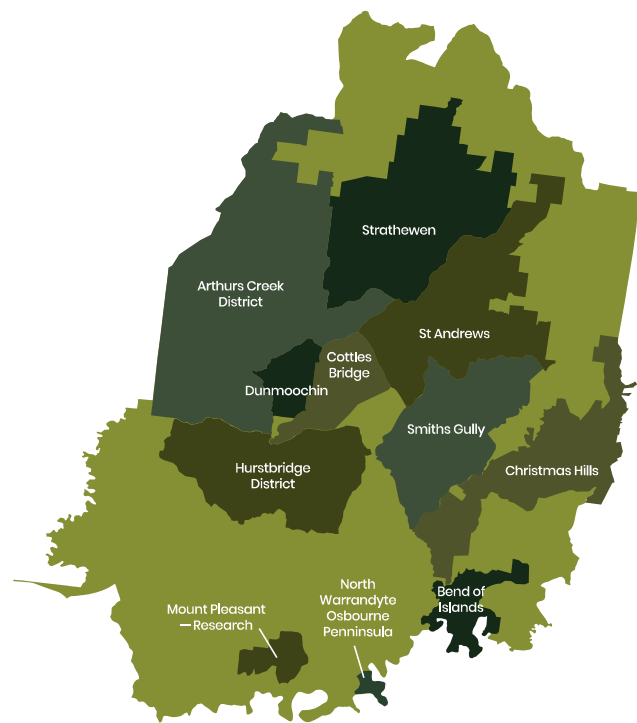
Every land manager has different responsibilities, strengths and resources:

- recognise, understand, and plan for the expected impacts and changes
 - protect and enhance existing native habitats,
 - reconnect isolated patches of bush by establishing linking corridors,
 - reduce the impacts of the other identified threats – weeds, feral pest animals, erosion, habitat loss etc, and
 - reduce extraction of water from rivers and creeks and optimise infiltration of water into soils.
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About the Nillumbik Landcare Network

The Nillumbik Landcare Network is comprised of 11 Landcare groups operating within the Nillumbik Shire. It pursues the following vision: Private land is managed to protect and improve both the biodiversity and agricultural values of Nillumbik.

It achieves this by supporting its member groups to effectively engage with their respective landholders to promote and support well-informed land management decision-making and cooperative action.



Landcare Groups in Nillumbik

Dry Forests & Woodlands

Dry forests and woodlands dominate the remnant vegetation on the drier slopes and ridges in Nillumbik. They have an open to closed canopy of gums that includes scattered large old trees. The mid-storey of small trees and shrubs is open to sparse, but can be more dense on lower slopes. The under-storey is a mix of grasses, lilies, orchids and herbs, which grow among fallen leaves, branches and rotting logs.

Dry forests and woodlands provide the habitat for a rich variety of indigenous flora and fauna.

Why dry forests and woodlands are important

Dry forests and woodlands create the bushland character of Nillumbik, and contribute to the forested highlands that are such a feature of eastern Melbourne.

They are extensive, occur on both public and private land and connect Kinglake National Park to the Yarra River and Warrandyte State Park. This landscape 'connectivity' is vital to maintaining a healthy environment, keeping the natural systems operating well and providing pathways for animals in an otherwise fragmented landscape.

Dry forests and woodlands provide essential habitat for myriad native animals, especially invertebrates, and plants, including rare and threatened species.



The approximate area of dry forest and woodland in Nillumbik is 21,000 ha of which 15,000 ha is on private land.



What healthy dry forests and woodlands look like

Healthy dry forests and woodlands have trees of different ages, including big old trees with numerous hollows. Fallen branches and rotting logs create feeding places and shelter for a rich diversity of native birds and animals, especially invertebrates. The shrub layer is sparse and its native peas, heaths and wattles are not stunted from over-browsing by deer or wallabies.

The understorey is mostly tussock grasses interspersed with native herbs, sedges, rushes, lilies, orchids and other wildflowers. It has few or no weeds. Leaf litter protects the soil and creates foraging areas for ground-dwelling animals. In spring, these forests and woodlands are full of wildflowers, insects, bird song and nesting activity.

