Creating Your Eco-Friendly Garden

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INTRODUCTION

The time had come to sell our 40 acre property with its extensive food, native and cottage-type gardens, all developed using organic methods. We had made the decision to move to the country in search of a self-sufficient lifestyle 24 years earlier. We built our own house, kept livestock, grew and preserved much of our food, spun and knitted the fleeces from our flock of coloured sheep, revegetated areas of the property and became adept at numerous other skills of country living. But most of all we gardened. Building on a fascination with native plants and the knowledge gained in a previous garden, we transformed a house paddock of waist-high bracken and rocky infertile soil into a productive, high-biodiversity oasis.

We told ourselves that in our new life in a country town in north-central Victoria we would buy an established house with a garden that we could gradually improve. We didn’t want to start another garden from scratch. However, a quick study of the real estate market in the area soon convinced us of the economic sense of buying land, building a new house of our own choosing and starting a garden from scratch.

The land we bought is a double block – 40 × 40 metres – larger than the average suburban block, but smaller than our previous home. The challenges we faced are the same as those facing the tens of thousands of Australians each year who start with a house on a bare or nearly bare block of land.

We decided that environmental values would be built into the garden from the start. We humans too often unthinkingly have a negative environmental impact; we use the earth’s resources, leaving nothing but waste in their stead and fail to consider the importance of the natural systems that are essential to our survival. It is within our power to reduce our environmental impact, and creating an eco-friendly garden is a great way to start. Our gardens can continuously improve and replenish the soil, use no damaging chemical fertilisers or pesticides, be water-efficient, incorporate pre-used materials where possible, include native and indigenous plants and be biodiversity-friendly.

I am sure our experience of creating an ecogarden from scratch in a country town will help you create an ecogarden, wherever you live – for a more sustainable future.
You have bought a new house, or are in the process of having one built. Maybe you have bought an old house with a minimal garden, one of those all too familiar patch-of-lawn-and-tangled-shrubs-around-the-edges jobs. Having made this major commitment, it is only natural that your thoughts will turn to how you can create a new garden that will enhance your home and complement your lifestyle.

Where to begin can be a puzzle for the inexperienced. Eagerly visiting the nearest nursery and buying any plants that catch your eye is one strategy that might prove successful, if you’re lucky. But impulsive purchases are more likely to turn out to be a waste of time and money in the long term. I advise a period of quiet contemplation, gathering information and thinking carefully about what you want before any plants are bought or any earth moved.

Buying a new house is an exciting event in anyone’s life, but at the same time the legalities, the myriad decisions to be made, the planning, the packing, leaving friends and family, can also make it a very stressful experience. Take some relaxing time out while the house is being built, or in the period between signing the contract and taking possession of your new home, to think about your new garden.

- Look at gardens around you with new eyes, thinking about what you like and dislike and what plants or features might suit you.
- Wander through public gardens.
- Visit display home villages and notice how the designers have landscaped gardens around the houses.
- Browse through gardening magazines and books.
- Watch television gardening programs.
- Visit open gardens.
- Take photographs of plants or design ideas that appeal to you.

Ideas can come from any number of places. You could start a scrapbook of pictures and plant names and habits. Include in the scrapbook details about garden ornaments, paving types and colours, planting designs and colour schemes that catch your eye. Alternatively, set aside a Manila folder, box, suspension file or drawer for your collected information and inspirations. If you have children, involve them in this process so they will be interested and cooperative when the time comes; they might even want to have
In our case, we had subcontracted the construction of the house, so not only did we start with bare earth around the house-site and a tangle of weeds elsewhere, we also had to tidy and remove the builders’ rubble. Some house and land packages come complete with lawn, paths and a few plants. This gives you the opportunity to live in the house while deciding how to proceed without feeling pressured to do something with an unsightly bare block, but don’t let what is already there restrict your thinking.

Learn about your soil
The soil is the starting point for your garden and much depends on it, so some basic knowledge about the soil is worth having, even though you might not be planting anything for a while. It is a good thing you can do while your house is being built. Don’t be daunted by the scientific look of some of the terms used about soil – acidity, alkalinity and pH – I’ll keep it simple.

