



NILLUMBIK **BIODIVERSITY** **STRATEGY** **IMPLEMENTATION**

Sarah Hunter
November 2024

INTRODUCTION

PRESENTATION OUTLINE

1. The Strategy (slide 3)
2. Birds & Biodiversity *special considerations* (slides 4-6)
3. My implementation Proposals intro (slide 7-8)
4. Nature Strip Gardening guidelines (slides 9-16)
5. Rural Greening Project (slides 17-24)
6. Roadside maintenance program integrating Biodiversity (slides 25-28)

INTRODUCTION

NILLUMBIK BIODIVERSITY STRATEGY 2024-2034



The Strategy : Focus areas

1. Leadership and advocacy
2. People and partnerships
3. Species and habitat enhancement
4. Mitigating threatening processes and impacts

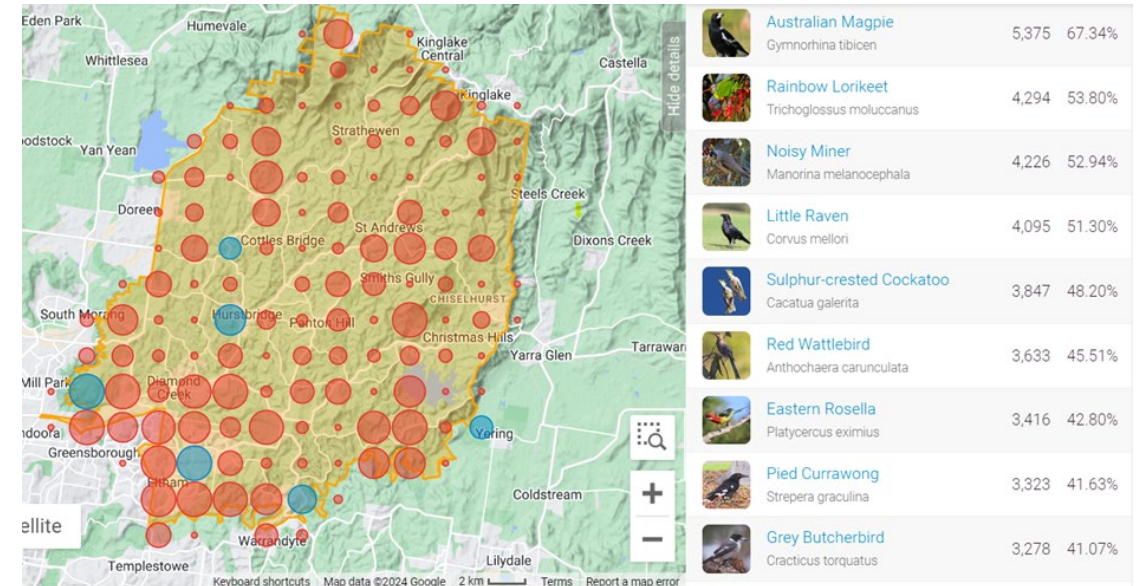
The strategy considers threats and opportunities, seeks to connect people with nature, seeks to enable action that will guide conservation where it is needed most, and recognises that harnessing a collective effort is instrumental.

Source: <https://www.nillumbik.vic.gov.au/Explore/Environment/Nillumbik-Biodiversity-Strategy-2024-2034>

Birds & Biodiversity special Considerations

Birds in **Nillumbik** as an indicator of broader ecological health

- 235 species
- 68% woodland species
- 5% introduced species
- 27% waterbird or grassland bird species
- Mix of common to **endangered** species



birddata.birdlife.org.au –

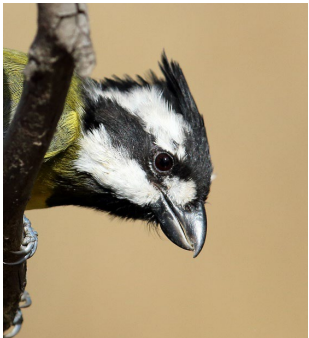
Nillumbik has **RICH BIRD BIODIVERSITY** for Melbourne peri-urban setting but this is **UNDER THREAT**.

All images and Data supplied: Birdlife Australia (Caroline Wilson)



Birds & Biodiversity special Considerations

19 declining or endangered woodland birds in Nillumbik



- Gang Gang cockatoo
- Barking Owl
- Swift Parrot
- Varied Sitella
- Crested Shrike-tit
- Flame Robin
- Brown-headed honeyeater
- Bassian Thrush
- Painted Button-quail
- Red-capped Robin
- Jacky Winter
- Brown treecreeper
- Scarlet Robin
- Dusky Woodswallow
- Spotted Quail-thrush
- Restless Flycatcher
- Little Lorikeet
- Purple-crowned Lorikeet
- Fuscous Honeyeater

