

10 ACTIONS TO CREATE A CLIMATE - WISE GARDEN



Before I outline the ten key actions to make a climate-wise garden, it's important to be aware of what your climate might be like in the future. Don't assume the climate will remain constant.

Your future climate

I started taking action in 2019 after Australia record its driest year on record. I've made five community led native microforests and developed three home microforests and am constantly learning.

Unfortunately 2023 was the world's hottest year on record. Yet, politicians and naysayers continue to argue whether global warming is happening.

It's highly likely, that as well as experiencing more extreme temperatures we will be subjected to more extreme weather events - including droughts, fires, storms and more floods. And while one side of Australia can be in drought the opposite side, thousands of kilometres away, can experience extreme flooding.

As gardeners or would-be-gardeners we can do something about our local micro-climate – we can protect our homes from extremes, provide wildlife habitat, drawdown carbon and create a delightful, cooling home oasis.

Scientists have created climate models to predict what our climate could be like in the future. For example, to estimate what Canberra's future climate might be like I used the Australian Government's Climate Analogue Tool.

<https://www.climatechangeinaustralia.gov.au/en/projections-tools/climate-analogues/analogues-explorer/>

When the year 2050 is selected plus a high emissions level, the tool predicts Canberra's climate is likely to be 2C hotter with 5% less rainfall. It also provides a climate comparison, in this case to the towns of Wagga Wagga and Young. Young is 150 km to the northwest of Canberra and Wagga Wagga is 240 km west.

This tells me that plants that currently thrive in Wagga Wagga and Young are likely to do well in Canberra in the future.

Other tools available include the Climate Council's heat map. It "projects the average number of hot and very hot days, as well as very hot nights, for each suburb by 2050 and 2090, and across three scenarios: *no action*, continuing with *existing action*, and taking *necessary action*."

<https://www.climatecouncil.org.au/resources/heatmap/>

Once you know this information you can set about implementing these ten climate-wise actions at home.



1. Build healthy soil

Healthy soil is the cornerstone of a thriving, climate-wise garden. Rich in organic matter, it supports robust plant growth, retains moisture, and nurtures a diverse ecosystem beneath the surface. Make building and maintaining healthy soil a regular part of your gardening routine by collecting organic materials like kitchen scraps, leaves and grass clippings. By doing so, you'll create a fertile foundation that sustains your garden and contributes to the overall health of the environment.



Check the rules for collection of seaweed in your state. Build collecting free organic resources into everyday activity like walking the dog. Photo: Edwina Robinson.

When building a new garden, improving the soil is essential to creating a thriving oasis that supports you and your loved ones.

Although I move the soil around on site to create level platforms or to intercept water, I reuse all soil and never export it. Nor do I bring in topsoil.

Then, I build collecting organic material into my routine. A morning visit to the beach, is an opportunity to collect seaweed – observing New South Wales Government rules I'm allowed to collect up to 20 litres per day . After a cappuccino at my favourite cafe, I might grab coffee grounds for the garden. And I visit the Moruya showground to collect horse manure, straw and sawdust after horse events.

By adding organics to my soil, I make more nutrients available to plants and improve my soil's water holding capacity. I grow the soil-carbon sponge.

2. Harvest water: treat it as a resource, not a problem

Water is life, and in your garden, every drop counts. By harvesting rainwater and directing it wisely, you can create a lush, thriving garden that needs less extra watering.

Slow the flow, allow it to sink into the ground and spread it across your garden beds to keep your plants hydrated and your outdoor space cool and inviting.



Unlined pond at the Moruya Microforest collects and slow rainwater. Water is allowed to absorb into surrounding soil and water table. Photo: Pete Daniell.

Traditionally many houses instantly pipe away the water that falls onto roofs straight into the stormwater system. This water is diverted into local creeks and drains, where it has a negative impact.

By slowing water in the landscape by using vegetation, permeable paving and soils (that are easy to penetrate) we can help water our vegetation and boost its evaporative cooling qualities.

Sculpt the ground to create frog ponds that capture excess water and absorb into surrounding planted beds. In my home garden, in Moruya, NSW these ponds are a delightful feature and support frogs, dragonflies and native bees.

If you live in a dry climate, I recommend reading Brad Lancaster's books 'Rainwater harvesting for drylands and beyond'.

<https://www.harvestingrainwater.com/>

3. Plant densely

The denser the planting, the greater the cooling and variety.



I began planting my home microforest in 2017. It grew quickly and provides protection from hot western winds and hot sun. Photo: Pete Daniell.

I love to overplant my garden.

My work making Miyawaki microforests has proven, that dense planting combined with great soil preparation and water harvesting creates a super fast growing landscapes.

