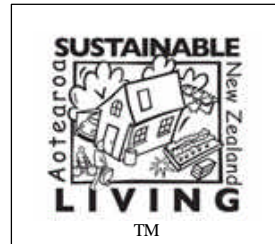


Sustainable Living Programme NZ 2009 Edition

Actions in the garden and backyard: working with nature



These notes cover several aspects of garden management. We focus on practical information and advice to support your action. (A second document covers organic veg-growing.)

Other materials used in the study groups cover compost-making, backyard organic food production, pests, seed choice and sowing techniques, etc.

The four main headings below are:

- Water efficient gardening
- Shade and shelter
- Biodiversity
- Weed management

Water efficient gardening: ways to reduce water demand

In the Sustainable Households Water session and materials we learn about use of tank-stored rainwater (and also the option of re-using 'grey water' from washing machines or baths immediately onto trees and shrubs, but not vegetable gardens and not stored). These are supplementary sources of garden *water supply*, to replace some expensively-treated and pumped tap- water. There are a variety of ways to reduce *water demand* in the garden, however, which we explore here.

Take your pick from this set of 10 ways to reduce garden water needs over time. Advice in detail is available from books such as Kevin Walsh and Geoff Bryant's *Water Saving Gardening in NZ* 1995 published by Reed; and from free booklets issued by local authorities or

water supply companies. For web users, there is similar information in the *Gardening With Water* section of Waitakere City Sustainable Home Guidelines www.waitakere.govt.nz (go to eco-city pages); and on the Christchurch City Council website: www.ccc.govt.nz/waterwise

1. Know about the water demand of different plants, so that they can be grouped together. Whether you have a permanent irrigation system, or simply walk around with a trigger hose or watering-can, you can plan to reduce the frequency of watering to certain plants if you know they are **drought-tolerant**. Use reference books to investigate best locations, when you buy a plant or accept one from a gardening friend. For example, the Mediterranean scented herbs such as thyme, oregano, sage and lavender, need less water than the northern European herbs such as mint, fennel, basil and parsley.

Among food crops, established deep-rooted perennials such as asparagus will be more drought tolerant than the shallow-rooted annuals such as cabbage. Decorative plants that are drought tolerant include both some 'exotic' introductions to New Zealand (typically they have leaves coloured grey or silver, sometimes hairy) and some 'New Zealand native plants'. Examples are listed in the gardening books above and, for Canterbury, also in leaflets from DoC Motukarara Native Plant Nursery. Being drought-prepared in your planting is most

important on the east of the North Island from Gisborne to Wairarapa, and the east of the South Island from Picton down to Timaru. On the wetter west of New Zealand, water-tolerance is often a more important feature when selecting plants.

The New Zealand Plant Conservation Network website at www.nzpcn.org.nz has information about all native plants and how to grow them and their suitable habitats.

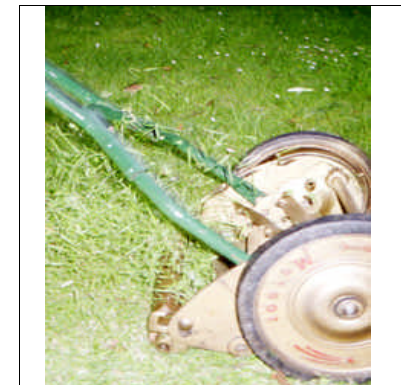
Landcare Research's **Plant-finder** database, available at the NZERN website at www.bush.org.nz includes NZ native plant lists to suit different regions and soils, and has notes on each plant including likely drought tolerance. It may be less accurate than the NZPC website, however?

2. Reduce the area of thirsty lawn. If you want a permanently green lawn, rather than one that browns over the summer, having a smaller area of grass saves precious water for other uses, such as fruit and veggies! If you use a sprinkler, limit the lawn shape and area to suit neat multiples of the typical water-coverage pattern of your sprinkler equipment and therefore avoid wasting water on paths and fences?