Animals found in dry forests & woodlands

A rich variety of animals may be found, including rarer species such as:

- Brush-tailed Phascogale
- Common and White-footed Dunnart
- Spotted Quail-thrush
- Powerful Owl
- Speckled Warbler
- Swift Parrot
- Tree Goanna
- Southern Toadlet

More commonly seen species include:

- Agile Antechinus
- Swamp Wallaby
- Short-beaked Echidna
- Common Wombat
- Common and Blotched Bluetongue lizards

In addition to those listed above, there is a rich diversity of woodland birds, reptiles and invertebrates.

Plants found in dry forests & woodlands

There are also rare and threatened plants that occur in these forests and woodlands, including:

- Round-leaf Pomaderris
- Clover Glycine
- Red Ironbark
- Matted Flax-lily
- numerous rare and threatened orchids

Healthy dry forests and woodlands are extensive and well connected with surrounding remnant vegetation, allowing movement of plants and animals across the landscape.

The threats to our dry forests and woodlands

Lack of knowledge, skills & resources

Land owners are often keen to care for their land but may not have enough knowledge to feel confident in doing so, or they lack the resources such as time or money to tackle major works.

Incremental land clearing and disturbance

The total area and quality of dry forests and woodlands is gradually declining as a result of legal and illegal clearing and damage to the understorey. This can affect the forest's connectivity leading to increased isolation of plant and animal populations. It also exposes the soil to compaction and erosion, enabling weeds to invade. Excessive removal of dead trees and logs for firewood removes important habitat.

Invasion by woody weeds

Woody weeds such as Sweet Pittosporum, Bluebell Creeper, Boneseed, Blackberry and Cootamundra Wattle invade and dominate the mid-storey, altering the habitat structure and shading out the native understorey.

Invasion by grassy and herbaceous weeds

Introduced grasses and weedy herbs and climbers alter the open tussock structure of the understorey, and can out-compete native species and eliminate foraging sites for ground-dwelling animals and birds.

What we can do to keep them healthy

Build skills, share information and provide resources

- Equip land owners with the knowledge and skills to manage woody and grassy weeds, and provide information on rare and threatened species, and pest animal management.

Prevent further clearing and restore connectivity

- Increase community understanding of the consequences of clearing and/or damaging native vegetation.
- Use regulatory tools such as planning controls and perpetual covenants to prevent further loss and degradation of forests and woodlands.
- Use natural regeneration and revegetation to restore habitat along key vegetation corridors and between isolated remnants..
- Encourage the responsible sourcing of firewood or use alternative fuels.

Minimise the impact of woody weeds

- Focus control efforts for woody weeds in the highest quality areas of dry forest and woodland.
- Prioritise other areas as resources allow.
- Enhance and utilise the regulatory framework and incentives to support weed control efforts.

Minimise the impact of grassy and herbaceous weeds

- Focus control efforts on patches of high value understorey such as orchid-rich areas or critical habitat for ground-dwelling fauna.
- Trial ecological and traditional burning to restore the health of the understorey.

The threats to our dry forests and woodlands

Shortage of tree hollows for animals that need them

Past tree harvesting has reduced the number of hollow-bearing trees. Many remaining trees are less than 80 years old and too young to produce hollows. Many of the existing old hollow-bearing trees occur along roadsides where they risk removal from road widening and maintenance work.

Damage by pest animals and stock

Sambar and other species of deer are growing in number. They browse heavily on native shrubs, and damage soil and creek lines by trampling them and creating wallows. Wallabies and rabbits are also over-abundant and eat native shrubs and orchids. Stock such as cattle, sheep and horses with unrestricted access damage native vegetation and compact or destabilise the soil.

Predation by foxes and cats

Foxes and cats prey on small native animals, particularly those that spend a lot of time on the ground.

What we can do to keep them healthy

Protect and supplement tree hollows

- Retain and protect large hollow-bearing trees including on roadsides.
- Establish methods to assess the landscape-scale availability of tree hollows and the numbers needed by hollow-dependent species.
- Supplement natural hollows with nest boxes and/or chainsaw hollows for rare and threatened species.
- Trial methods for accelerating the development of tree hollows.
- Rake hoe litter and other flammable material away from the trunks of hollow-bearing trees prior to initiating controlled burns.