Typically I plant microforests at three plants per square metre using tubesock (small sized potted plants).

Like nature, I use multiple vegetation layers – groundcovers, climbers, perennials, trees, shrubs and grasses. Not only does this create textural and height interest it's great for the local critters and creates a lush look.

You might choose to create a lush, densely planted part of your garden visible from the house which helps cool your home and is delightful to experience.

4. Grow shade to cool your home

Imagine your home as a cool oasis during the summer heat, thanks to the natural shade provided by carefully selected trees and climbing vines. By growing shade, you not only create a pleasant outdoor space but also reduce energy costs by minimizing the need for air conditioning. Let nature be your eco-friendly air conditioner!



Dense planting in the rainforest gully, Australian National Botanic Gardens significantly reduces air temperature. Photo: Edwina Robinson.

Studies show trees lower surface temperatures by 11-25 C.

In 2019, on a hot January afternoon I measured air temperatures in three locations at the Australian National Botanic Gardens in Canberra.

Location	Air temperature
Asphalt Carpark	37C
Shaded Concrete Concourse	34C
Bottom of Rainforest Gully	26C

Table 1 – Comparison of temperatures at the Australian National Botanic Gardens, Canberra in January 2019

Air temperatures at the bottom of the rainforest gully, constructed over 50 years ago were 11 degrees cooler than the carpark and eight degrees cooler than the concrete concourse. This experiment made me realise it was a combination of three things leading to increased cooling, these were:

1. Dense planting of vegetation – the gully is planted with layers of rainforest plants from southeastern Australia

2. Fabulous soil preparation – the original soil was improved over 50 years by the application of mulch and decomposing layers of leaf litter

3. Application of water – although the rainforest gully originally included a seasonal creek, water is now recirculated along this creekline. Plus irrigation and misting systems are adding to the moist

environment. This means water is available to plants to take it up and transpire, taking heat out of the atmosphere.

If you don't have room to plant trees – consider planting a vine to cover windows that face the hot sun.

5. Attract wildlife with local natives

Invite the wonders of nature into your garden by planting native species that attract birds, bees, butterflies, and other wildlife. Not only will your garden become a delightful sanctuary for local fauna, but you'll be helping protect at risk animals. Create a vibrant ecosystem right in your backyard!



King parrot enjoying Edwina's home native microforest designed to replicate local sand dune vegetation. Photo: Edwina Robinson.

Many gardeners tell me they're keen to attract native birds to their gardens and that they've started planting Grevilleas and Banksias. While their intentions are good, they are favouring one kind of bird – the bossy-boots, Honeyeaters. These birds scare away smaller birds that aren't competing for nectar resources. Examples of Honeyeaters include Wattlebirds and Noisy Miners.

If you want to plant *Grevillea* and *Banksia*, Greening Australia ACT advise to only plant your local species (not the big showy cultivars) and ensure you plant a range of other species for insect and seed-eating birds.

Consider planting a range of different height plants – grasses, groundcovers, climbers, native daisies, bushes and trees. Introduce prickly shrubs, like *Bursaria* and *Hakea* as safe havens for little birds.

A pollinator-friendly garden is one that includes a variety of plants flowering every month. It's okay to mix in some exotic plants too. Culinary plants like Rosemary, are adored by bees.

<https://actforbees.org/grow/>

Consider providing shallow dishes of water for birds and insects.

Many species of native bees can only fly up to 500 metres, so it's important to include some pollinator-friendly plants in every garden. One of my favourite flowers are cheery paper daisies which offer ideal resting spots for native bees.

6. Grow some food

Imagine stepping out your door and picking fresh herbs, vegetables and fruit from your garden. Homegrown, plant-based foods are fresh, healthy, convenient and great for your gut. Reduce your grocery bill and enjoy the unbeatable taste of produce nurtured by you.



Edwina with her garlic crop. Photo: Pete Daniell.

If you've never grown food before, it's good to start off with some easy plants. Parsley is easy to grow from seed and its fresh green leaves chopped over food make meals instantly more appealing. Why pay \$3 for a bunch of herbs swaddled in plastic from your local supermarket?

On our block in Moruya, NSW we try and grow a year's supply of garlic for two. We plant 100 cloves into a raised bed in May and harvest garlic at the end of October. It supplies us with organic garlic for all our savoury dishes.

7. Go organic - say no to herbicides, insecticides and pesticides

Your garden should be a safe haven, not just for plants and wildlife, but for you and your family. By avoiding harmful herbicides, insecticides and pesticides and embracing organic practices, you create a healthier environment for everyone. Plus, you'll save money by using natural, sustainable methods to keep your garden thriving.