Different grass types have different thirsts – you can select a ready-grown turf or a seed mixture for this feature, noting that the more drought tolerant such as rye grass (*Lolium*), New Zealand browntop and Kentucky bluegrass, tend to be coarser-bladed grasses. These grasses also need less feeding, and can be allowed to grow a little longer in the summer. They can be cut successfully with the less-expensive rotary mowers, compared to the fine-bladed grasses of the bowling green variety (such as *Festuca* and *Agrostis*) which demand greater attention, more feeding and cylinder mowing.

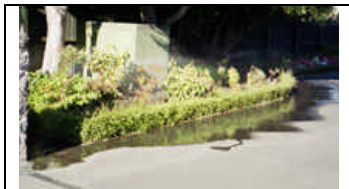
There are also moderately drought-tolerant green (and coloured) alternatives to grass, such as *Acaena microphylla* (bidibidi), and *Chamaemelum* (chamomile) but they can not cope with much trampling, so perhaps plant them around paving stones?

If you have a clothes-drying area, it could perhaps have gravel below it instead of a potentially muddy lawn? This has the advantage of remaining accessible all winter, reducing the temptation to use a tumble dryer (and that's a money-saver too).



When mowing grass you can either let the clippings fall as lawn-feed (for earthworms to gather), or remove them for compost-making. Using a push-mower is great exercise, and avoids the fumes and noise pollution from a petrol-fuelled mower! (Photo: Rhys Taylor)

3. Water the plant roots, not the leaves (or paths). How often do you see surplus water from sprinklers running off the foliage of flower-beds or across a saturated lawn and then down a sloping driveway towards the road stormwater drain? It's not only a waste of hard-won water, it pollutes the streams with chemicals such as moss/weed-killers from the lawn.



(Above) It wastes water when sprinklers overshoot onto paths: use drip emitters or porous hoses instead, and a hose timer.



Sprinklers in the mid-day sunshine - wetting the air and leaves, losing large amounts of the water to the air! (Photos RT)

Watering the leaves increases fungus problems (such as powdery mildew) for some plants, so aim instead for the roots. Use a permanent dripper system, or a moveable 'leaky hose', rather than a sprinkler. When a drive or path needs a clean, use a stiff broom instead of the hose or leaf-blower and save the swept-up plant debris for the compost heap, not the bin.

4. If you install an irrigation system, control it with a timer. Save your own effort on hand-hose watering with a permanent irrigation system of branching polyethylene pipes (preferably buried, once you have the locations right, as they degrade in sunlight). But remember that the least efficient water delivery system, a sprinkler, can waste 900 litres of water per hour. Drip emitters provide from 1 litre an hour to 10 litres per hour at each dripper, and can be fixed or variable output. Timers installed in the hose line (from Hardie Pope, Nylex Gardena or others) let you set up to 2 hours of irrigation time before they cut off the flow.

More complex electronic controllers are available if a larger permanent garden system with 'zones' is required. If you install a rain-detector device it can 'over-ride' time-clock controlled watering systems and save your plants from damaging over-watering, too. Check the *NZ Consumer Home and Garden* magazine (in public libraries, or from Institute members) for independent reviews of garden watering systems.



Gadgets for the gardener who likes some assistance with managing watering: from the left, a clockwork tap 'turn off' timer, a soil moisture-detector and a rain sensor. (Pictures from Nylex Gardena)

5. Avoid watering in the heat of the day or in windy weather. A larger proportion of irrigation water is lost straight back to the air at midday or in windy conditions, so the plants gain more benefit from watering in the calm and cool of early morning or early evening. Mid-day watering of leaves under a cloud-less sky can increase sun scorch damage, too. Windbreaks reduce water loss from the plants they shelter.

6. Improve the soil's capacity to take up and retain water. Some soil structures are fast draining and consequently have little water available to plant roots (e.g. sand, gravel) which means either more frequent watering is required or drought-tolerant plant choices, while at the other extreme, clays tend to seal at the surface and puddle the rain (add some gypsum to reduce this, but go easy, as it also alters nutrient balances in the soil).