Minimise the impact of pest animals and stock

- Take a collaborative approach across public and private land for the management of deer and rabbits.
- Use exclusion fencing to protect significant sites, especially where wattles, heaths, native peas and orchids are found, or can be replanted.
- Use fencing to restrict stock access.

Reduce predation pressure from foxes and cats

- Target fox control programs to breeding and dispersal times for rare animals and ground-dwelling birds.
- Increase community understanding of the threats cats pose to native animals, encourage people to keep their cats indoors, and provide training in the use of cat traps.

Wet and Damp Forests

Wet and damp forests are largely confined to protected areas in gullies, riparian zones, and southern slopes of hills in Nillumbik.

They are characterised by a canopy of eucalypts up to 40m tall over a medium to tall dense shrub layer, with a ground layer of herbs, grasses and sedges. The ground layer also features a variety of moisture-loving ferns, including the occasional tree ferns. The ground layer also features fallen leaves, branches and rotting logs. Wet and damp forests and woodlands include the rich variety of indigenous flora and fauna that they provide habitat for.

Why wet and damp forests are important

Wet and damp forests provide cool, moist refuges in the forested areas of Nillumbik. Together with the dry forests and woodlands, they occur on both public and private land and connect Kinglake National Park to the Yarra River and Warrandyte State Park.

This landscape 'connectivity' is vital to maintaining a healthy environment, keeping the natural systems operating well and providing pathways for animals in an otherwise fragmented landscape.

Wet and damp forests provide essential habitat for a wide variety of native animals and plants, including rare and threatened species. In a warming climate it is expected that the wet and damp forests will function as a critical refuge for many species that will no longer be able to persist within the drier areas.

Wet and damp forests play an essential role in providing clean water to our waterways, contribute to soil health and improve air quality.



The approximate area of wet and damp forest in Nillumbik is 7,200 ha of which about 4,900 ha is on private land.



What healthy wet and damp forests look like

Healthy wet and damp forests have trees of different ages, including big old trees with numerous, and sometimes large, hollows. Fallen branches and rotting logs create feeding places and shelter for a rich diversity of invertebrates, native birds and animals. The shrub layer can be dense and features wattles, daisy bushes, bursaria, and currant bush.

The forest floor is typically dense with a diversity of grasses, sedges and ferns, and has few or no weeds. Leaf litter is thick on the ground and provides rich habitat for invertebrates and foraging areas for ground-dwelling animals. The cool, damp conditions also support a rich array of mosses and fungi.

A variety of animals may be found. Rare species include the Superb Lyrebird, Powerful Owl, Eastern Whipbird, Long-nosed Bandicoot and White-footed Dunnart. More common species include the Common Wombat, Southern Bush Rat, Agile Antechinus, Swamp Wallaby, Sacred Kingfisher and King Parrot. A variety of frog species live in these forests.

Wet and damp forests are usually adjacent to the dry forests and woodlands. Healthy wet and damp forests are large in extent and well connected with surrounding native vegetation and waterways, facilitating the movement of plants and animals across the landscape.

The threats to our wet and damp forests

Lack of knowledge, skills and resources

Land owners are often keen to care for their land but may not have enough knowledge to feel confident in doing so, or they lack resources such as time or money to tackle major works.

Incremental land clearing and disturbance

The total area and quality of dry forests and woodlands is gradually declining as a result of legal and illegal clearing and damage to the understorey. This can reduce the forest's connectivity and increase isolation of plant and animal populations. It also exposes the soil to compaction and erosion, enabling weed invasion. Excessive removal of dead trees and logs for firewood removes important habitat.

Invasion by woody weeds

Woody weeds such as Sweet Pittosporum, Bluebell Creeper, Boneseed, Blackberry and Cootamundra Wattle invade and dominate the mid-storey, altering the habitat structure and shading out the native understorey.

Invasion by grassy and herbaceous weeds

Introduced grasses and weedy herbs and bulbs can out-compete native species. They reduce the diversity of species on the forest floor and negatively impact habitat for ground-dwelling animals and birds.

What we can do to keep them healthy

Invasion by grassy and herbaceous weeds

- Introduced grasses and weedy herbs and bulbs can out-compete native species. They reduce the diversity of species on the forest floor and negatively impact habitat for ground-dwelling animals and birds.