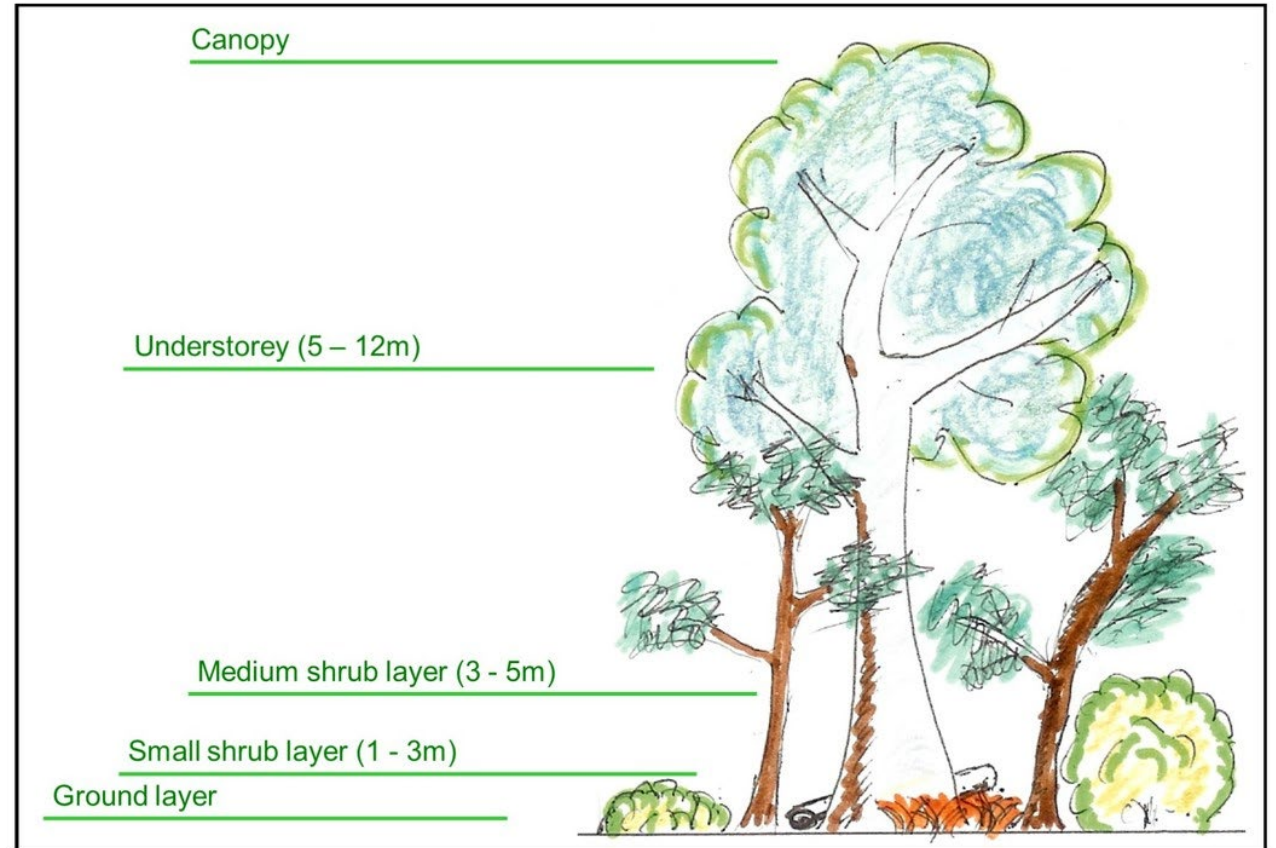
Birds & Biodiversity special Considerations

Declining Woodland Species **need our immediate help**

Protect/create temperate woodlands

- Consider **structural diversity**
- Include **trees, shrubs and groundcover**
- Retain/include **coarse woody debris & leaf litter**
- Require **nesting hollows**
- Consider **species diversity**
- Different **flowering times**
- Not too many nectar-rich flowering shrubs

Protect and plant around large remnant trees



recreatingthecountry.com.au/

INTRODUCTION



MY IMPLEMENTATION PROPOSALS

1. Nature Strip Gardening Guidelines
2. Rural Greening Project
3. Roadside maintenance program integrating Biodiversity

INTRODUCTION



WHY ROADSIDES? WHY COUNCIL?

Take the lead in implementing change (**leadership**)

Scope to hugely improve wildlife corridors (**habitat connectivity**)

Model successful landscape & habitat restoration (**inspiration**)

1. Nature strip Gardening Guidelines

Rationale

58. Actions affecting Council Land

A person must not, without a *permit*:

- a) destroy, deface, damage or interfere with any *Council Land*; or
- b) occupy or fence off any part of the *Council Land*; or
- c) construct landscaping works or retaining walls on *Council Land*; or
- d) erect a hoarding or overhead protective awning on *Council Land*; or
- e) use a mobile crane or travel tower or other equipment or machinery on *Council Land*; or
- f) make a hole or excavation or reinstate a hole or excavation on *Council Land*; or
- g) leave or place any building material or equipment on *Council Land*; or
- h) leave any *waste* or debris or any other thing on *Council Land*; or
- i) plant any tree or other vegetation on *Council Land*; or
- j) remove or damage any tree or vegetation on *Council Land*.

Nillumbik General Local Laws.

Source: Nillumbik council direct communication to author, 9/10/2024

Move from
permits to guidelines

- Nature strips represent a largely untapped opportunity for biodiversity and nature
- Currently many planted but they are problematic – unwittingly in breach of local law
- An ideal context for improved habitat complexity to prevent extinctions

See also: Facebook, Sarah Hunter 5/10/2024 <https://www.facebook.com/share/p/1GRwKxf1U/>

Nature strip Gardening Guidelines

Win-win approach for council


The strategy will help to ensure that:

Goal 1: The biodiversity of Nillumbik is healthy

Target: Achieve a net gain in the overall extent, connectivity and condition of habitat by 2034


Goal 2: Nillumbik's community values and cares for nature

Target: That 70% of Nillumbik residents care for nature by 2034

- 
- Increased planting area
 - Improved complexity
 - Better understorey

Cost Saving \$\$\$

- Landowners spend directly on revegetation
- Council's only \$ input is education & support.

- 
- Direct engagement through self planning/planting
 - Wonder as plants grow and birds and fauna arrive
 - Place love and love for nature

Nature strip Gardening Guidelines

Policy Precedent

City of Moonee Valley & Others

Nature Strip Landscaping Guidelines

Did you know you can personalise your nature strip with your own plants? We recently adopted a Nature Strip Landscaping Guidelines, so you can makeover your nature strip with grasses, shrubs, ground covers or even raised planter boxes.