To help you find out about the soil you will be gardening with, take a trowel and a spade on your next site inspection and dig around in different spots. The most obvious thing you will notice is the soil texture. All soil is made up of particles of sand, silt and clay, and there might be gravel as well. The particles are of varying diameters, with clay particles being the smallest and gravel, if present, the largest. In the majority of cases there will be no gravel, so the sand particles will be the largest. The combination of particles might vary from place to place within every garden. In good garden soil there will also be decomposed organic matter in the topsoil. A

Take stock of what you have
Will you be starting with bare earth, have lawns already sown, paths and driveway installed, or even a minimal garden planted?

Public gardens like the Canberra Botanic Gardens can provide inspiration for your new garden.
desirable garden loam is a friable mixture of different sized particles combined with organic matter, but loams with too much clay or silt can set hard or form a crust.

**Texture test**
To determine the texture of your soil easily:

- Take a quantity in the palm of your hand – about two tablespoons.
- Gradually moisten it. If it has recently rained, you might not need to add any water.
- Knead it with your hands to thoroughly moisten and roll between palms to make a ball, about the size of a golf ball.
- Now, slowly squash the ball.
- If you couldn’t even roll a ball in the first place, the soil is coarse sand. You will feel, and maybe hear, the gritty texture on your hands.
- The more easily the ball crumbles under pressure, the higher the sand content.
- If the ball splits but does not fall apart and has a silky feel, it is silty and/or loamy.
- If the ball flattens, but stays more or less in one piece and feels sticky or elastic (like plasticine), it is high in clay.

- Pull and stretch a ball of clayey soil between your fingers to form a ribbon. The longer the ribbon, the more clay the soil contains.

Of course, there are proportions of sand, silt, clay and organic matter, but a general idea of the kind of soil you will be working with is all you need. To see the proportions of sand, silt and clay in your soil take the same soil sample you rolled into a ball and place it in a screw-top jar half-full of water. Put the lid on and shake the jar vigorously. Let it settle. The soil will have separated into layers with coarse sand or gravel (if any) on the bottom; on top of this will be any finer sand, then silt, then clay on the top.

**Soil structure**
If texture refers to the size of the soil mineral particles, structure refers to the way the mineral particles and any organic matter are bonded together into crumbs or aggregates. The aggregates cluster together in distinctive ways for different soils, leaving spaces between for air and water. We have all seen a clod of clay. This is made up of clay particles bonded together so firmly that it holds its shape even when rained on or dug. This is poor soil structure that does not allow water, air or plant roots to penetrate it. Another type of poor soil structure is very sandy soil with little clay or organic matter. This has a different, more open aggregate pattern that cannot retain water and nutrients.

**Soil can be improved**
The best type of soil for gardening is friable loam (a balanced mixture of soil particles)
with plenty of organic matter in it. Many plants will not thrive in extremes of either sandy or clay soils, so the soil type will influence what plants you choose. Do not be unduly concerned, though. The good news is that most soils can be improved quite easily.

Remember:

- Sandy soil is very free-draining, but low in nutrients and organic matter. It will consume vast amounts of water, yet not hold it to support plant growth. Added nutrients are likely to be quickly leached away.
- Clay soil holds nutrients well and can hold water too well, resulting in drainage problems. Clod structure will prevent air, water and plant roots from penetrating.
- Clay soil that is slippery or sticky when wet, that dries to a hard crust, becomes very muddy when it rains and then drains slowly will often benefit from the addition of gypsum. Use about a half to one kilogram of gypsum per square metre. There are liquid preparations to add to clay soil to improve its texture and drainage ability, either a simple liquid gypsum or a mixture with fertiliser and other soil conditioners. These same preparations are also said to improve the water-holding capacity of sandy soils.
- Sandy soil can have clay worked into it. You will need about a quarter the volume of clay to sand.
- The addition of generous amounts of organic matter in the form of decomposed manures and mulches will, in time, improve the texture, structure and nutrient availability of any soil.