Native bees resting in a paper daisy in the herbicide-pesticide-insecticide free Moruya Microforest. Photo: Edwina Robinson

Most of us choose to grow our vegetables and herbs organically, so why spray chemicals on other parts of the garden or pavements? Insect attack and weed invasion are part of the cycle of a garden and can be observed or managed.

Every year my groves of local *Melaleuca ericifolia*, Swamp Paperbark, are devastated by caterpillar hordes. Once they're finished the Paperbarks look dead. Rather than spraying, I now accept they will be defoliated once a year. When the caterpillar cycle is complete the leaves re-emerge and the trees look happy again.

However, running grass like Kikuyu is another matter. This vigorous African grass loves decent rainfall (800mm) and fertile soils. While it makes a robust lawn, in my garden, I t keep on top of it from invading garden beds to reduce competition. I attack the lawn edge with a whipper-snipper to scalp this wayward grass. I combine this managed edge with a dug spade edge to keep an eye on invading Kikuyu runners.

8. Pave less – only pave where you sit, stand and walk

Every square metre of pavement in your garden contributes to heat build up and water runoff. By limiting paved areas to where you need to sit, stand, and walk, you'll reduce the heat in your garden, allow rainwater to replenish groundwater supplies and create a more natural, comfortable environment for people and plants.



In our Moruya home garden we harvest stormwater into this frog pond and use grass (irrigated by rain only), light coloured gravel mulch and mulched garden beds. Photo: Edwina Robinson

Depaving is a movement gaining traction overseas. Landscape Architects, Sorvig and Thomson used the phrase “only pave where you sit, stand and walk” encouraging designers and gardeners to be mindful of using paving wisely.

When I designed my Moruya garden, the only surface used was a light coloured gravel. This creates an informal, naturalistic look.

Compared to paving, gravel is inexpensive, as no skilled labour is required to install it.

Gravel is permeable, so rain soaks into the soil and eventually downslope. It allows plants like *Dichondra repens*, Kidney Weed to self-seed amongst the gravel

Think about your outdoor space - does it have more hard surfaces than necessary? Can some of them be removed and reused? . Can you replace these surfaces with something cooler and more permeable? Broken concrete can be reused in gabion cages for walls or in the base of water harvesting trenches or taken to a specialist concrete recycler.

The less hard surfaces you have in your garden and the more vegetation and permeable surfaces you have the more likely you are to create a cool outdoor space.

Kim Sorvig and J. William Thompson (2018) ‘Sustainable landscape construction – a guide to green building outdoors’ 3rd edition

9. Choose light-coloured materials

Selecting light-coloured materials for your garden's hardscaping, such as paths, patios, and driveways, can make a big difference in reducing heat absorption. Light colours reflect sunlight, keeping your outdoor spaces cooler and more comfortable during hot weather. This simple choice not only improves your garden's climate resilience but also creates a brighter, more inviting environment.



Light coloured gravel lets the water through, is cool and relatively inexpensive compared to other surface treatments.
Photo: Edwina Robinson

Studies by Sebastian Pfautsch, University of Western Sydney show the darker the material, the hotter the surface temperature. If you live in an area likely to experience protracted heatwaves in the future (like Western Sydney) be mindful of the colours of surfaces. Not only do dark bricks, pavers and asphalt get very hot, so do dark natural materials like tan bark and rubber softfall.

So carefully consider the colour of materials and the amount you use.

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10. Reject fake plants – no fake lawn and no fake plants

Plastics have no place in a sustainable garden. Fake lawns and plants may seem low maintenance, but they do nothing for the environment and contribute to pollution. Instead, opt for real plants that support biodiversity, improve air quality, and bring nature into your life. Your garden should be a living, breathing ecosystem, not an artificial one.



Real plants are beautiful, absorb carbon, expire oxygen and provide habitat and cooling. Photo: Edwina Robinson.

Finally, please say no to fake anything. A fake indoor plant provides no benefit to your home or indoor air quality whilst many indoor plants, like Peace Lily are known to suck up nasties in the air.

Fake grass gets very hot in summer and can cause injury to feet. A study of surface temperatures by the CSIRO found the surface of a synthetic oval compared to a nearby irrigated oval was 10C hotter.

A small patch of irrigated and shaded grass will contribute to cooling your home over the hot summer months and provide a haven for you and your loved ones.



Edwina Robinson

Edwina is a Landscape Architect and Microforest Maker and is passionate about climate-wise landscape practices. She is the founder of the social enterprise, The Climate Factory. She shares her knowledge from her experiences making sustainable and climate-friendly landscapes on Thinkific.



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