Flourishing Life on Church Land

A guide to encourage biodiversity and connection as we steward our church grounds

Anglican Diocese of Auckland

AUCKLAND ANGLICAN RESPONSE TO THE CLIMATE CRISIS

AARCC

Acknowledgements

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Introduction

This resource has been created for the Anglican Diocese of Auckland following synod 2022 where motion 4: Care of Creation – Urban Ngāhere (Forests) was passed. The motion urged a proactive approach and encouraged ministry units to explore ways in which land under their stewardship could be used to enhance native biodiversity.

The information around ecology within this booklet relates specifically to the regions within the diocese – Northland, Auckland and Coromandel.

This guide offers a range of suggestions and ideas for the way we manage our grounds and gardens to encourage biodiversity and connection. There are case studies of ministry units to illustrate some of what is already happening in this area and the potential for further action.

If you'd like information more specific to your context, or if you have any questions, contact the diocesan Sustainability Fieldworker at:
sustainability.fieldworker@aucklandanglican.org.nz

Bishop Ross Bay and the episcopal team tree planting at Matuku Link with diocesan staff 2021. Source: Cathy Bi-Riley

Why is biodiversity important for churches?

Our churches are first and foremost a place of worship and gathering. Throughout the Bible, we read that not only do humans participate in worship, but creation also worships the Creator. Jesus said in Luke 18:40 *"I tell you, if these (people) were silent, the stones would shout out."* Psalm 148 provides a litany of creation worshipping God: *"wild animals and all cattle, small creatures and flying birds… let them praise the name of the Lord."* In our New Zealand Anglican Prayer Book (pg. 63-64) in the Benedicite Aotearoa: *"you kauri and pine, rātā and kōwhai, mosses and ferns: give to our God your thanks and praise."*

Songs of creation throughout the centuries have drawn people towards the Creator. Even before the gospels were preached on Aotearoa's shores, God has been present and the Holy Spirit at work in these lands.

In the 1770s, the dawn chorus of the birds of Aotearoa was described as 'deafening'. Occurring early in the morning before sunrise, botanist Joseph Banks described the dawn chorus in his journal as: *"the most melodious wild music I have ever heard."* [1]

Today, these dawn choruses are seldom heard outside of protected sanctuaries. Aotearoa's vast forests have been cut down, 90 percent of wetland habitats have been drained, and introduced predators such as rats and stoats have exterminated many native species. Today, our threatened species include all of our endemic frogs and land mammals (two bats), more than three quarters of our birds, one third of our reptiles and freshwater fish, and almost all of our giant land snails and wētā species. Nearly 300 of our plant species are also threatened. New Zealand faces a severe biodiversity crisis.

In Genesis 2:15, God took Adam and put him in the Garden of Eden to work it and take care of it. In the beginning, God called human beings to care for the earth upon which we have been placed.

1 https://teara.govt.nz/en/speech/10106/joseph-bankss-journal

Shaping community is one aspect of our diocese's Healthy Church model. We have a responsibility to manage our properties to serve the needs of our ministry and community life. This also includes our land, our grounds, the natural spaces within our stewardship and the other-than-human ecosystems we share our spaces with.

Even churches in highly built up urban or suburban areas support and participate in ecosystems of people, wildlife, plants, waterways, soil, air and sunlight. The decisions we make about the way we look after our properties and grounds impact on natural processes around us that sustain life.

Studies have shown that hearing birdsong and accessing trees and nature can reduce stress and improve mental health. Having good tree cover in an urban area reduces flood risk, improves air and water quality, and helps mitigate the urban heat island effect caused by urban infrastructure.

When we work with the natural processes of our native place and safeguard the integrity of creation, we enhance the wellbeing of all creatures within creation, including the people. The church land can become a space that points people towards Jesus, towards healing and towards the hope for the renewal of all the earth.

Endemic New Zealand coastal copper butterfly (pepe para riki) on a Pōhuehue plant in Auckland. Source: Tim Martin

Getting to know our church grounds – making a plan together

Each church community and its physical landscape is unique. Some churches have a lot of land, some have very little. Some are growing food, some have beautiful established trees and some look after historic cemeteries. Some churches employ a gardener and others have volunteers who look after the grounds. The grounds could hold significance for certain parishioners, neighbours, the local community, creatures and ecosystems.

Knowing the history and stories of our place, being intentional about the way we look after the land within our stewardship, and having a plan that is agreed upon will benefit everyone in the long term. More work at the front end to articulate a vision and a plan can help reduce maintenance and work later on. At the practical level, no one wants to cut down a tree because it was planted too close to buildings, accidentally plant an invasive species or have a compost bin become a nuisance.

Some helpful questions to consider when making a plan for the management of church grounds include:

- What are the church grounds currently being used for?
- Who takes care of the church grounds?
- What are significant/important features of the church grounds?
- How do our church grounds serve the wider community?
- What types of land/soil/habitats/plants/waterways are currently on or close to the property?
- What skills, knowledge and connections in our church or local community could we draw on to help us move forward?
- Who are the mana whenua who looked after and lived in this place prior to European settlement?

The next few sections offer suggestions of where to start and how to involve others in the process of making a plan and taking action to look after church grounds in a way that benefits people and native biodiversity.

Research

Consider how the following people and places can help to find out more about the church grounds. These might be people or organisations you'd like to build a relationship with and involve in the planning process.

- **Groundskeeper/gardeners** can share about the current way the grounds are managed - is there pest control? How regularly are the lawns currently mowed? What is currently being grown in the garden beds? What are the different types of trees and plants on the property?

- **Ministry team/vicar/priest-in-charge** will know who currently uses the church grounds. Is there an existing vision for it? Are there constraints around what activities and changes can be made to the church grounds?

- **Vestry, cemetery committee and long-standing members of the congregation** might know about special features and the history of the grounds – are there specific trees planted in memorial for an event or people? What is the history and significance of the cemetery? What are the current costs for the maintenance of the grounds?

- **Local conservation groups** will know of local conservation projects that the church could get involved with - are there free resources and support available? Some examples: predator-free projects, birdsong projects, Forest and Bird projects or stream restoration etc.

- **Local mana whenua/mātauranga Māori groups** will know the pre-colonial stories and have indigenous knowledge about the local environment – mountains, rivers and biodiversity - is there a marae close by? Does the church have historical links with mana whenua? Does someone in the church have connections to the local iwi or hapū? Are there opportunities to be good treaty partners and work together for the good of the land and the local community?