**Soil profile**

To find out more about your soil, use a spade to dig up a slice of soil about the width and depth of the spade. You should be able to see a change in colour and texture from top to bottom of the profile.

- A layer of decomposing mulch, dark, sweet-smelling topsoil and roots visible all the way through the profile are all indicators of fertile, well-drained soil.
- If the block of soil is hard to break up when dry, has a sour smell when wet and looks blue or grey and yellowish grey, this probably indicates poor drainage and heavy clay. Such soil could be subject to periodic waterlogging.
- If the soil falls apart as soon as the spade is removed, it is most likely to have a high sand content.
- The presence of earthworms or their tunnels is an indicator of good aeration, drainage and fertility.
- Beetles, grubs, spiders, ants and other soil biota that you might not be able to identify indicate a healthy level of biodiversity in the soil.
- This digging around will also show you any places builders’ rubble has been buried, perhaps under a load of innocuous-looking topsoil. Depending on the amount and type, buried building materials can prevent proper development of plant roots and can even release substances that will inhibit plant growth. The simplest solution is to plan on building up raised no-dig beds over any such areas, or you might prefer to hire a contractor to remove the rubble and begin again with new topsoil.
Your situation could allow you access to the building site at the foundations stage, so you might not need to do any digging around. Examine the holes dug for the footings to see the soil profile, discussed above. A convenient fall of rain will allow you to check the soil’s texture and drainage. If the footings fill with water that seeps straight away, the soil is sandy; the sides of the footings will crumble easily in this case. If the water stays in the holes for days, there is a lot of clay in the soil.

Our soil is mostly heavy clay, with very poor drainage in some spots, so this had a big influence on our choice of plant species and our method of gardening. I decided very early on that most garden beds would be raised and built on top of the existing soil and have lots of organic matter added.

Soil pH

There are people who garden all their lives without ever testing their soil’s pH. I have met some of these people and their gardens are usually thriving, but then they might say that their azaleas are struggling, or just won’t grow, or that their citrus trees have a mysterious complaint. A simple pH test might have shown them that the soil was neutral or slightly alkaline and needed some adjustment to bring it into the slightly acid range preferred by these plants. Testing for pH is a doddle to do and can give you valuable information about your soil and the mulches you will be using later on.

The soil pH refers to how acid or alkaline it is. The pH scale ranges from 1 to 14. At one end of the scale pH 1 is the extreme of acidity, while at the other end pH 14 is the extreme of alkalinity, and in the middle, pH 7 is neutral. Many plants prefer a slightly acid soil in the range of pH 6.2 to 6.5, though most will grow perfectly well from pH 5.5 to 7.5. Some plants have a definite preference for either an acid or an alkaline environment and will not thrive if the soil pH is too far from their preferred range. So, soil pH has a big influence on plant choice.

Another important reason for finding out the pH of your soil is that at different pH levels some nutrients can be unavailable to plants and some can be taken up in toxic levels. If the pH is too far into either extreme, most plants will not thrive.

You don’t need to be concerned about the science behind soil pH, just buy a cheap pH test kit, one of the colour-coded ones, from a nursery and test some samples from around your block. These kits might not be 100% accurate, but are very easy to use and give you a good enough idea of what you have.

Adjusting the pH

Do this once you are actually ready to start gardening. To raise the pH of acid soil, apply dolomite, lime, wood ash and alkaline mulches. To lower pH of alkaline soil, apply sulphur or iron sulphate and use acidic mulches such as pine needles, sawdust and tanbark.

Mulch and pH

When it comes time to buy mulching materials, it is sensible to purchase a small amount, or obtain a sample, and test the pH before using it. You will want to avoid using
mulch that will exacerbate an existing pH imbalance. I have been quite surprised at the pH of some mulches I tested:

- Sugar cane – 5.5 – acid.
- Mixed packaged manure – 9 – alkaline.
- Stable sawdust from a local industry – 8.5 – alkaline.
- Packaged soil improver and mulch – 5.5 – acid.