Prevent further clearing and restore connectivity

- Increase community understanding of the consequences of clearing and damaging native vegetation.
- Use regulatory tools such as planning controls and perpetual covenants to prevent further loss and degradation of forests and woodlands.
- Use natural regeneration and re-vegetation to restore habitat along key corridor routes.
- Encourage the responsible sourcing of firewood or use of alternative fuels.

Minimise the impact of woody weeds

- Focus control efforts for woody weeds in the highest quality areas of wet and damp forest.
- Prioritise other areas as resources allow.
- Develop and utilise regulatory tools (local laws) and incentives to support weed control efforts by the community.

Minimise the impact of grassy and herbaceous weeds

- Focus control efforts on patches of high value understorey such as orchid-rich areas or critical habitat for ground-dwelling fauna.
- Trial ecological and traditional burning to restore the health of the understorey.

The threats to our wet and damp forests

Shortage of tree hollows for animals that need them

Past tree harvesting has reduced the number of hollow-bearing trees. Many remaining trees are less than 80 years old and too young to produce hollows, with many of the existing old hollow-bearing trees occurring along roadsides where they risk removal from road widening and maintenance work.

Damage by pest animals

Introduced Sambar deer graze heavily on native vegetation especially shrubs, and cause significant damage to trees by rubbing on them. They damage soil and creek lines by trampling and creating wallows. Deer trampling on breeding sites are a significant threat to the rare Southern Toadlet. Wallabies and rabbits are also over-abundant and browse heavily on native shrubs and orchids.

Predation by foxes and cats

Foxes and cats prey on small native animals, particularly those that spend a lot of time on the ground.

What we can do to keep them healthy

Protect and supplement tree hollows

- Protect large hollow-bearing trees including on roadsides.
- Establish methods to assess the availability of tree hollows and the numbers needed by hollow-dependent species.
- Supplement natural hollows with nest boxes designed for rare and threatened species.
- Trial methods for accelerating development of tree hollows.

Minimise the impact of pest animals

- Take a collaborative approach across public and private land for the management of pest animals such as deer and rabbits.
- Use exclusion fencing to protect significant or sensitive sites such as Southern Toadlet breeding sites and where wattles, heaths, native peas and orchids are found.

Reduce predation pressure from foxes and cats

- Target fox control programs to breeding and dispersal times for rare animals and ground-dwelling birds.
- Increase community understanding of the threats cats pose to native animals, and provide training in the use of cat traps.

Waterways and Wetlands

Waterways and wetlands include the creeks, drainage lines, ephemeral wetlands and swamps found in the valleys and floodplains in Nillumbik.

All the main waterways in Nillumbik rise in Kinglake National Park. Diamond Creek, Arthurs Creek and Watsons Creek form the main channels and each has many small feeder tributaries. This creek system is a major source of water for the Yarra River and, with the Plenty River, forms the southern and parts of the western boundary of the Shire.

Many swamps and wetlands were converted to pasture in the past, but a few natural swamps remain and others have been recreated.

Why waterways and wetlands are important

Waterways act as arteries through our landscape, carrying life-giving water from the slopes of the Kinglake Range to the Yarra River. Along with wetlands, swamps and bogs, they provide essential habitat and support myriad plants and animals, particularly in dry times, and supply our groundwater reserves.

Wurundjeri Traditional Owners have a strong spiritual connection to Nillumbik's waterways and wetlands. Our local community today depends on waterways and wetlands for stock water and irrigation, and for many they are important places to relax and enjoy nature.

Sugarloaf Reservoir in Christmas Hills supplies the northern, western and central suburbs of Melbourne with high-quality drinking water. The condition of Nillumbik's waterways is an indicator of the health of their catchments and our broader natural environment.





What healthy waterways and wetlands look like

Healthy creeks and wetlands have clear to tannin-stained water, and a natural flow regime with seasonal flooding and drying. They run between stable banks under the shade of gums, native shrubs, rushes, ferns and grasses.