- **Council websites and regional plans** can provide useful information on notable trees on the property with special protection, information on waterways and flood zones, etc.

Mapping

Having a visual map of the church grounds is helpful as a conversation starter and is an opportunity to take stock of the potential options on the church site and local surroundings. Start with a basic sketch map of the church grounds. You could use Google Maps or Google Earth to provide a starting point. Add basic features such as - buildings, paths, waterways and walls to the map.

Walk around and add to the map - notice different features and land use - lawns, flower beds, food growing areas, concreted area, cemetery, water features, neglected areas, seats, prayer labyrinths etc.

Notice specific trees - their type, circumference, estimated heights and the spread of their branches.

Record any birds, insects and other wildlife you notice.

Organise a guided church grounds walkthrough

It could be helpful to invite someone with good knowledge of plants, local wildlife and ecology to do a walkthrough around the church grounds to identify plants, habitat and opportunities. This could be someone from within the church, or from a local conservation group.

Some councils have designated staff for conservation and environmental education. A Rocha Aotearoa New Zealand has local members in Auckland with good knowledge and expertise in this area to support churches interested in organising a walkthrough.

This could be done after church on a Sunday or on a Saturday morning or afternoon followed by some shared food and conversations with ideas going forward. It would be good to include those actively involved in the management and caretaking of the church grounds.

Involve the community

It is important to take the whole church community on this journey as much as possible. Consider different stakeholders and users of the church and the grounds. Consider ways to engage the whole community:

- Chat through findings from the research and mapping with the vicar/ priest-in-charge/ ministry team/ vestry members/ gardening team.
- Hold a care of creation focused service as an opportunity to share the stories and history of the church grounds, explore the theology and reasons why the church should care about biodiversity.
- Display maps/plans during morning tea after church on a Sunday and invite people to add to it using post-it notes about what they appreciate about the current church grounds, and the hopes for its future.
- Invite the whole congregation to get involved through working bees and/or fundraisers, involve people with helpful skills and knowledge to support the project.
- Connect with local community conservation/environmental organisations to learn about any plans or projects supporting native biodiversity in the area and if there are opportunities to participate/ contribute e.g. pest control programmes, stream planting, etc.

Make a plan

Use the ideas and suggestions in this book and any helpful information from the church and external experts to decide on a plan going forward. Identify easy short-term actions that are doable within the year and some longer-term plans for the next three years.

Start with the low hanging fruit and the areas that people have the most energy to put some time and resources behind.

There are often funding opportunities within local government to access grants with a conservation focus and sometimes local environmental organisations can help provide support, tools and resources.

Links and resources:

Auckland Council – database of Auckland community conservation organisations and resources: tiakitamakimakaurau.nz/

A Rocha Aotearoa New Zealand – Auckland network: arocha.org.nz/practical-action/auckland/

Northland Regional Council – environmental data, local biodiversity and funding opportunities: nrc.govt.nz

Waikato Regional Council – environmental data, local biodiversity and funding opportunities: waikatoregion.govt.nz/

Department of Conservation database of local conservation groups across Aotearoa New Zealand: doc.govt.nz/get-involved/volunteer/groups/

Church celebration for the Care of Creation

There are several days within the church calendar that could be appropriate to incorporate a focus on the care of creation.

- Sunday closest to Earth Day - 22nd of April (incorporate the theme into Eastertide if appropriate)
- Harvest Thanksgiving - Any Sunday not already a Proper Feast Day (readings specific for a Harvest Thanksgiving can be found in the Lectionary)
- Matariki - Sunday in June/July
- A Spring Festival of Praise to the Creator - any Sunday during the spring season
- Season of Creation - 1st of September to 4th of October
- Feast Day of St Francis and Days of Prayer for the Care of Creation - 4th of October and 3rd/5th of October
- The Feast of Christ in All Creation - celebrated anytime between All Saints Day and the first Sunday of Advent

There are plenty of liturgical resources to draw ideas from to create something unique for the context of each faith community.

Anglican Diocese of Auckland Season of Creation Guide: aucklandanglican.org.nz/wp-content/uploads/2022/09/season-of-creation-resource-guide.pdf

A Rocha Aotearoa New Zealand's Eco Church resources: ecochurch.org.nz/resources-by-topic

Strandz NZ - Creation Care resources for Children's Church and Sunday Schools: strandz.org.nz/treasure.html

Green Anglicans - Earth Day Liturgy: greenanglicans.org/earth-day-liturgy/

Matariki Liturgy - Created by Tikanga Pākehā members of the Liturgical Commission: aucklandanglican.org.nz/ministry-resources/matariki-liturgies/

Case Study: St Stephen's Onerahi

St Stephen's Onerahi in Whangārei is a church community with deep local roots. The church is located next to Whangārei airport. The church community participates in Season of Creation and regularly has church service outdoors during this season.

The church grounds are mostly lawn, with scattered indigenous trees such as pōhutukawa, tōtara, pūriri, and an exotic oak tree. There is a vegetable garden, and a Pātaka Kai – community food pantry on the road frontage.

In 2015 the Wai-a-Ariki Food Forest Onerahi-rahi community garden was started on the unused corner of council land across the road from the church. The Wai-a-Ariki stream flows along the boundary of the food forest with the neighbouring airport. Members of St Stephen's have been involved in volunteering at the food forest, and the church frequently hosts volunteers, events and meetings of the food forest project.

Source: Cathy Bi-Riley

While the primary focus of the project is to turn the land into a thriving edible garden, the project has also included planting native trees. Previously the stream flowed through grassland and lacked shade. Planting, so that the stream now flows through a food forest, has significantly improved the habitat value for indigenous wildlife living in and around the stream. The stream now has stabilised banks, shade, and better water quality, and is now home to banded kōkopu and tuna (eels). Rat traps are used throughout the food forest to keep rodents under control.

The biodiversity of the church grounds could be further improved by trialling low mow areas, and plantings of additional indigenous trees, particularly within the large area of lawn on the northeast corner of the site. The swale alongside Whimp Avenue could be planted with native groundcovers and grasses, to improve infiltration during heavy rain events, and to provide more habitat, particularly for indigenous insects and lizards. The biodiversity of the wider church surrounds could be protected and enhanced by the control of pest plants in the adjacent Ormiston Reserve, on the eastern side of Church Street, and the forested gully into which the Wai-a-Ariki Stream flows through to reach the sea.