Need some tips on what to plant? Read our [Wildlife friendly gardening guide](#) (pdf, 6MB).

Council has adopted the Nature Strip Guidelines which gives residents the chance to personalise their nature strips by choosing their own plants.

Read [Nature Strip Landscaping Guidelines](#) (pdf, 371 KB)

Guidelines

Plants for Nature Strip Landscaping

Property owners and/or tenants can plant the nature strip abutting their property with a range of groundcover plants, shrubs and grasses. Here is a list of some low growing local plants to consider and plants that are not suitable.

You will have to do your own research to make sure the plants you choose are suitable for you.

Recommended plants for Nature Strip Landscaping

The following plants are recommended for Nature Strip Landscaping.

The origin indicates if the plants are from across Australia (Native), or plants from Victoria (Indigenous), or plants from overseas (Exotic).

Ground covers

Will remain low and often self-seed. May need to be trimmed back from covering paths and gutters.

Common Name	Botanical Name	Plant Height	Origin	Notes
Creeping Bossiaea	Bossiaea prostrata	5cm	Indigenous	Shrub with delicate, long trailing stems. Yellow pea flowers in spring and summer followed by small seed pods. Seeds are food source for birds.
Running Postman	Kanndia prostrata	10cm	Indigenous	Trailing evergreen. Red pea flowers in spring, summer, and winter. Flowers are followed by seed pods. Beneficial for caterpillars, butterflies, and beneficial insects.
Creeping Boobialla	Myoporum parvifolium	10cm	Indigenous	Prostrate shrub, spreads from central stem. White flowers in spring and summer. Available in several varieties. Beneficial for bees, nectar eating birds, butterflies, and beneficial insects.

Plants for Nature Strip Landscaping

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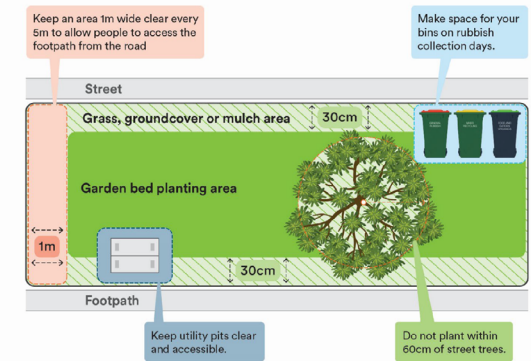
Wildlife-friendly gardening

Creating spaces for native plants and animals in Moonee Valley



Guidelines

Figure 1 – Planting requirements



Other considerations for planting:

- Council has [Nature Strip Landscaping Suitable Plants](#) guidance for further advice on what species are preferred and what to avoid.
- Plants with spikes or prickles, or plants considered noxious weeds, cannot be used.
- Soil contamination (e.g. lead) is a common problem in urban areas. Property owners and/or tenants are advised to test their nature strip before growing food plants.
- Property owners and/or tenants cannot plant trees on nature strips. If the nature strip does not have a street tree and the property owner would like one, they need to contact Council so it can be considered. Council is responsible for planting and maintaining street trees. These trees are carefully selected to provide habitat for native fauna as well as shade. Property owners and/or tenants can help the street tree flourish by watering it regularly. Only Council can remove or prune street trees.

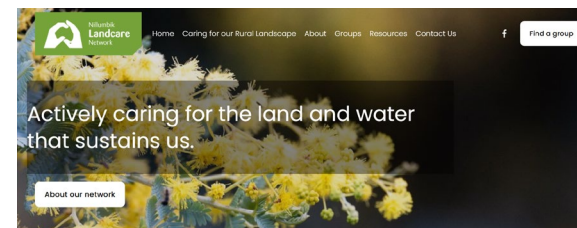
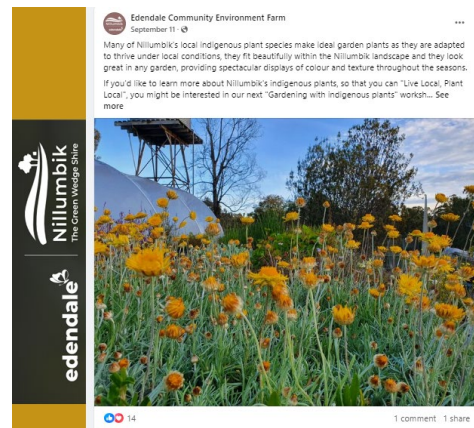
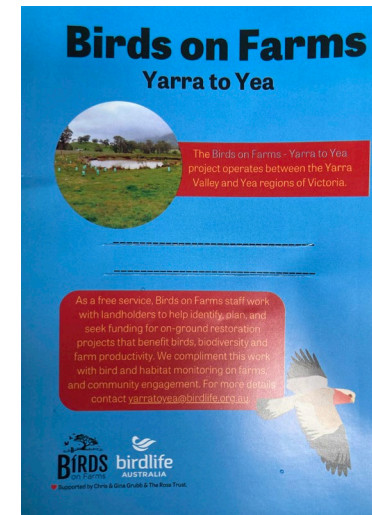
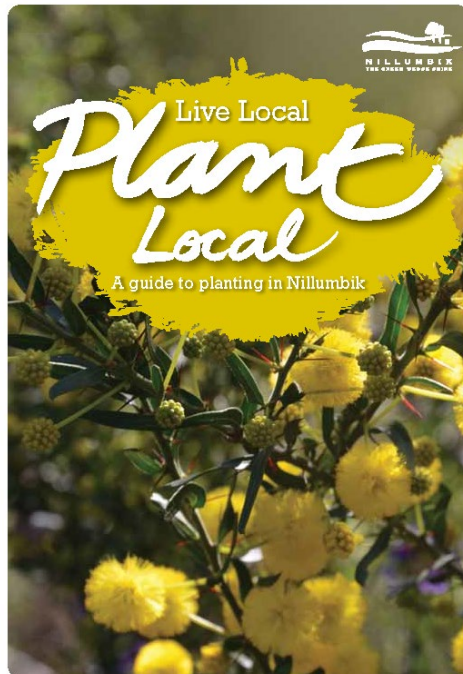
Organic mulch

Mulches derived from organic materials can be used as part of landscaped nature strips to support plant growth by protecting soil, reducing moisture loss and suppressing weeds.