In deeper, slow-moving water, submerged rocks and logs, and aquatic plants like Water Ribbon create shelter and food for native fish and other animals, including the larval stage of many insects. Stream-side vegetation adds leaf litter and organic debris to the system, providing energy that supports the aquatic food webs. Platypus and Rakali feed in the creek or along the banks. Native blackfish, galaxias, eels and crayfish abound in the creek itself, and can migrate up and down the stream as needed to meet their respective breeding requirements. Healthy wetlands have a range of water depths, are fringed by natives rushes and sedges, and are not overly shaded by taller vegetation.

Shallower parts naturally dry out in summer and deeper parts support a mix of emergent water plants. There is abundant food, shelter and breeding areas for native tortoises, frogs, fish and water bugs. Ducks, grebes, cormorants, herons and egrets feed on the frogs and aquatic animals. Dragonflies and damselflies dance across the water in warmer months, and bats and swallows skim the surface to drink. In the evening flocks of birds descend to drink.

The rare Southern Toadlet favours small, ephemeral ponds, while the Growling Grass Frog prefers deeper wetlands.

The threats to our waterways and wetlands

Lack of knowledge, skills & resources

Land owners lucky enough to have waterways or wetlands on their land may not be aware of the importance of protecting fringing native vegetation, keeping stock out of creek-lines and natural soaks, and removing trees such as willows and other weeds.

Farm dams and water extraction

Farm dams and extraction of water (including groundwater) reduce creek volumes and flows. This can lead to higher water temperatures which have lower oxygen levels and reduce the creek's capacity to sustain life. It also reduces deep water refuges needed by larger animals such as native fish and platypus.

Clearing or lack of streamside vegetation

The loss of, or insufficient, stream-side vegetation elevates water temperatures and reduces oxygen levels, adversely affecting aquatic species. It also increases bank instability and erosion, and means fewer leaves and woody debris are shed into the water depriving aquatic species of food and shelter.

What we can do to keep them healthy

Build skills, share information and provide resources

- Equip land owners with the knowledge and skills to protect stream banks and control weed species.
- Provide incentives and support for riparian and dam re-vegetation, stock-exclusion fencing and off-stream troughs for stock.
- Increase community understanding of the potential impacts of farm dams and over extraction of water.

Reduce extraction and manage the impact of dams

- Monitor and regulate commercial extraction and building of new dams.
- Provide financial incentives for the removal of dams that are no longer needed, or conversion to 'leaky dams'.

Protect and/or replace streamside vegetation

- Replant indigenous species along and beyond the creek banks to restore a wide corridor of streamside vegetation.
- Use fences to protect the plantings where stock are present.
- Vegetate farm dams with wetland plants so they can be a substitute for lost wetlands and provide habitat for a number of wetland species.

The threats to our waterways and wetlands

High flows, sediment and nutrient runoff

During storms and heavy rain, surface runoff can carry high loads of soil and litter into waterways and wetlands from unsealed roads, compacted soils and areas disturbed by earthworks, over-grazing and clearing. It can also cause excessive erosion of gullies and stream banks.

This sediment smothers water plants, and clouds the water creating a light- and oxygen-poor environment unsuitable to many plants and animals.

Fertilisers in excess of crop or pasture needs can wash into creeks and wetlands and cause deoxygenation and toxic algal blooms.

Access of hard-hoofed stock and pest animals

When hard-hoofed animals such as cattle, sheep and Sambar deer can directly access streams or wetlands, they trample stream banks and stream-side vegetation. Sambar deer also create mud wallows and graze heavily on native shrubs, particularly along the creek corridors.

Invasion by woody, herbaceous and aquatic weeds

The roots of woody weeds such as Willow and Poplar clog the stream bed, and their leaves rot quickly reducing oxygen in the water. Weeds in the riparian zone, such as Blackberry, Angled Onion, Watsonia, and Wandering Tradescantia can readily out compete native species. Aquatic weeds such as Parrots Feather and Water Hyacinth can choke wetlands and pools.

What we can do to keep them healthy

Reduce sediment and nutrient runoff and protect creeks from storm runoff

- Re-vegetate stream banks with indigenous riparian species to create a wide vegetation corridor that can slow surface flows, increase infiltration, and trap silt and nutrients before they reach the creek or wetland.
- Plant indigenous shrubs and grasses thickly along unsealed tracks and roads that are near creeks and wetlands to trap or divert storm water and its load of silt.
- On adjacent farmland, maintain good groundcover and match fertiliser use to crop needs to reduce contaminants entering the waterway.
- Treat and manage areas of active soil erosion.
- Minimise the use of impervious surface treatments in the catchments
- Use swales and retarding basins to slow flows coming off areas with high levels of impervious surfacing

Prevent access by stock and deer

- Use exclusion fencing and off-stream watering points to water stock, and use fencing to block strategic routes and access points for deer.
- Take a collaborative approach across public and private land to managing deer numbers and impact.