Simple acts of hospitality to wildlife and people

Making our church grounds more hospitable for native wildlife and for the people in our community first and foremost requires a shift in the way we think about our grounds. Where does our image of an 'ideal' church ground come from? Does it reflect our values, our theology and our stories?

Many church grounds consist of short lawns, a few trees, and garden beds with bare soil and neatly manicured annual flowers and shrubs. Typically, these environments have little biodiversity value for native wildlife and can be quite intensive to maintain. With careful thought, and a shift in our approach to the way we look after our grounds, we can create refuge for indigenous biodiversity in urban and rural landscapes that also create a sense of welcome for people that require minimal ongoing intervention. Consider the places around us with the highest biodiversity value – our national parks and native habitats. There are logs, rocks, moss, lichen, grass, shrubs, trees of varying sizes, and a diversity of habitats and creatures. With God alone as its gardener, nature is aesthetically beautiful, complex, and resilient. There is a sense of the sanctuary of God in wild places that reflect the sentiment of the psalmists (Psalm 19, Psalm 104).

Could we appreciate and invite some of this wild beauty into our church grounds while maintaining the functionality of our grounds?

Below are some simple suggestions and ideas to shift the way we manage our church grounds so they are hospitable for native wildlife and people.

1. Mow the lawn less frequently

Did you know it is estimated that lawns can result in up to four times the CO2 emission than what they can absorb – due to watering, fertilising, and mowing?[2]

Depending on the species in the lawn, consider reducing the frequency of mowing to every 3-4 weeks in the warmer months (October-April inclusive) and 4-6 weeks in the cooler months (May-September inclusive).

Avoid using a catcher to collect the clippings, or if a catcher is used, make sure these are composted on site and not put into the rubbish bin and landfill. In a landfill, lawn clippings decompose without oxygen to produce methane, a harmful greenhouse gas.

Benefits to this mowing approach include:

- Higher flower diversity and abundance in the lawns (e.g. clover, buttercup, dandelion), with increased nectar and pollen supply for beneficial insects.

- Reductions in fossil fuel use and CO2 emission. Compared to a fortnightly mowing regime for the whole year (26 mows per year) the above regime could reduce fossil fuel use by approximately half.

- For historic churches, taller lawns will more closely resemble the historic appearance of the site, prior to the advent of powered mowers.

Frequent and or close (low) mowing minimises the biodiversity values of lawns, and the environmental services they provide (water soakage, carbon storage, filtering overland flows). Conversely, not mowing lawns at all can also result in biodiversity loss, as a few of the most vigorous species can take over and dominate.

If public perception about reduced mowing is a concern, consider trialling this approach in a less used part of the church grounds and communicating the benefits to the community with signage and notices. It may also be appropriate to maintain fortnightly mowing along higher use 'path' areas to keep easy foot access.

Links for additional information:
Going Low Mow:
aucklandbotanicgardens.co.nz/science/research/articles/going-low-mow/

Meadows and Sustainable Gardening:
stuff.co.nz/life-style/homed/garden/98308361/meadows-the-next-big-thing-in-sustainable-gardening

2 https://www.onlynaturalenergy.com/grass-lawns-are-an-ecological-catastrophe/

2. The importance of logs, stumps, and leaf litter

Many urban areas lack dead and decaying plant material. These are a critical part of the habitat requirements for wildlife such as beetles, lizards (skinks and geckos), and birds. Tree stumps and logs are often taken off site (or turned into mulch). Garden beds are often maintained as bare soil.

Intentionally keeping these materials on-site as part of gardens create important habitats for indigenous biodiversity, and retains the services these species provide (e.g. insect pest control, pollination). This additional cover will provide some protection from predators (such as cats and rats) for our indigenous lizards, such as copper skink and ornate skink.

One option could be to place logs and leaf litter out of sight under a dense ground layer of groundcovers and shrubs, or in a less used corner of the grounds. Alternatively, designate a space as a 'lizard garden' with strategically and aesthetically placed logs, stumps, rocks, and leaf litter.

Next time some tree work is done, work out where logs and/or mulch could be kept on site. Don't worry if you don't think you have lizards on the church grounds. If you make the habitat, they will come!

Links for additional information:
Forest and Bird Lizard Friendly Tips: forestandbird.org.nz/resources/how-create-lizard-friendly-garden

Lizard Garden Poster: predatorfreenz.org/stories/create-lizard-friendly-garden/

3. Choose to plant natives from local nurseries

Planting natives will make a huge difference for indigenous biodiversity, including birds, lizards, butterflies, and even pekapeka (native bats). Flowering and fruiting native plants provide food for our indigenous species, and some native trees and shrubs are particularly good at providing nesting or roosting sites for wildlife.

Consider converting an existing flower bed or area of lawn into a native garden and reintroduce indigenous biodiversity into this environment. Even if it is at a small scale, it can still have significant benefits. Generally, aim for multi-layered planting and plant trees and shrubs that will grow to an appropriate height and width for the space. Once the area is established with dense groundcover species, ongoing work will be minimal.

There is more information about what natives to plant in the next section on **Planting and gardening for biodiversity** on page 26.

Auckland rock garden with whekī, rengarenga, wharawhara and other species. Source: Tim Martin

4. Reduce the use of herbicides

There is a saying "nature abhors a vacuum" – referring to the colonisation of any bare space by weedy plant species. Often herbicides are continually used to clear a location of vegetation when a better, more sustainable alternative would be to plant desirable species to "fill the vacuum" and stop the weed growth permanently.

When garden beds have an abundance of bare soil, it will naturally be filled by undesirable species – that is asking for a lot of weeding!

Strategies to reduce the use of herbicides and the task of weeding, include:

- Plant dense groundcovers to shade the soil and prevent establishment of weeds.
- Replace weeds with desirable plants that are also fast growing and hardy (e.g. wildflowers).
- Utilise natural mulch (made from mulched leaves, branches and wood) and apply a layer of 5-10cm in areas where plants are establishing. Pure bark mulch should be used with caution as it could inhibit native species succession. Avoid the use of polythene or plastic weed mat as these will reduce soil health and release plastics into the soil as they break down.
- Not all weeds are invasive or a threat to the local environment. If they can be tolerated where they are, let them grow! Some common weedy species, such as fennel, wild carrot, yarrow, ox-eye daisies, and purple-top vervain have attractive flowers and attract butterflies and other beneficial pollinators.

It may not be possible to completely avoid the use of herbicides, especially when tackling harmful and extremely invasive species, however it is worth considering how the current approach can be shifted to be more organic and wildlife friendly methods.