Nature strip Gardening Guidelines

Engaging with Community

Fits with local policy, practice, programs



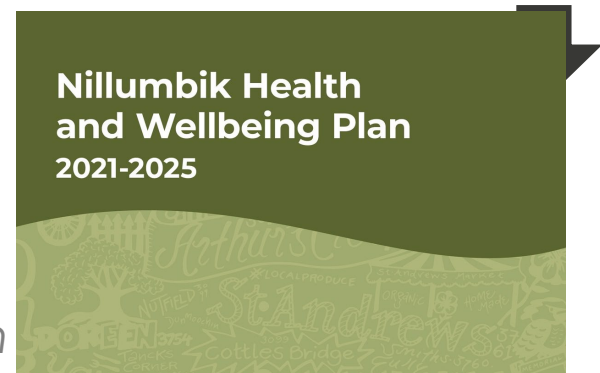
Council + local not-for-profits offer education, inspiration, information & indigenous plants

Nature strip Gardening Guidelines

Benefits

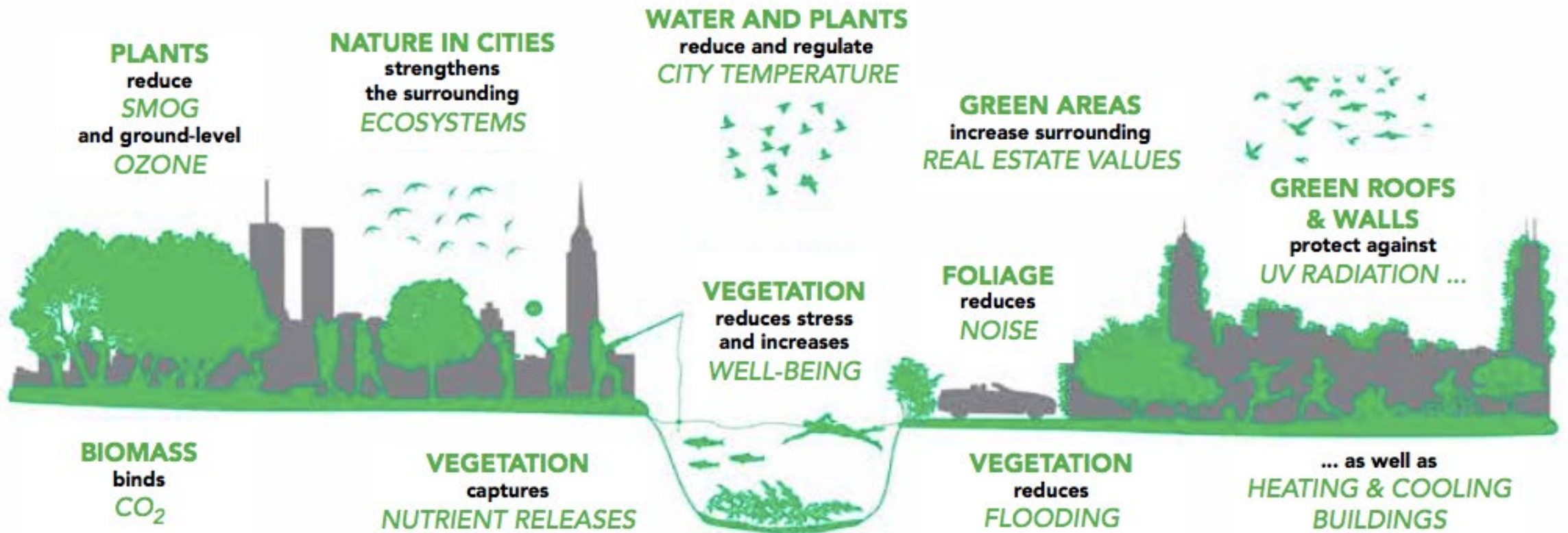
When planted with a garden, nature strips can:

- Improve biodiversity & complexity, preventing extinction
- Improve permeability preventing floods
- Reduce the urban heat island effect through transpiration & shade
- Contribute to streetscape attractiveness by being lovely & 'alive'
- Provide opportunities to meet community and build connection
- Provide activity through gardening supporting mental & physical health



Nature strip Gardening Guidelines

Benefits (ecosystem services)



"Urban Ecosystem Services"

Source: <https://www.cocity.se/om-oss/urban-ecosystem-services/>

Nature strip Gardening Guidelines

Fire Considerations

Much of Nillumbik is fire prone

- i. Scheme will provide advice and information about appropriate **plant selections**
 - i. ***Fire resistant and Fire retardant vegetation***
- ii. Scheme to support **planting design** which reduces fire risk
 - i. ***Safety barrier to ember attack***
 - ii. ***Wind attenuation, slowing high wind, reducing moisture loss***
 - iii. ***Shade/cooling/moisture impacts reduce chance of ignition***
 - iv. ***Physical barrier to radiant heat***

Nature strip Gardening Guidelines

High fire risk area: **PLANT SELECTION**

Fire Safe Plant selection guidance is **important** & **available**:

- **Plants for Fire Risk Areas** (Australian National Plants Society)
<https://anpsa.org.au/plant-guides/plants-for-fire-risk-areas/>
- **Fire Resistant and retardant Plants** (Australian Plants Society (Victoria))
<https://apsvic.org.au/fire-resistant-and-retardant-plants/>
- **The Complete Bushfire Safety Book**. Joan Webster.
<https://ebooks.publish.csiro.au/content/essential-bushfire-safety-tips>
- **Firewise Shelterbelt brochure** Lakes Entrance Community Landcare
<https://lakesentrancelandcare.com.au/wp-content/uploads/2021/10/SHELTERBELT-design-Green-Fire-Walls.pdf>
- **Lakes Entrance Community Landcare Green Fire Walls Project**
<https://lakesentrancelandcare.com.au/>
- **Landscaping for bushfire prone areas** Victoria Dept of Education
<https://www.education.vic.gov.au/Documents/school/principals/infrastructure/bfpronelandsc.pdf>
- **Landscaping for Bushfire - Garden Design and Plant Selection** CFA Vic
<http://www.cfa.vic.gov.au/plan-prepare/how-to-prepare-your-property/landscaping>
- **Bushfire Safety Blog** Joan Webster OAM
<https://joanwebsterauthor.wordpress.com/my-bushfire-safety-background/>

GREEN FIRE-WALLS
FIREWISE SHELTERBELT DESIGN

Lakes Entrance Community Landcare

FIRE-WISE NATIVE PLANTS OF EAST GIPPSLAND:

TALL TREES	MEDIUM TREES	SHRUBS
<i>Acacia dealbata</i> Silver wattle 8 - 30m <i>Acacia melanoxylon</i> Blackwood 6 - 30m <i>Acmena smithii</i> Lilly pilli 8 - 30m <i>Brachychiton populneus</i> Kurrajong 5 - 15m <i>Elaeocarpus reticulatis</i> Blue olive berry 4 - 10m	<i>Bursaria spinosa</i> Sweet bursaria 1 - 8m <i>Ficus coronata</i> Sandpaper fig 5 - 12m <i>Myoporum insulare</i> Boobialla 1 - 6m <i>Myrsine howittiana</i> Muttonwood 3 - 10m <i>Pomaderris aspera</i> Hazel pomaderris 3 - 8m <i>Tristaniopsis laurina</i> Kanooka 5 - 20m	<i>Adriana glabrata</i> Eastern bitter bush <i>Beyeria lasiocarpa</i> Wallaby bush <i>Correa alba</i> White correa <i>Correa reflexa</i> Native fuchsia <i>Dodonea viscosa</i> Sticky hopbush <i>Goodenia ovata</i> Hop Goodenia <i>Hakea eriantha</i> Tree hakea <i>Indigofera australis</i> Austral Indigo <i>Lasiopetalum macrophyllum</i> Shrubby Velvet Bush <i>Lomatia myricoides</i> River Lomatia <i>Melicytus dentata</i> Tree violet <i>Solanum laciniatum</i> Kangaroo apple
SALT BUSHES	STRAPPY PLANTS	
<i>Atriplex species</i> Salt bushes <i>Einadia nutans</i> Nodding saltbush <i>Rhagodia candolleana</i> Sea berry saltbush <i>Tetragonia tetragonoides</i> Warrigal greens	<i>Carex species</i> Sedges <i>Dianella species</i> Flax lilies <i>Ficinia nodosa</i> Knobby club-rush <i>Juncus species</i> Rushes <i>Lomandra species</i> Matt-rushes	
SUCCULENTS	LAWN/GRASS	GROUNDCOVERS
<i>Carpobrotus rossii</i> Native pigface <i>Disphyma crassifolium</i> Rounded noon-flower	<i>Microlaena stipoides</i> Weeping grass	<i>Dichondra repens</i> Kidney weed <i>Scaevola species</i> Fan flowers <i>Viola hederaceae</i> Ivy leaf violet

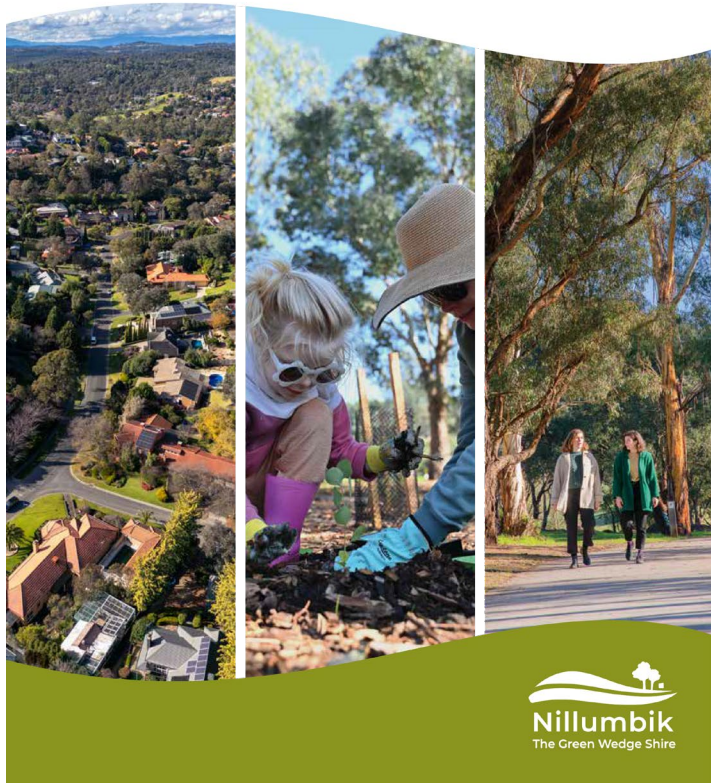
IMPORTANT: This list was compiled after cross-checking multiple sources, interviewing native plant specialists, fire-fighters and fire-affected individuals. But NO plant is fireproof and can burn given extreme heat. Always follow official advice and leave early if instructed.