Minimise the impact of invasive weeds

- Focus control efforts for woody and herbaceous weeds where they threaten the higher quality reaches of the creek system, especially the upper reaches of the catchment.
- Aim to eradicate any new invasions of high threat aquatic weeds and prioritise other areas as resources allow.
- Use education and incentives to support weed control by property owners, and regulation to help manage weed issues on unoccupied properties.

Cleared Rural Land

Cleared rural land is characteristic of the land outside the urban area. It contains farms, lifestyle properties, scattered native vegetation and open space. Cleared rural land has been a part of the Nillumbik area since the first settlers cleared land for agriculture and orchards, and felled timber for construction, fuel wood for bakery ovens and steam boilers, and for gold mining infrastructure.

Today, cleared rural land has little native vegetation, and may be used for commercial farming (e.g. grazing, orchards, vineyards, market gardens,) hobby farming (e.g. alpacas or sheep,) or rural lifestyle (e.g. rural living, horses and pet livestock.)

Why cleared rural land is important

Cleared rural land contributes significantly to the broad landscape of Nillumbik. Much of it is currently used for agriculture and rural lifestyle. Its proximity to Melbourne means it currently, or has potential to, play a key role as part of Melbourne's future 'food bowl'.

In conjunction with remnant forests and waterways, cleared rural land provides an attractive rural landscape conducive to agricultural and nature-based tourism, and presents opportunities for people to live a rural lifestyle. It also plays a key role as part of one of Melbourne's Green Wedges.

Cleared rural land can contain patches of native vegetation and large old paddock trees which are important as habitat. The condition of cleared rural land can also affect the health of adjoining forests, woodlands, waterways and wetlands.



The approximate area of cleared rural land in Nillumbik is 10,300 hectares.

What healthy cleared rural land looks like

Healthy cleared rural land has a mix of property sizes including larger holdings that optimise its future potential for agriculture and horticulture. It supports land uses that incorporate protection of the environment, including waterways, patches of remnant vegetation and large old trees both within and adjacent to it.

Healthy cleared rural land has good ground cover made up primarily of perennial pasture species and native grasses. It incorporates bio-diverse shelter belts and insectaries, vegetated farm dams, and is free of erosion, salination and invasive weed species.

It is used and managed sustainably, within the capability of the land, and infrastructure such as fencing, dams and watering points are well maintained.

The threats to our cleared rural land What is needed to keep it healthy

Land parcel size

When lot sizes of cleared rural land are too small or are used as residential land or for non-agricultural industries, they irreversibly lose their potential for agriculture into the future.

Prevent/minimise lot subdivisions

- Identify, map, and use regulatory tools such as planning scheme zones, to prevent further fragmentation of cleared rural land that has good agricultural potential.
- Take advantage of all opportunities to aggregate larger lots.

Incremental urbanization

There are population and economic pressures to use cleared rural land for residential purposes. Increasing land values threaten the economic viability of agriculture and can erode the confidence of people to invest in agriculture. Residential land uses are often incompatible with agricultural land uses.

Minimise the encroachment of urban areas

- Use advocacy and regulatory tools such as the planning scheme to prevent any expansion of the Urban Growth Boundary into cleared rural land.
- Accommodate population growth by directing residential development into activity centres within the Urban Growth Boundary.

Lack of awareness, knowledge, skills and resources

Land owners are often keen to use and manage their land sustainably but may not be aware of their options, have enough knowledge to feel confident to do so, or lack resources such as time or money to tackle major works.

Build skills, share information and provide resources

- Equip land owners with the knowledge and skills to use and manage their land sustainably, by providing information on land capability, property planning, weed management, weed-free fodder, erosion control, and protection of remnant vegetation and paddock trees.
- Provide education to land owners on the need for weed-free fodder.