5. Set up an on-site compost

Establishing an on-site compost bin can be a simple yet effective way to turn organic waste into a resource. Material that can be safely composted include food scraps, garden waste, lawn clippings, and waste cardboard and paper. The simple act of church users separating compostable waste from non-compostable also facilitates understanding of the waste we produce, and how we can deal with it in sustainable ways. Composting also reduces the emission of greenhouse gases.

There are a variety of compost bin options to consider that can suit different situations and gardens. Some churches establish community composts that accept food waste from neighbours. The compost made on site can be returned to the garden beds, reducing the cost of purchasing fertiliser and commercial compost.

Links for additional information:
Compost Collective:
compostcollective.org.nz/

Compost Collective and Community Composts: compostcollective.org.nz/find-a-community-composting-hub/

6. Create signage and provide inviting spaces for people

The outdoor spaces of our church can be an expression of our faith and our worship as much as our indoor spaces. Church grounds are visible and may be used during the week by people, who may or may not come to church on a Sunday. Church grounds can offer a place for relaxation, contemplation, prayer, or to connect with friends. With a little creativity we can use these spaces to point people to God our Creator.

Sharing the value of care of creation and the story of the church grounds can create a sense of belonging for those who are part of the church community and local neighbours. If there are significant trees or gardens, consider providing signs and information about them. You may like to create a sense of welcome for people to the church grounds by providing bench seats, prayer labyrinths or a quiet prayer station or reflection space.

Consider creating DIY signs using recycled timber for wild gardens, lizard gardens, community gardens, low-mow areas, memorial gardens etc. These signs can communicate welcome, our approach to creation care, prayers, thanksgiving for nature, and the features of particular trees and plants. You may be able to collaborate with your local Men's Shed, or Community hed, or find someone within the church community who is creative and handy to help. It could also be a fun intergenerational activity, or be part of a working bee.

Links for additional information:
Quiet Garden movement:
quietgarden.org/

Psalm 23 garden: biblesociety.org.uk/get-involved/psalm-23-garden/

Source: Cathy Bi-Riley

Case Study – St Matthew-in-the-City, Auckland CBD

St Matthew-in-the-City is an inner-city church in the heart of Auckland CBD. There are small sections of grass and gardens beside and behind the church with a range of trees and shrubs. In 2015, an organic community garden was set up with a mixture of edibles, natives and exotic plantings. The garden follows food forest principles which mimic established forests, emphasizing multi-layered planting with plants present on site ranging from large trees (10m+), small trees, shrubs, perennials, climbers, groundcover plants and tubers. The garden itself is densely planted with high diversity (over 40 species) and avoids large areas of exposed soil.

When the garden was first planted, the soil was heavy clay and had little organic matter. Over time, the garden has been added to and expanded upon to become a small diverse food forest in the heart of the city, displacing previously unused lawn.

Tūī and pīwakawaka (fantail) are regularly seen in this inner-city garden as there are plenty of food sources from native plants. Now, this garden has a rich soil, sustaining a diversity of plant and insect life.

Maintenance on the grounds is largely done by volunteer time, approximately 5 hours a week, depending on the season. The garden is in a high foot traffic area and serves as a welcoming space for locals and passers-by. Food grown in the garden is shared in a community pantry.

In 2022, the Federal St Community Compost was set up on-site in collaboration with Auckland City Mission, Compost Collective and Auckland Council. This compost services the residents of Auckland City Mission as well as 50+ local neighbours who drop off their compost.

For an inner-city church such as St Matthew-in-the-City, mowing is still needed as there are lawns alongside the building. Ongoing tree maintenance and mulching around roots is also needed to maintain tree health. Logs and other woody debris are kept onsite in certain parts of the garden to encourage beneficial insects and indigenous skinks. Ongoing pest control, targeting rats, improves habitat value of the site for native biodiversity. Installation of nest boxes in trees suitable for ruru (morepork) could encourage this native owl to use the site, as ruru are known to occur in parks in central Auckland.

Planting and gardening for biodiversity

Where possible and appropriate – choose to plant natives over exotics.

There is a native equivalent for almost every exotic plant, that, if planted instead, will have similar size, shape or form, but have more benefits for indigenous biodiversity. Indigenous plants include trees, shrubs, grasses, herbs, orchids, and epiphytes (plants that grow on trees), and can grow everywhere (sun or shade, wet or dry, sheltered or windy, coastal or inland). Not all exotic species are invasive, and some exotics also provide food and shelter for native wildlife. However, it is important to be aware of invasive species and ensure they are not propagated (see page 50).

Source seedlings and plants from local nurseries who practise eco-sourcing.

Eco-sourcing is the practice of planting native species that have been propagated using seeds from local populations of a particular species. Eco-sourcing not only ensures local genetics in plant populations are protected (as opposed to being mixed up and lost), but also increases plant survival. Plants with local genetics will be better adapted to local conditions such as wind, droughts, salt spray, and soils.

As an example, if you collected mānuka seeds from coastal Northland and planted them in Taupō, the plants might die of frost, and if you collected mānuka from Taupō and planted them in coastal Northland, they might die of the salt spray. Eco-sourcing is also about avoiding garden cultivars, hybrids, or ones with leaf or colour variegation; plants with these traits are typically shorter lived, and higher maintenance as they are more prone to pests and diseases.

Appropriate fruit trees and edible gardens can encourage biodiversity.

Food forests, and avoiding monocultures of one crop, builds the biodiversity of edible species and is beneficial for soil health and the nutritional value of the food produced. Growing food for people and native wildlife can happen side by side in a mutually beneficial way. Consider incorporating flowering and native species along the edges or adjacent to food gardens to attract pollinators and other beneficial species (ruru - morepork, skinks and gecko) that are natural predators for unwanted garden pests.

Choose plants that shelter and provide food sources for native species.

Plants with a dense growth form, such as mingimingi and pōhuehue, provide lizards good shelter from introduced predators. Plants with copious nectar for tūī and other birds include harakeke, karo, and kōwhai. Other plants have abundant or year-round fruit for birds such as pūriri, karamū, māhoe, and tī kōuka.

Native plants and shrubs for the Northern region

(Northland, Auckland, Coromandel)

This is a small selection of native plants that are easy to grow and good for wildlife in the northern North Island. There may be other species appropriate to your area and context. Consider getting in touch with your local native nursery, or conservation organisation for more information. There may be opportunities to get expert support and discounted plants.