Source: Firewise Shelterbelt brochure Lakes Entrance Community Landcare. See link on left.

See also “Design” slide in Rural Greening project slides:

2. Rural Greening Project Rationale

Nillumbik Urban Tree Canopy Strategy 2024-2040



Nillumbik Rural Tree Planting Strategy 2025-2040

- Policy **rural sister** of the existing Urban **Tree Canopy Strategy**
- **Rural roadsides are declining.** No replacement planting occurs.
- Natural values, beauty & biodiversity represent **a tangible asset** of 'The Green Wedge Shire'. Requires care & investment.
- Ideal opportunity for climate & **bushfire mitigation**.
- Chance for council to **demonstrate leadership** & **inspire**.

Rural Greening Project

Win-win approach for council

The strategy will help to ensure that:

Goal 1: The biodiversity of Nillumbik is healthy

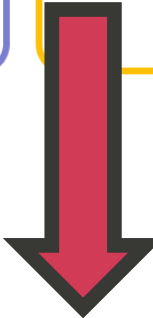
Target: Achieve a net gain in the overall extent, connectivity and condition of habitat by 2034

Goal 2: Nillumbik's community values and cares for nature

Target: That 70% of Nillumbik residents care for nature by 2034

Provision of council leadership (& project success) will encourage private planting (amplifying initial impact)

- 
- Re-establish wildlife corridors
 - Increased habitat provision, species diversity
 - Shading, leaf respiration mitigate extreme weather conditions

- 
- EOI approach leads to sense of ownership, valuing of nature
 - Colonisation of street trees by birds, insects, amphibians & mammals will support learning, place love, and care for nature
 - Architectural scale of trees transforms place and generates awe, sense of wonder

Rural Greening Project

Contributing to Fire Safety

PILOT Program (2 years)

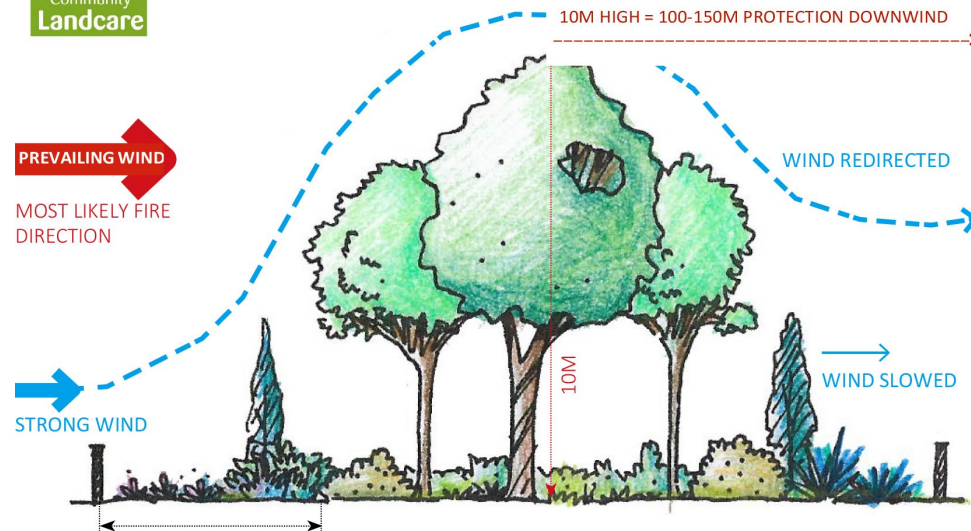
- i. Scheme to utilise only **Fire resistant** and **Fire retardant tree species**
- ii. Scheme uses **planting design** to reduce fire risk
 - i. *Trees provides wind attenuation directing wind up, over roads & houses*
 - i. In combination with a careful nature strip and in-property design can offer increased protection
 - ii. *Trees offer barrier to reduce ember ingress into properties, houses*
 - iii. *Shade/cooling impacts increase localised moisture content, reduce chance of ignition*
 - iv. *Trees act as physical barrier to radiant heat*

Rural Greening Project Contributing to Fire Safety (Design)

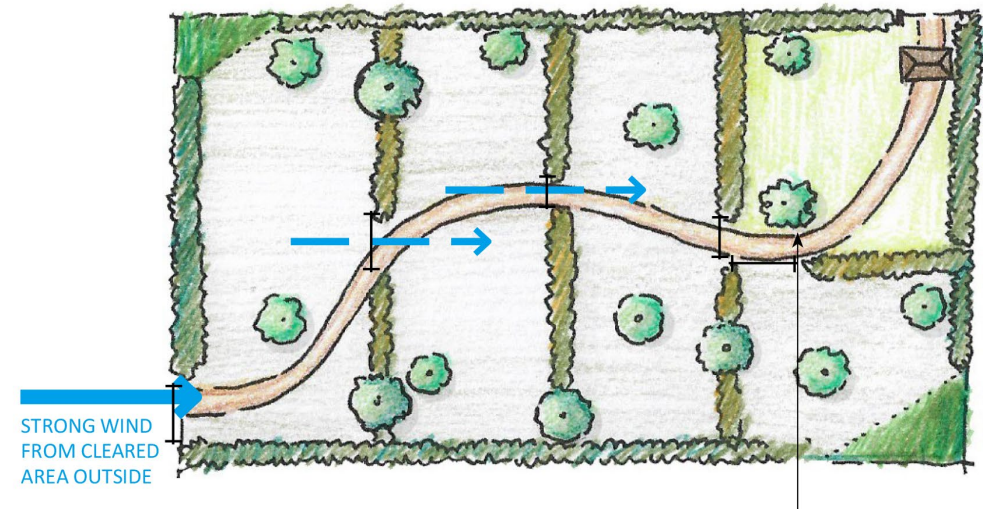
Planting can provide **protection** as a spatial feature and landscape element



GREEN FIRE-WALLS



FIRE-WISE SHELTERBELT DESIGN



GREEN FIRE-WALLS CAN CUT-OFF OR SLOW DOWN FIRES RACING ACROSS FARMLAND

Fire-wise shelterbelts... shade the ground, lowering the temperature and helping to retain moisture, thus lowering the chances of fire ignition.