Both extremes can be improved into a more productive 'loam' by adding garden compost, rotted manure, seaweeds or surface mulches that,

with the natural help of earthworms, increase the proportion of organic matter distributed in the soil and help soil particles to form a 'crumb' structure. Heavy clays also respond to addition of sand/grit and lawn surfaces absorb water better after aeration with spikes and raking to reduce the 'thatch' layer of dry grass.

7. Keep water in the soil for longer using surface mulch. Mulch is a permeable layer of 5-10cm organic material laid onto a previously wet soil surface. It can be pea straw, cut grass, and around shrubs also untreated sawdust or tree bark (but not around vegetables as these draw nitrogen from the soil as they decompose). You can also use fine pebbles or gravel. The mulch will allow water to flow in but reduce the sun's midday heating of the shaded soil and reduce the rate of water evaporation loss to moving air.

Mulch can save 70% of the water otherwise lost to air by bare soil. It also suppresses weeds and grasses that would compete with crops or shrubs for water and light.

Natural material is preferable to synthetics such as old carpet underlay, because of the chemicals which may leach from the synthetics. Black polythene sheeting should be avoided for most crops as it overheats the soil and traps stale air. Woven plastic weed mat may work better, but cover its black surface.

Extensive use of bark from conifers can make the soil more acidic. Keep the mulch away from contact with stems or tree trunks in case it prompts decay. As it decomposes, mulch also adds organic matter to the soil, encouraging microbial life and earthworms.

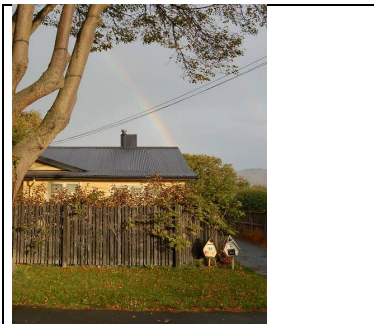
8. Check the soil moisture before you water. If you use mulch, check the soil underneath - to see if it's really dry - before watering. You can

even wait until plants have wilted a little, which is nature's defence against water shortage. You can tell when a lawn needs water in the summer: it's when the leaves do not spring back after you walk on them. Waiting before watering encourages deep rooting, while more-frequent watering encourages shallower rooting and hence vulnerability to drought when you can't water often (e.g. in your summer holiday-time, or during a water supply crisis).

9. Use glazed flower-pots or recycled plastic pots rather than the plain terracotta (which are heavy, brick-red and not shiny) as the terracotta loses water from the pot sides as well as the soil surface. If you already have lots of terracotta pots available, try waterproofing them on the inside with a non-toxic paint or a silicone water-proofer. Only drought-tolerant patio plants such as geranium, stonecrop and cacti will thrive in full-sun conditions in unglazed terracotta pots. Some growers add water-retaining granules to the potting mix, and then put a mulch such as gravel onto the soil surface.

10. If drought is common, and combined with hot winds, consider the fire resistance of plants up to 30m upwind of the house (and more if home is on a hill-slope, in dense bush). Information on flammability of NZ native trees and shrubs in wildfires is available in a free leaflet on reducing fire hazards around your home, from your local fire authority.

See our Sustainable Living water topic notes for further information on rainwater collection and storage.



Shade and shelter from large trees: provides summer green air-conditioning.

Shade and shelter: using garden plants to improve living spaces

The house is affected by its close surroundings, which allow in or shade out sun and winds. You can't do much about other buildings (except at the Resource Consent application stage), but you can influence location and size of plants, to your advantage:

1. Plan a garden to provide outdoor shade as well as sunny areas.

Growing incidence of skin cancers in New Zealand means that outdoor activity demands shade as well as sun, so if you do not have shade trees already, select a spot for a tree at the north of your mid-day sitting spot or children's play space. If you want sunlight to come through the branches during the winter, chose a deciduous tree (these are mostly exotic species although there are a few deciduous native species such as tree fuchsia and species of lacebark). New Zealand native evergreens may be ideal if year-round shade is acceptable. Anticipate the height of the mature tree when you plant – shading of house windows in winter would add to your heating bill.