Small native grasses and plants for most environments:

Other native plants: Coastal Astelia *(Astelia banksii)*, Knobbly Clubrush *(Ficinia nodosa)*

Speckled sedge *(Carex testacea)*
Source: Tim Martin

Broad-leaved Poa *(Poa anceps)*
Source: iNaturalist © Saryu Mae

Tūrutu - NZ Blue Berry *(Dianella nigra)*
Source: iNaturalist © claire

Mīkoikoi – NZ Iris *(Libertia ixioides)*
Source: iNaturalist © John Barkla

Whararikī - mountain flax *(Phormium cookianum)*
Source: iNaturalist © abz123

Rengarenga lily *(Arthropodium cirrhatum)*
Source: Flickr © scott.zona

(Below)

Low ground covers for partial shade or shade:

Pānakenake *(Pratia angulata)*
Source: iNaturalist © kafito

Creeping Fuchsia *(Fuchsia procumbens)*
Source: iNaturalist © Colin Meurk

(Page 31)

Low ground cover plants for dry spots and full sun:

Tātaraheke - Sand Coprosma *(Coprosma acerosa)*
Source: iNaturalist © Arnim Littek

Horokaka - Ice plant *(Diphysma australe)*
Source: iNaturalist © John Barkla

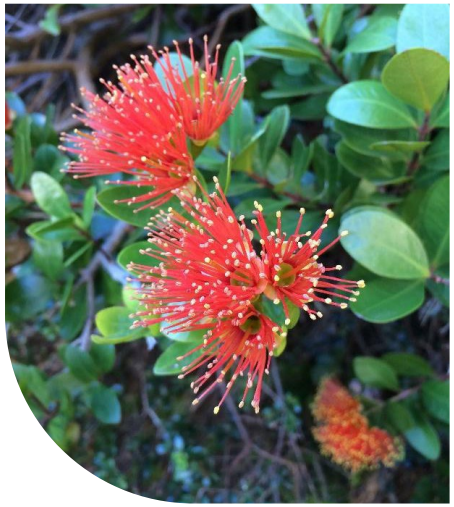
Pukupuku - Rasp Fern *(Doodia media)*
Source: iNaturalist © polyscias099

Pōhuehue *(Muehlenbeckia complexa)*
Source: iNaturalist © kimjones
Note: Pōhuehue is good for difficult to maintain areas and steep banks as it will spread widely.

Native flowering climbers:

Puawānanga *(Clematis paniculata)*
Source: iNaturalist © Jon Sullivan

Kaihua - NZ jasmine *(Parsonsia heterophylla)*
Source: iNaturalist © Michael Berardozzi



Akatawhiwhi - scarlet rātā vine *(Metrosideros fulgens)*
Source: Tim Martin

Akatorotoro - climbing rātā *(Metrosideros perforata)*
Source: iNaturalist © Zac Sanson

Medium-sized shrubs:

Koromiko - hebe species *(Hebe speciosa, H. diosmifolia)*

Source: iNaturalist By Peter de Lange

Up to 1.5 x 1.5 m. Sunny open positions, well drained. Flowers with nectar for insects including butterflies.

Mingimingi/Miki (Coprosma propinqua)

Source: iNaturalist © Lloyd Esler

Up to 2.5 x 2.5 m. Sunny, well drained or wet. Dense interlacing branches, fruit for birds and lizards.

Tāwhiri karo – perching kohukohu *(Pittosporum cornifolium)*

Source: iNaturalist © Jacqui Geux

Up to 2 x 2 m. Sun or partial shade. Flowers with nectar followed by fruit.

Kōwhai ngutu-kākā - Kākābeak *(Clianthus puniceus)*

Source: iNaturalist © watsonl

Up to 2 x 2 m. Full sun, well drained. Spectacular red flowers, nectar for birds. Protect from slugs and snails.

Harakeke *(Phormium tenax)*

Source: iNaturalist © JCVM

Up to 2.5 x 2.5 m. Full sun to partial shade, wet to well drained. Flowers with nectar for birds.

For more information:

Auckland Botanical Gardens: aucklandbotanicgardens.co.nz/garden-advice/plants-for-auckland-brochures/

Kaipātiki Project Nursery for Tāmaki Ecological District: kaipatiki.org.nz/shop/plant-orders/

Forest and Bird – urban Auckland planting guide: forestandbird.org.nz/sites/default/files/2020-04/Native%20Plant%20List_0.pdf

Ngā hau o Māngere Ngāhere planting guide: uru.nz/projects/ngaa-hau-o-maangere-ngahere-planting-guide

Department of Conservation - attracting native birds: doc.govt.nz/get-involved/conservation-activities/attract-birds-to-your-garden/

Northland Natives Plant Guide: nrc.govt.nz/environment/land/biodiversity/biodiversity-resources-and-reports/

Waikato region biodiversity projects: waikatoregion.govt.nz/environment/biodiversity/

Source: Megan Means

Case Study: St Bride's, Mauku

St Bride's, Mauku is a small church in a rural setting, approximately 8 kilometres west of Pukekohe. The church grounds include a historic church building, a church hall, a small cemetery, and an extensive area of mown lawns. Mature trees, both indigenous and exotic, occur around the buildings and along the road frontage. The south-west boundary is formed by the Mauku Stream. To the west of the church grounds, the property borders the Mauku Cemetery.

The Mauku Stream bank was previously covered in scrubs and pine trees. Since 2016, local Whakaupoko Landcare Group has worked with St Bride's Church community and other locals to restore a section of the Mauku stream banks with native planting on both council and church owned land adjacent to where the church building is situated.

This became an opportunity to restore the large section of land around St Bride's previously in pasture to beautify, heal and restore the land so it can be a place of peace. On the church land, a pathway has been planned through the planting to incorporate spaces for contemplation. This restoration project has also led to restoring and forging relationships with local Māori, to share stories, learn and gain perspective.

Existing biodiversity values of this space include the Mauku Stream and adjacent riparian zone, which will support freshwater fish species, and a range of common indigenous bird species that utilise rural habitats, including kōtare (kingfisher), pīwakawaka (fantail), ruru (morepork) pūkeko, tūī, and white-faced heron. Areas with a dense canopy and cover at ground level (e.g. dense grasses, logs, rocks) may support indigenous lizards such as copper skink. The older trees, and in particular the mature English oaks with their tree holes, may provide critical roosting habitat for pekapeka-tou-roa (long-tailed bat). A population of this species was recently confirmed as present in the wider Mauku-Pukekohe area. They are very dependent on suitable roosts for their persistence in this rural habitat.