The threats to our cleared rural land What is needed to keep it healthy

Pest plants, animals and agricultural disease

Invasive weed species can displace good pasture species, be unpalatable or toxic to domestic stock and spread into neighbouring land and native habitat. Pest animals can compete for pasture, and damage crops and infrastructure. Disease can damage crops and stock and reduce the viability of productive land.

Minimise the impacts of pest plants, animals and agricultural disease.

- Focus control efforts on priority invasive weeds.
- Coordinate slashing and other roadside management, so their timing and location minimises the spread of weed seeds, including from one location to another.
- Develop and implement coordinated pest animal strategies. Identify, develop and implement coordinated agricultural disease programs and ensure information is readily available to landowners.

Overgrazing

Overgrazing by domestic stock results in degradation of healthy pastures, exposes soil to wind and water erosion, and increases opportunities for invasive weed species to establish. Overgrazing increases the dominance of annual grasses depleting the higher quality perennial grasses.

Adopt sustainable grazing practices

- Design paddock layouts and align stocking rates to the carrying capacity of the property, to achieve appropriate grazing regimes.
- Select and encourage perennial and native pasture species.
- Link rebates and other incentives to the adoption of best practice regenerative agriculture.

Unsustainable soil management

Poorly planned or unnecessary plowing, ripping and tilling exposes the soil to wind and water erosion, reduces soil structure and fertility and creates opportunities for invasive weed species to establish.

Adopt sustainable soil management practices

- Adopt regenerative and no-till practices that avoid or minimise soil disturbance including direct drill seeding, cover cropping and stubble retention.
- Link rebates and other incentives to the adoption of regenerative agriculture practices.

Impacts on native vegetation and waterways

Different management practices applied to cleared land can affect other landscape assets such as adjoining forests and waterways, in both complementary or detrimental ways.

Practices that are complementary can also have positive influences on the viability of productive land.

Protect native vegetation and waterways

- Install stock exclusion fencing and provide off-stream/dam watering to keep stock out of waterways, dams and remnant vegetation.
- Install fencing to protect paddock trees, and incorporate complementary actions, such as creating insectaries and bio-diverse shelter belts and modifying farm dams to function as wetlands.
- Apply nutrient budgeting practices to match fertiliser application to crop needs.



Community Stewardship

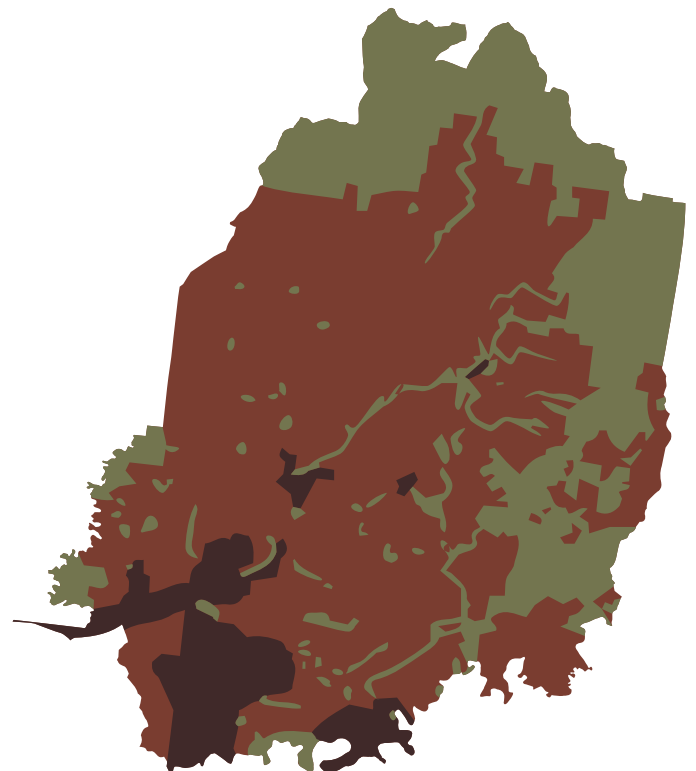
A culture of land stewardship occurs when land holders and their communities, understand themselves to be custodians of their land, the nature it supports and the waterways that pass through it. It is measured by the extent to which they take responsibility for caring for their land, their commitment to passing it on to future generations in better condition than when they came to it, and their willingness to support others in their community to do the same.