2. Use plantings strategically to shade your home.

north-west or west facing rooms tend to overheat in the summer? If there is garden outside the windows you may be able to provide some summer shade with plants. Shade options include deciduous trees and shrubs, which will lose leaves in the autumn to allow in winter light, or a pergola or similar structure, up which seasonal deciduous climbers such as runner beans or grapes could be grown. Another idea is a window box plus a wooden lattice to form a 'living blind' of summer flowers. Keep an air gap between shrubs and house walls, especially if they are timber, or you will encourage damp air and decay.

3. **Plant a winter windbreak.** Do you have chill winds blowing from the south or east in winter? An evergreen windbreak hedge of tough mixed native shrubs may be possible, even if there is not space to grow full size trees. The more cold air you deflect, the warmer the house will be. Your regional council may have free leaflets about windbreak design using native plants.



Care for small garden trees to give them chance to grow large! When the tree is planted, tie it initially to a pair of stakes, and (as here) fit a guard net on the bark to keep off cats, rabbits and machinery.

4. **Is 'hay fever' or another plant allergy driving you out of the garden?** Consider making a low-allergen garden close to the house. This involves patios, decking and gravel to replace a lawn (less pollen and less mowing dust), avoiding dusty or mouldy/mushroom mulches, and having preference for insect-pollinated rather than wind-pollinated plants as they have heavier pollen that is less likely to be airborne. Do not plant silver birch! *Allergy New Zealand* can advise: 0800 34 0800 email: help@allergy.org.nz www.allergy.org.nz

Bio-diversity: giving the garden a natural strength

'Variety is the spice of life' for people and it is also a good guideline for gardening success. In nature, a diversity of plants co-exist, each making use of the special circumstances it finds, in light and shade, in levels of water and food, and in pest pressures. When you reduce diversity, such as in selecting a single grass variety for a lawn, you run against this natural state and have to work hard to maintain the 'monoculture'. Farmers face similar challenges when they grow paddocks of a single crop, which are vulnerable to pressure from climate and pests. Here is our advice to increase garden diversity and resilience:

Aim for a wide variety of plants, even in small urban gardens. This is for a good ecological reason. Insect and viral plant pests thrive and do most damage when there are many plants of the same species grouped close together. Keep numbers of any one food-plant placed together as low as you can and the variety or 'diversity' high, to minimise the chance of pests getting established. Meanwhile, try to maximise the useful effect of natural predators of insect-pests attracted by flowers such as Phacelia, grown close

by. These natural predators include ladybirds, lacewings and hoverflies.

There are many handbooks and websites available to help you identify New Zealand native plants that have both flowers and interesting foliage to suit garden use. Some well-known authors include Crowe, Bishop, Sykes and Adams. Take one with you for reference when visiting plant nurseries. See also the website of the New Zealand Plant Conservation Network – www.nzpcn.org.nz or the 'Plantfinder' database, in item 5 below.

Attract New Zealand native insect-eating birds including fantail, grey warbler, silvereye, and shining cuckoo. Native birds also include fruit and nectar-feeders (bellbird, tui) which will visit city gardens within flying distance of their home in the bush if their favourite native plants are available, and they'll eat insects while they are there. To identify them, consult: www.nzbirds.co.nz and there is extra information at www.bush.org.nz

Attract them with, for example:

- *Phormium tenax* (flax/harakeke),
- *Sophora microphylla* (kowhai),
- *Pseudowintera colorata* (pepper tree/horopito),
- *Griselinia littoralis* (broadleaf/kapuka),
- *Lophomyrtus obcordata* (New Zealand myrtle/rohutu)

and many others, including these Australian plants: *Callistemon* (bottlebrush), *Eucalyptus leucoxyton* 'Rosea' (which is useful for winter-flowers).



An attractive flower for NZ nectar-sipping birds and also bees: 'harakeke' (NZ flax, *Phormium tenax*) Photo: Rhys Taylor



An illustrated *Bush Birds* pamphlet from Christchurch City Council, Parks and Waterways Unit, PO Box 237, Christchurch (based on research by Anthony Crossland and Colin Burrows), includes a table listing 33 native plants and trees, showing their seasons for nectar and fruit. You could potentially use it to plan for year-round nectar and fruit bird-food in your garden. It contains useful information about all of the birds mentioned above, and also includes the *kereru* (native pigeon), which likes the fruits and distributes seeds of larger trees such as *Dacrycarpus dacrydioides* (kahikatea), *Prumnopitys taxifolia* (matai) and *Podocarpus totara* (totara) – but its diet may include a share of your garden fruit crops!