Key threats to the biodiversity of the site are invasive mammalian predators (including rats and mustelids – stoats, ferrets, weasels), and invasive plants, including periwinkle, tree privet, ivy, and Japanese spindle tree. Ongoing weeding is still required as native plants establish in the planting area. Controlling invasive predators and extending the riparian planting where appropriate would improve the biodiversity value of the site.

Planting and looking after trees

Why are mature trees important?

Established mature trees are very important for indigenous biodiversity, and sometimes exotic trees can also provide critical habitat for indigenous wildlife. Trees typically increase in biodiversity value the older they get, and the most valuable trees are those near the end of their life. For example, an older tree with hollow trunks, tree holes or loose bark, may provide nesting or roosting habitat for birds (e.g. kākā, kōtare (kingfisher), pekapeka (native bats), or forest gecko. Pekapeka are classed as Threatened – Nationally Critical (that's more threatened than the kiwi), and loss of old trees is a key threat to their survival.

Pūriri tree with tree holes that could provide a nesting and roosting site for native species. Source: Tim Martin

Protect mature trees

Mature trees on church grounds must be viewed as a biodiversity asset and protected and retained whenever possible. If a tree is old and starting to decline in health, an arborist should assess the tree to see if careful pruning is an option to remove any dangerous limbs. Felling old trees should be a last resort if the whole tree poses a safety hazard. In some cases, the lifespan of mature trees can also be extended by better management of the drip zone directly under the canopy of old trees. Consider stopping mowing, and applying mulch around the drip zone as this can improve soil and root health.

In areas with known pekapeka populations (including but not limited to Pukekohe-Āwhitu, Clevedon-Hunua, Waitākere foothills, Riverhead, Coromandel, and Northland), an ecologist with specialist skills in bat management should be engaged to assess the risk of the felling of old trees to pekapeka.

Considerations when planting new trees on church ground

Mature trees are a notable and valued feature of many church grounds, but all trees do have a finite life, and new plantings will be needed to ensure mature trees remain in the longer term. As trees are removed, suitable native species should be preferred over exotics as replacements. In some cases, however, replacement with the same species may be more appropriate (e.g., plantings of English oak to replace historic oak trees planted in the mid to late 1800s).

For all plantings, the desired tree size (height and spread) at maturity should be understood and carefully considered. Trees should be planted where they will not infringe on buildings, paths, driveways, or underground infrastructure (pipes), or where they will block sun or desirable views. Planting trees of the right form and size for the site is much better than planting trees that will need frequent pruning and upkeep.

Native trees for the Northern region

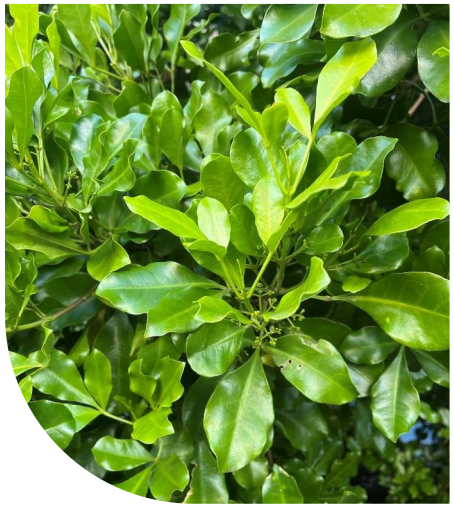
(Northland, Auckland, Coromandel)

The following is a brief list of native trees appropriate for church grounds in the Auckland Diocese. The list is by no means exhaustive but includes visually attractive species of wide environmental tolerance (ie. soil type, exposure), and relatively high biodiversity value (i.e. provision of nectar, fruit, or nesting/ roosting habitat). Trees are grouped by approximate height at maturity.

Small trees (3-5m tall) at maturity:

Horoeka - lancewood *(Pseudopanax crassifolium)*
Source: Tim Martin

Karo *(Pittosporum crassifolium)*
Source: iNaturalist © Wyatt



Wharangi *(Melicope ternata)*
Source: Tim Martin

Mānuka *(Leptospermum scoparium)*
Source: Tim Martin

Medium-sized trees (5-10m tall) at maturity:

Kōwhai *(Sophora chathamica* or *Sophora microphylla)*
Source: iNaturalist © Jacqui Geux

Tī kōuka - cabbage tree *(Cordyline australis)*
Source: iNaturalist © harrylurling

Puahou - five finger *(Pseudopanax arboreus)*
Source: Tim Martin

Kōtukutuku – tree fuchsia *(Fuchsia excorticata)*
Source: iNaturalist © John Barkla

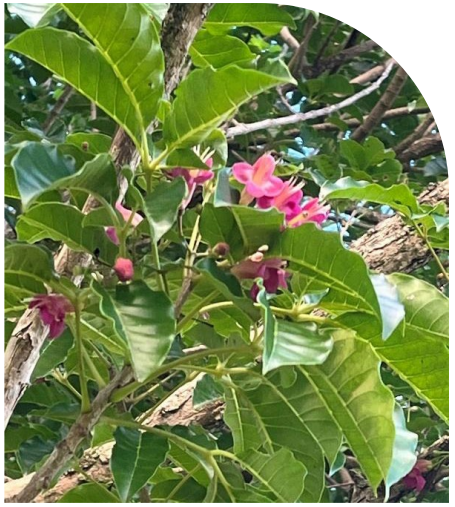
Large trees (10m+ tall) at maturity:

Other tall trees (10m+): tōtara *(Podocarpus totara)*, kauri *(Agathis australis)*, kahikatea *(Dacrycarpus dacrydioides)*, mātai *(Prumnopitys taxifolia)*, mānatu – ribbonwood *(Plagianthus regius)*

Pōhutukawa *(Metrosideros excelsa)*
Source: iNaturalist © whiofan

Kānuka *(Kunzea ericoides)*
Source iNaturalist © Shaun Swanepoel

Tītoki *(Alectryon excelsus)*
Source: Tim Martin



Pūriri *(Vitex lucens)*
Source: Tim Martin

Kohekohe *(Dysoxylum spectabile)*
Source: Tim Martin

Nīkau *(Rhopalostylis sapida)*
Source: Tim Martin

Roosting and nesting boxes

If your church grounds lack mature trees, consider providing habitat for our hole-nesting indigenous species. Nest and roost boxes will encourage these species to use the church grounds, until planted trees have grown to maturity.