The texture of many mulches makes them difficult to test with the colour-coded kit, which is designed to use with soil mixed with the liquid solution provided. Some can be softened with a little water, allowed to dry and then crushed to a powder. Some can be pulverised to a powdery consistency in a vitamiser.

Our soil is quite acidic with a pH of 5.5. I wasn’t overly concerned about this because most of the plants I wanted to grow prefer an acid environment. I was intrigued to find, though, that when I mixed some soil with a variety of mulches I was using and again tested the pH, the mixture had a pH of 7, perfectly neutral. Though the ratio of mulch to soil will be quite different in the real garden, this little experiment illustrates the role mulch can play in stabilising soil pH.

Study your surroundings

By the time your house is at lock-up stage you need to become aware of the surroundings that will provide the backdrop for your new garden.

- Get your compass bearings and notice where the sun rises and sets, where the shade of buildings, fences and neighbouring trees falls, and at what times. Also take note of any areas that are exposed to the sun for much of the day; these will be ideal for hardy native plants or xeroscape gardens. (A xeroscape garden is a botanical term for a garden of plants that will live through drought conditions. They often consist of hardy native plants mulched with wood chips or succulents and cacti surrounded by pebbles.)
- Neighbouring buildings, especially multi-storied ones, can have a big impact on your garden. They might shade large areas at some times of day, give protection from strong winds, be a source of radiant heat or create a rain shadow that prevents rainfall from reaching some areas.
- Trees on neighbouring blocks might overhang your fences and their roots intrude into your gardening area, or they might be an attractive feature that can complement your own garden design.
Roads, driveways and paths can provide radiant heat and rainwater runoff to adjacent garden beds.

Notice the direction strong winds come from and plan how to use buildings, fences or windbreak plants to modify them if necessary.

Find the areas that are well protected from wind and plan to use these for vegetable gardens or more delicate plants, or as tranquil retreat zones.

You might be fortunate enough to have a view or pleasant outlook of something other than rooftops, even in an urban setting. Consider how to design your garden to frame it so it remains a focal point.

Where neighbouring sheds, roofs or other unsightly objects will be in your view, plan how to hide them. This could be with quick-growing shrubs, lattice that will support a quick-growing vine, a pergola or gazebo.

Talk to your new neighbours, as they can be invaluable sources of information, especially if they have been in the area for a while. Several people mentioned to us that termites were a problem. One neighbour even said that she had seen garden stakes eaten out by termites within two years. Forewarned, we decided not to have garden beds, which could give ready access to the pests, abutting the house.

Climate

If your new home is in an area you have lived in for a while, you will already be familiar with the climate and have a fair idea of what plants will thrive there. If it is in a region you are unfamiliar with, it is wise to take some time to look around other gardens in the area, talk to neighbours and local nursery proprietors.

Within your garden there will be a variety of microclimates resulting from the placement of structures (your own and those of your neighbours) and surrounding plants. Use these to your advantage when trying to grow plants less suited to the general climate of the region. Some years ago, for example, the flamboyant beauty of tropical hibiscus plants captivated me. Knowing there was no possibility they would thrive out in my windswept, exposed garden in inland Victoria, I planted them in pots and placed them against a sheltered north-facing stone wall. Every two or three years I divide and repot them and give many root divisions away. A city gardener I know in Melbourne was able to grow bananas in her garden by taking advantage of the radiant heat from the brick wall of a neighbouring block of flats.

If there is something special to you that would not normally grow in the climate of the

Surrounding fences provide a protected microclimate for the vegetable garden.
region, now is the time to consider how to take advantage of an existing microclimate, or how to create one to suit your favoured plants.

**Existing plants or features**

You might already have some plants on your block. In our case we had two mature red gums on the east side and several trees comprising a couple of different species of eucalypts, not terribly old but still a good size, on the nature strip. As well as being features in their own right, the gum trees provide dappled shade for the native shrubs we planted beneath and nearby. There were also a kurrajong tree, two unidentified small trees or shrubs, and several self-sown thorny plum trees. We knew we could find a creative use for some slabs of red gum trunk that we inherited.