A similar Christchurch pamphlet covers *Wetland birds*. Hutt City Council produced a leaflet *Selecting Trees which Attract Birds* in their 'Home Gardening in the Hutt' series.

Other councils or your local Department of Conservation office in other areas in the country may publish similar information.

Several of the introduced European garden birds are useful pest-controllers too. Starlings and Thrushes like eating slugs and

snails, for example. Blackbirds will damage soft fruit and dig up seed-beds when foraging, but they also play a part in pest control. To keep up native bird numbers visiting the garden, you may wish to supplement their food and water during the winter (try adding honey to fresh water in a pot for the nectar-feeders such as Bellbird and Tui) and then reduce your feeding in spring once insects and nectar are more plentiful. You would have to net fruit trees and bushes to protect your berry crops, however.

Keep cats indoors at night as they tend to be lizard eaters and a bird deterrent, and even if they don't often kill, they will disturb birds and prevent successful nesting in the garden. Bells on cat collars often do not work, as birds use visual cues. If you keep a cat but wish to winter-feed birds or provide fresh water year-round, ensure that the bird table and their water is either hung from a tree or placed up on a post at least 1.5 metres above the ground. Some organic gardeners decide to be cat-free because they need lots of pest-control help from birds and lizards. They may then need to set traps for mice and rats, however!

- Encourage cat lovers to take responsibility for their pets and keep them out of other people's gardens, where they scratch up newly planted seedlings when toileting and also toilet in sandpits, potentially spreading diseases to children. Even well-fed cats will catch birds, wetas and skinks, and worry hens. To introduce people to the idea of cat enclosures, here is one website to consider: <http://www.catsofaustralia.com/cat-enclosures.htm>

- To consider the arguments concerning feral and pet cats as destroyers of unwanted pests, as

well as native wildlife, see: *Pets or Pests* (Alpha Series booklet no. 101), 1999, The Royal Society of NZ, PO Box 598, Wellington; or www.npws.nsw.gov.au/help/catswild.htm and an article in The Listener: www.listener.co.nz/issue/3523/columnists/10000/the_great_cat_flap.htm and for impacts of cats on Kereru: www.kaupapakereru.co.nz

- **Attract native wildlife** to your garden, such as lizards. Lizards are legally protected from being caught or transported in New Zealand – but try explaining that to a cat. Without a cat you may have to use other methods such as traps or poison bait to keep mice and rats under control, or they too will reduce the useful lizard and weta population. Of the two NZ lizard types, **skinks** (with smooth skins) are the most common in towns and **geckos** (with rough skins and 'sucker' feet) in the forest. There are 70 different New Zealand species, some very rare. You can encourage lizards by: planting patches of dense wiry native ground cover, allowing leaf litter to build up under trees or using chunky mulch layers. Rock piles and woodpiles full of crevices are appealing to lizards, as are juicy small berries on ground-cover plants such as *coprosma* and *muehlenbeckia*.

Hedgehogs (another introduction from Europe) are good garden slug and snail controllers, although in native bush areas DoC has evidence that they are also a predator of wetas and bird eggs. Be aware that they may choose warm places like a compost heap or woodpile as their winter hibernation place, so you may accidentally disturb them.

You also wish to encourage some **butterflies** in the garden and can grow plants especially to feed the caterpillars of desired species, such as *nettle* (*Urtica incise* or the more poisonous *Urtica ferox*) for red and

yellow admirals, clover for the common blue and swan plant for monarch (avoid getting garden centre stock if it has been pesticide sprayed). Nectar-rich flowers attract the adult butterflies, but buddleia (sold by some plant nurseries as a 'butterfly bush') can become a serious weed, invading neighbouring bush areas, so do please consider using flowering native plants instead, such as hebes. For information on controlling white butterfly caterpillars on brassicas, see our organic gardening notes.