Ruru (morepork) are present in many urban and rural areas and are a natural predator of rats and mice. Ruru can be encouraged by installing nest boxes designed for their use.

In areas where pekapeka (native bats) are found, such as Clevedon, Mauku, and West Auckland, consider providing a bat roost. These small bats eat flying insects such as mosquitoes and midges.

DIY – Ruru nest box: wingspan.co.nz/PDF/007-Ruru-Nest-Box.pdf

DIY bat roost box: stuff.co.nz/life-style/homed/garden/112623556/diy-project-bat-roosting-box

To monitor pekapeka: predatorfreenz.org/toolkits/is-your-predator-control-working/how-to-monitor-native-bats/

A stand of tall and narrow native trees including kauri, nīkau, tī kōuka. Source: Tim Martin

Case Study: All Soul's, Clevedon

All Soul's Church, Anglican Parish of Clevedon, is situated on the northeast edge of Clevedon township close to the western banks of the Wairoa River. The grounds are characterised by short and regularly mown lawns, with mature exotic and indigenous trees including Norfolk Island pine, rimu, and kahikatea. Most of the adjacent roadside is a line of trees, including pōhutukawa, tōtara, kānuka, and macrocarpa, over a dense thicket of tree privet and Chinese privet.

The mature trees, both exotic and indigenous, are of biodiversity value for the habitat they provide, including nesting and roosting sites for indigenous birds, and nectar and fruit for birds, insects, and possibly lizards. The church ground is 400m from the Clevedon Scenic Reserve and the Forest and Bird South-East Wildlink. Pekapeka are also known to be present in the Clevedon area. The mature trees at the site, combined with its close proximity to the Wairoa River, means the church grounds may provide roosting habitat for this threatened species.

The church grounds including the local cemetery is looked after by the Ground Grubbers, a voluntary gardening group made up of parishioners. This group overlaps with the church green team and there is hope and aspiration to look after the grounds in a way that improves biodiversity value.

There is a compost bin on site for green waste. In 2022, the group planted a section of fruit trees in the front paddock and worked with Compost Collective to host a composting workshop at the church.

The biodiversity values of the site could be improved by the control of pest plants, particularly privet species. Logs from felled privet trees could be kept on site and left to rot as wildlife habitat. If any old trees have obvious tree holes or flaking bark and are specimen trees (i.e not touching other trees), installing predator exclusion bands on the lower trunk would permanently make the wildlife using these holes safe from mammalian predators.

Source: Cathy Bi-Riley

Managing invasive species (plants and animals)

What are invasive species?

Invasive species are exotic species that can establish in natural ecosystems without human assistance and threaten indigenous biodiversity, often through competition or predation. In Aotearoa, invasive species include many introduced mammals and plants that have arrived on these shores as a result of colonisation and human migration.

Examples of invasive animal species commonly found in church grounds in the Auckland Diocese include ship rats, Norway rats, house mice, possums, hedgehogs, and feral cats. In rural areas, mustelids (stoats, ferrets, weasels) may also be present.

A long list of invasive plant species can be found in church grounds, but some of the more frequent ones include Chinese privet and tree privet *(Ligustrum sinense, L. lucidum)*, agapanthus *(Agapanthus praecox)*, montbretia *(Crocosmia x crocosmiiflora)*, tuber ladder fern *(Nephrolepis cordifolia)*, mothplant *(Araujia sericifera)*, Canary Island date palm or phoenix palm *(Phoenix canariensis)*, periwinkle *(Vinca major)*, bears breeches *(Acanthus mollis)*, and tradescantia *(Tradescantia fluminensis)*.

Why address invasive plants?

Some hold the view that as they live in an urban environment, the invasive plants are not harming places that matter (like areas of native forest). However, this perspective needs to be challenged. As well as preventing the growth of plants of higher habitat value where they are, invasive plants pose an ongoing threat to areas of habitat nearby. Seeds of pest plants that spread via fruit eaten by birds can disperse up to several kilometres away, and plants that spread by spores, like tuber ladder fern, can spread many tens of kilometres in the wind.

What important natural areas, like forested gullies, coastal scrub, or even conservation islands, are found within 5, 10, 50 or 100 kilometres of your church? Removing these invasive plants not only creates opportunities to improve the biodiversity values of the church grounds, but also reduces the threat to areas of critical habitat in your local area.

How to control invasive plants

Control methods for invasive plants are highly varied and must be tailored for the plant in question. Some species can be killed by digging out or cutting down, whereas other species may require the application of herbicide. If the latter, it is still worth it environmentally, as careful management of a short-term risk (i.e. the use of herbicides) can bring a permanent result (the death of the invasive plant and the option to plant something else in its place).

Several websites provide the best methods to control invasive plant species, Examples are:

Auckland Council: tiakitamakimakaurau.nz/protect-and-restore-our-environment/pests-in-auckland/pest-search/

Weed Busters: weedbusters.org.nz/resources/

Common invasive plants to avoid and replace on church grounds:

For more information on replacing common invasive species check out Weedbusters – Plant Me Instead guides for each region: weedbusters.org.nz/resources/plant-me-instead-booklets/

Agapanthus *(Agapanthus praecox)*
Source: Tim Martin.

Harm: Long-lived and prolific seeder that disperses effectively and germinates densely to invade coastal shrublands and prevent growth of indigenous plants.

Plant instead: rengarenga lily *(Arthropodium cirratum)*, tūrutu (NZ blueberry, *Dianella nigra*), NZ Iris *(Libertia ixioides, L. grandifolia)*, gossamer grass *(Anamathele lessoniana)*, whaririki (mountain flax, *Phormium cookianum*)

Periwinkle *(Vinca major)*
Source: iNaturalist © Alexis
Harm: Spreads easily from stem fragments and rhizome. Dense creeping ground cover prevents seedling of native species from establishing.

Plant instead: pānakenake *(Pratia angulata)*, creeping fuchsia *(Fuchsia procumbens)*, pōhuehue *(Muehlenbeckia complexa)*

Chinese privet *(Ligustrum sinense)*
Source: iNaturalist © jessiex47
Harm: Produces many seeds and widely dispersed berries to establish dense stands to invade shrubland and forest.

Plant instead: mānuka *(Leptospermum scoparium)*, kōwhai (*Sophora chathamica* or *S. microphylla* - not *S. tetraptera* which isn't native to the Auckland Diocese), houhere (lacebark: *Hoheria populnea*)

Bear's Breeches *(Acanthus mollis)*
Source: iNaturalist © Ben Zerante

Harm: Spreads rapidly in disturbed ground through seed and root fragment, covering large areas while shading out small native plants in shady environments.