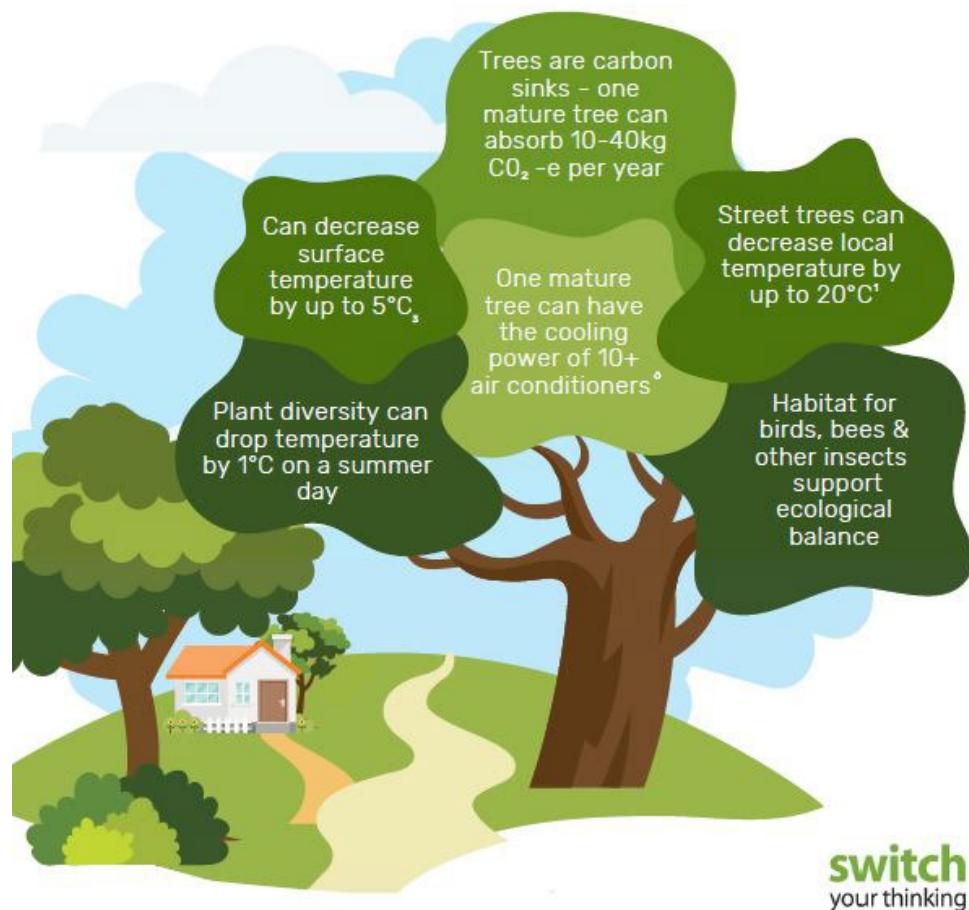
Fire-wise trees can reduce wind speed and trap embers and sparks carried by the wind.

Fire-wise ground covers such as succulents and salt bushes can catch burning embers without catching fire, slowing its travel through grassland.

"Correctly selected and located trees can reduce wind speed, absorb radiant heat, and filter embers". CFA, Landscaping for Bushfire www.cfa.vic.gov.au

Rural Greening Project

Additional community benefits



Multiple benefits of tree program include:

- Improve **fire safety** by reducing wind, suppressing embers, increasing ambient moisture
- Major **Carbon Offsetting** opportunity for council
- Local **climate mitigation** (extreme heat = biodiversity threat)
- Improve flood resilience & shade provision (**protect road assets**)
- Roads **better support recreation** eg cycling, riding, walking through improved quality & summer comfort
- Visually maintains/re-establishes **character & identity** of Nillumbik green wedge

Rural Greening Project

Green Wedge Property Benefits



Multiple benefits of street tree scheme to rural landholders:

- Street trees as shelterbelt benefit adjacent farming properties
 - Reduce windspeed & windchill
 - Boost pasture production up to 8%
 - Increase livestock weight gain over 20%
 - Reduce pest insect populations eg red legged earth mite
- Street Trees as habitat link benefit wildlife properties
 - Provide habitat link across landscapes. Connected planting support more species
 - Improved critical mass of planting for plant establishment on-property and biodiverse species habitat
- Street trees Increase property values and desirability
- Personal benefits of climate mitigation eg reduced local summer temperatures, lowered utility bills and increased comfort during heatwaves.

Source: <https://www.sustainablefarms.org.au/on-the-farm/shelterbelts/>

Rural Greening Project

Example Species



Acacia melanoxylon

Blackwood
Indigenous
Considered **fire retardant**, valuable
habitat tree, long lived



Acacia dealbata

Silver wattle
Indigenous
Considered highly **fire retardant**, valuable
habitat tree



Eucalyptus pauciflora

Snowgum
Indigenous (northern Nillumbik)
Low in Eucalyptol (**lower fire risk**),
Valuable **habitat tree**

Rural Greening Project

Expression of Interest



**Expression of
interest (EOI)**

**Nillumbik Shire
Rural Greening
Program**

Council is running a rural greening project **PILOT Program** for the next two years.