'The Bugman' Ruud Kleinpaste (with a weta walking on his right hand) enthusing about insects. He was speaking at a Department of Conservation event in Canterbury. Endemic NZ insects live only on their host NZ plants, having evolved here in isolation from the rest of the world. We thus need to protect the associated plants' or they too face extinction. (Photo: Rhys Taylor)

For illustrated reading on the New Zealand and exotic wildlife that you can find in backyards, see *City Nature: A guide to the plants & animals of New Zealand cities and towns*, 1997, by Bob Brockie, published by Viking. (Over 80% of species listed are 'exotic', mostly human-introduced). Other references are *A House-full of Strangers: living with common creatures of the NZ house and garden*, 1992, by P. Dale, Harper

Collins; and *Scratching for a Living*, 1997, by Ruud Kleinpaste, Random House NZ.

Try to obtain New Zealand native shrubs and trees that would naturally occur in your climatic region and soil type (known as 'eco-sourcing' or 'using local provenance') as they are plant species and varieties most likely to thrive. They will encourage the associated local wildlife, which in some cases is adapted to live only on those plant species.

This choice is made easier when commercial plant nurseries use a special label for 'Eco-sourced' plants (e.g. in Waitakere City). In Canterbury, the Department of Conservation nursery at Motukarara has a catalogue of plants for public sale, grown from known seed locations in the region, and they produce leaflets to advise on suitable plants for different locations.

The DoC practical guide *Protecting and Restoring our Natural Heritage* 2001 by Jorge Santos, Mark Davis and Colin Meurk, builds on the nursery's experience. It can be seen in full on the web at www.doc.govt.nz or purchased in a printed version from DoC, PO Box 47195, Christchurch.

- Within **Christchurch**, four area 'biodiversity' handbooks and street map sets by Di Lucas and colleagues called *Indigenous Ecosystems of Otautahi Christchurch*, describe the native plants and other wildlife associated historically with local types of soil. Another has been produced for Lyttelton Harbour. They are available for reference at local libraries (look for shelf-mark 581.993) or from council service centres.

Other cities and regions are taking up this approach:

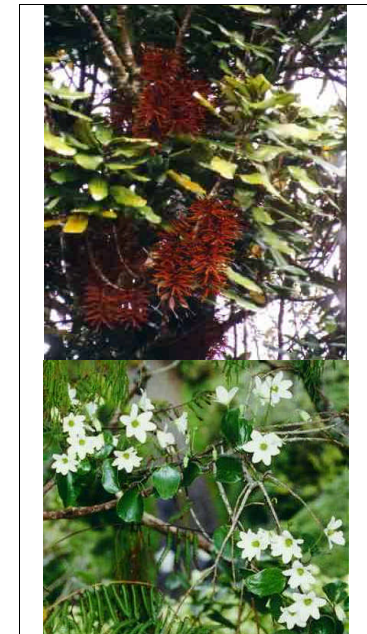
- In **Wellington**, the *Wellington Regional Native Plant Guide: Using your garden to sustain our native ecosystems*, 1999, is

available for \$2.50 from Wellington Regional Council.

- In **Nelson** a checklist of suitable native plants lists for various types of site or habitat is available from DoC, who also published in 2003, with the City Council, *Living Heritage: growing native plants in Nelson*.
- In **Hamilton City** see the *Gully Restoration Guide* from the City Council. Website: www.gullyguide.co.nz/
- In **Waitakere**, *The Whau – Our streams, our river, our backyards*, is available from Friends of the Whau Catchment, or Auckland or Waitakere City Councils. Contains advice on native plantings for community projects as well as backyards.
- Environment Canterbury, Environment Waikato and others produce booklets and website pages on using New Zealand native plants for shelterbelts, stream-sides and bush restoration. Environment Waikato also distributes a *Wetland Planting Guide*.
- To see NZ plants labeled, **Auckland** Regional Botanic gardens has an excellent native plants collection and supporting information at their visitor centre; as does **Wellington** Otari Native Garden, and smaller collections (less labelled) at **Timaru**, **Christchurch** and other cities' Botanic Gardens