Plant instead: harakeke *(Phormium tenax)*, whaririki *(P. cookianum)*

Monkey apple *(Syzygium smithii)*
Source: Tim Martin

Harm: Long living and produces lots of seeds dispersed by birds (especially pigeons). It grows faster than native trees and forms dense carpet of seedlings to invade forests where there is a gap in bush canopy.

Plant instead: pōhutukawa *(Metrosideros excelsa)*, kānuka *(Kunzea ericoides)*, kōwhai *(Sophora chathamica* or *microphylla)*, tōtara *(Podocarpus totara)*, tītoki *(Alectryon excelsus)*, mānatu - ribbonwood *(Plagianthus regius)*

Invasive animals

Invasive animal species compete with indigenous wildlife for food (e.g. fruit and nectar), and nesting or roosting sites (e.g. tree holes). Some invasive mammal species also kill and eat indigenous wildlife; feral cats, rats, hedgehogs, possums, and mustelids prey on indigenous birds, bats, lizards, and insects. Feral cats, rats and mustelids are major predators of the Critically Threatened pekapeka (native bats). Hedgehogs are a major predator of ground-nesting birds and lizards. Possums, as well as being predators, eat foliage, fruits and flowers of a wide range of plants, and by eating habitually from one or a few trees, can eventually cause the death of native trees over wide areas. Controlling invasive animals increases the breeding success of our indigenous wildlife, reduces competition for scarce resources, and increases the likelihood that we keep native taonga species unique to Aotearoa New Zealand in the long term.

How to control invasive animals

Invasive mammals are present almost everywhere, so even if you haven't seen them, they will be present. Some species such as rats can also do substantial damage to property and should be a top priority to address.

Many community-led invasive pest control programmes have started in recent years. Before starting on pest control, each church should check to see what is already happening in their local area. Combining efforts with adjacent landowners really pays dividends for what can be achieved. Some areas also have free traps, or "trap libraries" from which equipment can be borrowed.

Options for controlling invasive animals

Rats and possums can be effectively controlled using bait stations, without the requirement to regularly check and clear traps. Several poisons are available for public use, but one of the better ones is **Diphacinone**, as it rapidly biodegrades.

For most church grounds, bait stations placed approximately 50m apart (including one close to any building) and baited four times per year, should result in a good knockdown of the rat population. If possums are also present, use of **Philproof** bait stations attached to trees will allow for the control of both possums and rats by the same application methods.

Alternatively, rats, possums, mustelids, and hedgehogs can all be controlled using kill traps. **Timms traps**, baited with a half apple dusted in cinnamon, are effective at controlling possums. **DOC250 traps** are effective for the control of mustelids (ferrets, stoats, rats), and hedgehogs. The DOC250 traps should always be installed inside a box to keep little fingers and other non-target animals safe.

To find more resources and your local neighbourhood community predator control project look on the Predator Free NZ website: predatorfreenz.org/

Connovation is a company that works with Predator Free NZ and provide rat control advice on their website, as well as supplying bait stations and poison to the public: connovation.co.nz/

Caring for God's acre - managing historical cemeteries

Some of our Anglican churches host cemeteries with significant historic value and carry the story of those that have come before us. In the past cemeteries found beside old churches were referred to as God's acre because it is an acre of land given to God and to the remains of people. There is great potential for these spaces to be far more than they typically are on our landscape for both people and wildlife.

Most Anglican historic cemeteries are currently maintained through a regular mowing regime and employ the use of herbicides in hard to mow areas.

Example of indigenous ground orchid Maikuku (Sun Orchid). Source: Tim Martin

They are looked after by volunteers and overseen by cemetery committees and/or the vestry.

Before the advent of mowers, herbicides and pesticides, historical cemeteries were managed very differently. A few times a year the grass was cut by hand or grazed by sheep. At other times, the grass was left to grow, and these spaces were allowed to have a wild appearance. Wildflowers were allowed to flower during the spring and leaf litter was swept off pathways and monuments but kept on site. This aesthetic was accepted and offered a sanctuary for people and wildlife.

Below are some suggestions for an ecological approach to looking after historic cemeteries.

A revised mowing regime can bring multiple benefits as discussed on page 17. If the church ground is on clay heavy soils, a revised mowing regime could see indigenous ground orchids and sundews naturally re-establish in the lawn. Seeds for these species are dust-like and spread a long way in the wind. Grass tends to be less vigorous on clay and therefore provide an opportunity for these native species to naturally establish. Not mowing from September to January inclusive, to allow for flowering and seeding of orchid species, may result in significant biodiversity gains. This approach has been trialled with good results in Auckland at Waikumete Cemetery, Glen Eden and Chalmer's Reserve, Avondale.

Plant wildflowers around gravestones and grave surrounds as an alternative to weeding and regular herbicide use. Wildflowers have the advantage that their annual nature and small root systems mean that their establishment will not result in additional damage to ageing graves. Whilst not indigenous species, the broader environmental benefits include reduced mowing, reduced herbicide use, better habitat for insects, reptiles and birds, and a significant improvement in the aesthetics of the site. Several New Zealand seed companies sell ready-made packets of mixed wildflower seeds that would be appropriate to use.

After living grasses and weeds have been removed, areas of bare soil should be shallowly cultivated to 2-3 cm depth using a rake. Wildflower seeds can then be mixed into a part bucket of sand, and hand cast over areas of bare soil (following the seed packets recommendations for metres of coverage).

Wildflower seeds can also be scattered into larger cracks and gaps in older masonry.

Wildflowers in St Matthias cemetery, Panmure.
Source: Tim Martin

Wildflowers are easiest to establish by sowing in autumn (mid-April-May) for spring and summer flowering, or spring (October-November) for summer and autumn flowering. Germination and establishment will be better if sowing is timed prior to a period of rain (a rainy week with multiple rainfall events, or a significant rainfall event of more than 20 mm are ideal).

Wildflowers established in this manner should persist for a year or two, before resowing may be needed to maintain diversity and or abundance of the desired flowers. Whilst a wildflower approach to maintenance does require some ongoing inputs at most sites, the time required is less than the alternative maintenance regime of hand weeding or use of herbicides.

Before and after photos showing establishment of wildflowers at St Matthias Cemetery, Panmure.
Source: Tim Martin

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