If you would like council to plant street trees in your nature strip, please complete the survey attached

My nature strip is

- ☐ without trees
- ☐ In need of infill planting

I am interested in any or all of the following species:

- ☐ *Acacia melanoxylon* Blackwood
- ☐ *Eucalyptus pauciflora* Snowgum
- ☐ *Acacia dealbata* Silver Wattle
- ☐ *Bursaria spinosa* Sweet Bursaria

Indicative Expression of Interest Form

3. Roadside maintenance program integrating Biodiversity Rationale

- Maintenance practices often ignore **habitat needs**
- **Complexity** (essential habitat) is often **inadvertently "cleaned up"**
- Maintenance **preserving biodiversity** is cheaper, **saves ratepayer funds**.
- **Weed spreading actions** (eg excavation) often done w/out recognition.
- Council's **leadership in habitat retention** emphasises value of this work
- Chance for council to **demonstrate leadership** & **inspire**.

Decline of natural assets represents an economic, cultural, environmental, and social loss to 'The Green Wedge Shire'.



Roadside maintenance: Standing Dead Trees



Photo: Powerful Owl chick in tree hollow | Ákos Lumnitzer
<https://www.wilderness.org.au/news-events/why-is-it-vital-that-we-preserve-hollow-bearing-trees>

Dead trees are “the” critical site of **tree hollows**

- Over **300 species** of native vertebrate use tree hollows to survive
- Hollows are found in **old & overmature trees** (deteriorating, dying or dead).
- Hollows can take a century or more to develop in woodland trees, **retention of existing** large old trees & middle aged trees is essential
- Some **threatened birds depend on hollows** to breed including the Superb Parrot, Swift Parrot, and Brown Treecreeper. Loss of hollows directly compromises survival
- Large hollows are occupied by **glossy black cockatoos, powerful owls** and **gang gang cockatoos**
- Small hollows provide **breeding space** for small birds like **pardalotes**, marsupials like **phascogales, sugar gliders**

Sources: Gibbons, P & Lindenmayer, D (2002) *Trees hollows and wildlife conservation in Australia* CSIRO Publishing, Collingwood, Victoria

https://www.sustainablefarms.org.au/wp-content/uploads/2021/01/Fallen-timber-and-dead-trees-ONLINE_0.pdf

Birdlife Australia *Bird Friendly Farms* (2024) <https://landcare.nsw.gov.au/groups/murrumbateman-landcare-group/downloadable-publications/bird-friendly-farms-guide-online.pdf/@@download/file/Bird-friendly%20Farms%20Guide-online.pdf>

Roadside maintenance: Fallen Timber



'The Flame Robin is searching for insects in and around fallen timber and stumps
Image (Rhonda Vile). Source Birdlife Australia
Bird Friendly Farms (link below).

Retained fallen timber supports more complex and resilient ecosystems.

- Fallen timber is **a critical habitat for invertebrates** which go on to feed larger animals like brushtailed possums, and treecreeper birds
- Logs are used as nesting and sheltering sites including by echidnas and antechinus
- Logs are an important **basking site for reptiles** such as skinks, and also allow them to **hibernate** during winter.
- **A wide range of animals' social behaviours** depend on logs. Wombats, Brushtail possums, prefer marking and occupation of log-rich landscapes. and by are linked to logs.
- Many **fungi are reliant on decaying logs** to reproduce (survive) and in turn provide food for a biodiverse range of species.
- Logs are an **important moisture source** ('mesic refuge') that permits survival of animals during extreme heat, drought, and fire.

Sources: Claridge, A., Gilmore, A., Michael, D., Lindenmayer, B. D., & Lindenmayer, D. B. (2002). The ecological role of logs in Australian forests and the potential impacts of harvesting intensification on log-using biota. *Pacific Conservation Biology*.

https://www.sustainablefarms.org.au/wp-content/uploads/2021/01/Fallen-timber-and-dead-trees-ONLINE_0.pdf

Birdlife Australia Bird Friendly Farms (2024) <https://landcare.nsw.gov.au/groups/murrumbateman-landcare-group/downloadable-publications/bird-friendly-farms-guide-online.pdf/@download/file/Bird-friendly%20Farms%20Guide-online.pdf>

Roadside maintenance:

How do we retain our biodiversity habitat?



- **Retain standing dead trees**
Providing bird, amphibian, mammal habitat
- **No Grubbing out stumps** *These provide essential habitat for fungi, microbiota & feeding habitat for larger fauna*
- **Maintain complexity** *including logs, rocks & loose materials where appropriate. Do not cut fallen tree parts for firewood.*
- **Replace deceased trees.** *All deceased native trees to have a replacement living tree placed alongside [leave deceased tree standing].*

- ✓ Leadership and advocacy
- ✓ People and partnerships
- ✓ Species and habitat enhancement
- ✓ Mitigating threatening processes and impacts

END

- Additional references
- https://depts.washington.edu/hhwb/Thm_SafeStreets.html
- <https://insideclimatenews.org/news/28082018/urban-heat-island-trees-climate-change-cities-summer-temperature-louisville-kentucky>
- <https://www.icos-cp.eu/event/1267>
- <https://www.sustainablefarms.org.au/on-the-farm/shelterbelts/> (key landholder benefits)
- <https://treenet.org/resource/planning-for-trees-in-urban-environments/>
- [pub-WWF_DEA_Trees-Health_Report_FINAL-03Mar23_3_-compressed](#)
- https://assets.wwf.org.au/image/upload/pub-WWF_DEA_Trees-Health_Report_FINAL-03Mar23_3_-compressed?_a=ATO2Bcc0