There are no DoC plant nurseries in the North Island but many private nurseries (such as the award winning Oratia Native Plant Nursery in Auckland) have an informed interest in native plants and may be able to tell you the seed or cutting source of their plants on sale. **Try to select ones originating from as near as you can find to your home area.** For further information on protecting NZ native bush areas see QEII National Trust website:

www.nationaltrust.org.nz/tips/index.html and consult useful reading from bookshops or libraries, such as: *The Native Garden: Design themes from wild New Zealand* by Isobel Gabites and Rob Lucas, 1998, Godwit Press. *The Propagation of New Zealand Native Plants* by Lawrie Metcalf, 1995, Godwit Press.



NZ native plants in flower provide attractive alternatives to garden 'exotics'. For example: rewarewa (NZ honeysuckle) above, and a native clematis below.

The biggest and most comprehensive website devoted to information about native and exotic (weed) plants is the New Zealand Plant Conservation Network website – www.nzpcn.org.nz. This website describes features and distribution of all native species and includes photos of nearly all plant species in New Zealand.

PlanterGuide was a useful web reference source but is off-line in 2009.

Weed management: keeping invasive garden plants out of bush areas.

Pests can invade your garden but also 'escape' out of it into natural areas. Over 70% of New Zealand environmental weed species have escaped from the mostly-deliberate planting of gardens. Some garden 'escapes' of exotic plants (introduced to New Zealand within the past 150 years), have become significant pest plants in native bush areas throughout the country, for example by smothering or displacing native plants.

- 1. Avoid growing invasive or pest plant species in your garden.** In each region there is a list of pest plants found to be so invasive, in that climate, that they should be removed from those gardens visited by seed and fruit-eating birds, which would spread them to bush areas. These pest plants should never be dumped in or near bush areas because some will also spread from stem cuttings and roots.



Pest plant ivy (*Hedera helix*) climbing its way out of one city garden and into the next.

- 2. Become informed about invasive plant pest species in your region, and lobby garden centres to stop selling these to gardeners.**

Your regional council will have booklet or website information on invasive plants (*environmental weeds*) relevant to your area, plus colour photos to aid

identification. Contact their 'biosecurity officer' for information.

Some examples include: *Environmental Weeds - Delightful but destructive* published by Northland Regional Council and DoC; *Marlborough Pests* from Marlborough District Council and *Weeds in Christchurch* from the Christchurch City Council Parks/Waterways Unit. Auckland DoC has a *War of the Weeds* leaflet and Auckland Regional Council (0800 80 60 40) a free booklet *Grow me instead*, on 'friendly alternatives' to the garden plants that can invade native bush.

A national *Weedbusters* campaign is being run by Department of Conservation. See their website www.weedbusters.org.nz or phone DoC at 04 471 3286

To look up useful information with photos, see the New Zealand Plant Conservation Network website which is up-to-date and detailed. www.nzpcn.org.nz



Feijoa (pictured) makes a handy wind-break hedge but also feeds birds and provides fruit for us. The Permaculture ('permanent agriculture') principle aims to get several values from each plant and to garden in three dimensions using perennial trees and shrubs as well as annual crops below them, plus livestock such as chickens.



Think in 3D, work upwards in smaller garden spaces.

FURTHER READING

Some neat money-saving ideas for gardeners are to be found in Helen McKerral's book *Gardening on a Shoestring* published by Hyland House.

Another recommended recent one is Dennis Greville's *Easy on the pocket vegetable gardening*, published by Hyndman (325 Purchas Rd, RD2 Amberley, 7482 North Canterbury)

The monthly magazine *NZ Gardener* has features on Sustainable Gardening (from newsagents or libraries, and better value by subscription, for cash or on FlyBuy consumer points. There's also an email circular for its subscribers.

Another news-stand magazine that features organic gardening is *Organic NZ*, published by The Soil and Health Association, PO Box 36-170 Northcote, Auckland 1330. (subscriptions available & a book list) www.organicnz.org More on organic growing is available in our Sustainable Living action notes.