The Wurundjeri people, as Traditional Owners of the land in Nillumbik, have a long history of living on and nurturing it, having sustained a culture of community stewardship stretching back thousands of years.

Why a culture of community stewardship of land is important

People who have a culture of land stewardship seek to understand and take responsibility for the land, its soils, waterways, native plants and animals. They recognise that, while they may hold title to the land or have responsibility for managing it, they are in fact temporary stewards and have the responsibility to protect the land and its values to pass on to future generations. Nature and agriculture can thrive in these communities.

A culture of community stewardship of land is important because it enhances community wellbeing, builds social cooperation and engagement, and ensures that land will pass to the next generation in a healthy, productive condition, and continue to support communities, agriculture, nature, and recreation.



Urban areas /townships Private land Public land



What a healthy culture of community stewardship of land looks like

In pursuit of their personal or organisational aspirations for their land, private land holders and public land managers understand and maintain the natural processes that make soil, water, plants and animals healthy. They proudly see themselves as stewards. They feel a deep connection to the land and the place it is part of, and are well-connected to each other socially, sharing knowledge, working together, and supporting others. They form strong, inclusive communities with a shared sense of purpose that sustains the culture of land stewardship.

They acknowledge and respect the Traditional Owners of the land and seek to learn new perspectives from tens of thousands of years of Aboriginal knowledge. They support the Traditional Owners to realise Aboriginal aspirations for Country and culture.

The threats to a Culture of community stewardship of land

Land managers with a limited connection to, or sense of stewardship of land and nature

Land managers may find it hard to make a connection with the land and nature, or feel a commitment to land stewardship, if the opportunities to access information and support are infrequent, unwelcoming, and don't fit easily into their lives. If information is not locally relevant or is communicated in a way that conflicts with their aspirations, they may not feel land stewardship is relevant to them.

Communities with limited capacity to develop a culture of stewardship of land

Communities may find it hard to develop and support a culture of community stewardship of land when they lack the opportunity to connect with others. They may also feel poorly equipped to foster and maintain community knowledge, strength and cohesion.

Limited connection to community

Land managers may find it hard to build local connections when the opportunities to meet and socialise with neighbours are infrequent, unwelcoming, or don't fit easily into their lives due to work, family and other commitments. They may also find it hard to connect with others if they feel their aspirations for their land are not understood or respected.

What we can do to strengthen it and keep it healthy

Create opportunities for people to learn about land and nature and develop their sense of stewardship

- Provide diverse, welcoming, accessible and regular opportunities for land owners and managers to access information. Bring people together to learn about soil, water, flora and fauna, how these function, what makes them healthy, and how healthy land can improve human wellbeing.

Create opportunities for people to understand each other's aspirations

- Design community engagement activities, including with Traditional Owners, to bring people together, to find common interests, and to build understanding and respect for each other's aspirations, differences and constraints.

Develop and strengthen the skills, knowledge and leadership capacity of people in the community

- Provide opportunities for people to develop skills in leadership, group facilitation and community development in order to strengthen existing land management groups and support the development of new groups where needed.

Create opportunities for people to meet their neighbours

- Provide diverse, welcoming and regular opportunities for neighbouring land owners and land managers to meet, socialise and learn together through information and training days, and social events.

The threats to a Culture of community stewardship of land

Communities without a shared sense of purpose

Land holders may find it difficult to understand how they can be part of, and contribute to stewardship of land and nature if their community doesn't have a shared sense of purpose and direction for the place they share.

Limited connection to Traditional Owners and culture

Land managers may not connect with Traditional Owners and their culture if opportunities to meet and learn from Wurundjeri people are infrequent, seen as intimidating or irrelevant, or don't fit easily into their lives.

What we can do to strengthen it and keep it healthy

Create opportunities for communities to find common goals

- Design community engagement activities that enable land owners and managers to share their aspirations for their land and community, and to find common goals they are willing to contribute to.

Create opportunities for people to learn about Wurundjeri culture

- Provide diverse, welcoming and regular opportunities for land owners to meet and learn about Wurundjeri culture and knowledge, and to explore ways they can support Wurundjeri people to reconnect to Country and traditional practices.