The plants you have inherited might not be to your liking. Do not feel inhibited about getting rid of them. You might know someone who likes them, or maybe they would just look better in a different spot. Be ruthless also with plants that will grow too large for your garden. Most new gardens are too small to waste space on plants you dislike or that are not suitable for the location. We removed the thorny plum trees, and we transplanted the unidentified young trees from the nature strip to a spot at the back where they would screen a neighbour’s shed until we could identify them and decide whether or not they would remain (they were privets, and they didn’t).

Your block might be flat. Consider landscaping to introduce a slope, terraces or mounds. A steeply sloping block presents a different challenge and might suit you better terraced. A poorly drained spot could become a pond or bog garden. A stony area or rocky outcrop can be part of a native or succulent garden feature.

We have a low area along the eastern side, where the red gums are, that is a natural drainage channel during heavy rainfall. Instead of regarding it as a problem, we decided to turn it into a feature. It is now a seasonal pond and stony creek-bed admired by all, including many locals who warned us of the ‘flooding problem’ we would have.

You might already have a shed, fences or other structures in the garden. Unless they are very unsightly or you have an unlimited budget, these should be regarded as permanent fixtures. You need to decide how to incorporate them in your garden design, how to hide, disguise or feature them, depending on the situation.

Existing paths will also usually stay, unless they are of pine bark or similar soft material.
Find suppliers
You are going to be doing a lot of business with local nurseries, hardware stores, landscape suppliers, contractors and tradesmen. Find out where they are, the range of goods they sell and how prices compare so when the time comes to buy plants and other garden supplies you know where to go. Ads in gardening and environment magazines and local newspapers are very useful. Cut them out and add them to your scrapbook.

Freebies and bargains
As you explore the area keep a lookout for possible sources of free or cheap materials. Thick cardboard is a good sheet mulch to control weeds. Local businesses will probably be happy for you to help yourself. Are there riding stables or horse studs that get rid of their animal bedding? Farms nearby could supply straw, spoiled hay or animal manures. Tree lopping contractors might be willing to dump a load of mulch at your place. Check your council’s green waste policy. In our Shire, shredded, partially decomposed mulch is available free if you collect it yourself from the tip.

Second-hand timber yards, garage sales, markets and clearing sales are possible sources of materials for paving, edging, garden ornaments, or timber for building pergolas and other garden structures.

Setting goals
By now your mind is probably buzzing with ideas. The challenge is to put all the information and possibilities into some sort of order so you can make a workable plan. It is time to decide what you are aiming for, what you want from your garden. I decided that I was aiming for:

- Beauty – an aesthetically pleasing environment to live in.
- Biodiversity – a variety of indigenous, native and exotic plants to attract native birds and other fauna.
- Bounty – a productive food garden within the space constraints of the block.

All of this had to be achieved on a tight budget, without using garden chemicals. It must require minimal digging and maintenance once established, and be water-efficient. You might have different priorities. Perhaps you would like to incorporate:

- an entertainment area
- a water feature
- a children’s playground
- a pet enclosure
- a perfumed garden

As soon as it rained we had native ducks visiting the new pond.
ACTION PLAN

- Gather ideas.
- Take stock.
- Learn about your soil.
- Observe your surroundings.
- Consider the climate.
- Evaluate existing plants and features.
- Find local suppliers.
- Set goals.

- blend in with the neighbours
- be different from the neighbours.

To help with setting your goals, make a list of must-haves and would-like-to haves. How does your list measure up against the realities of your situation, those points you noted earlier? Is there space for that swimming pool, for example, and does the climate of the region allow frequent enough use to justify the expense, maintenance and water consumption?

One of our major goals in creating our new garden, as it was with our previous farm garden, was to encourage biodiversity. The next chapter outlines our reasons for making this a focus right from the planning stage, explains why it is relevant to everyone developing a garden, and gives you some ideas about how to incorporate biodiversity values in your new garden.

- a swimming pool
- a theme garden
- a herb garden
- an existing collection of plants, statuary or other garden ornamentation.

Maybe you want to:

- have a no-mow garden
- specialise in a particular species or type of plant