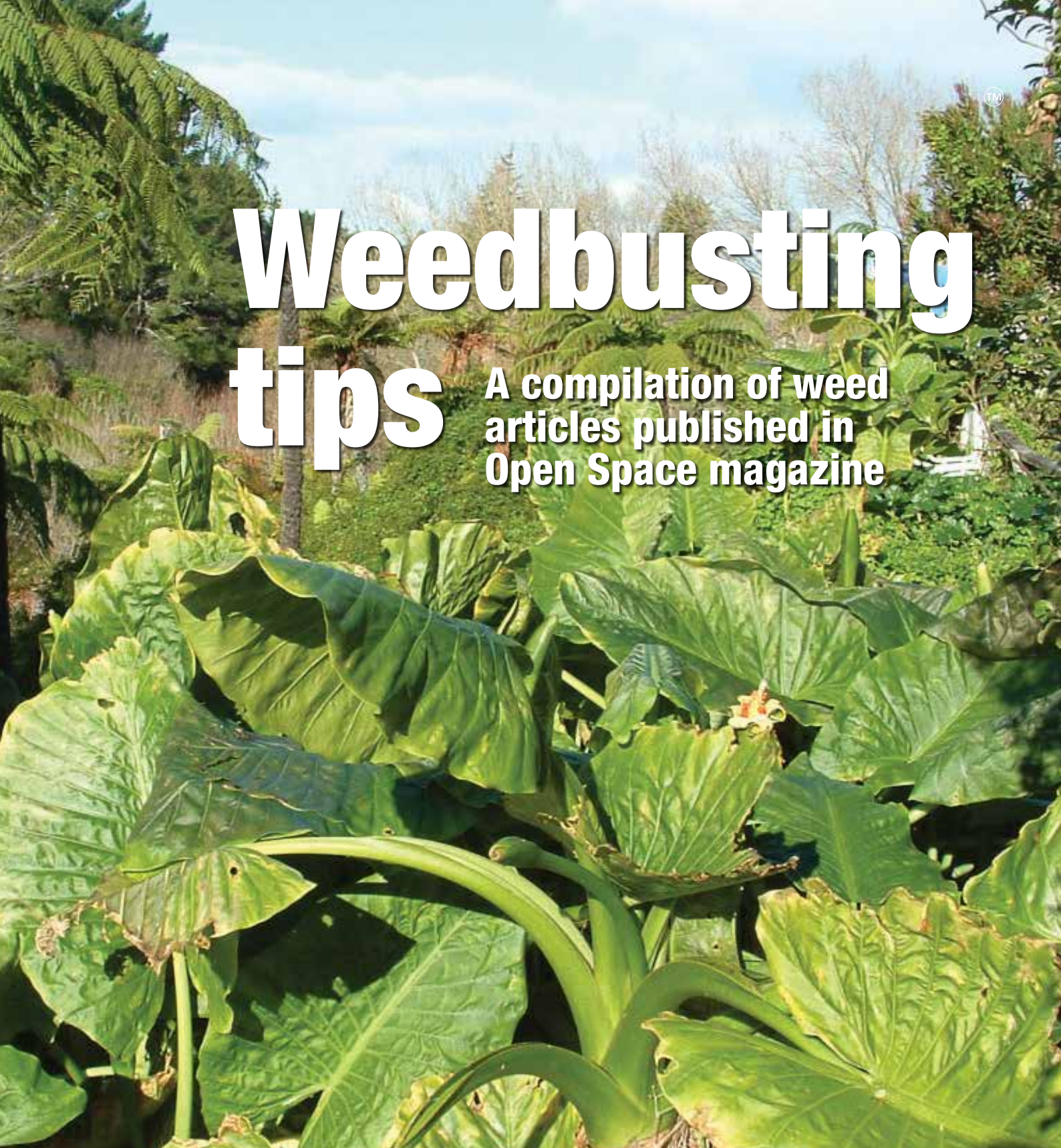




Weedbusting tips

A compilation of weed articles published in Open Space magazine



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Managing your covenant

Weed control

Weeds are one of the greatest threats to New Zealand's biodiversity so controlling them is essential if we are to limit their spread and damage. QEII rep and weed expert Trevor Thompson discusses four weed categories and how they impact on native vegetation. He provides tips on how to control a top offender in each category.

Exotic ground covers like *Tradescantia fluminensis* (common names tradescantia, wandering Willy or river spiderwort) and *Vinca major* (periwinkle) can carpet a forest's floor, preventing seeds from reaching the ground and germinating or making survival of native seedlings difficult because of smothering. A forest with extensive exotic ground cover suffers as it will have mature trees only and very little understorey. Eventual forest collapse and loss of biodiversity occurs when these mature trees die and there are no surviving seedlings to regenerate the forest.

Shrub weeds, *Solanum pseudocapsicum* (Jerusalem cherry) and *Erica lusitanica* (Spanish heath), for example, invade niches that should be filled by native plants. If they are abundant they can have a mono-species effect, reducing the available year-round supply of food that an intact understorey provides for native fauna. They can also modify ecosystems, like tussocklands or native grasslands, by converting them to exotic shrublands over time.

Climbers like *Clematis vitalba* (old man's beard) and *Passiflora mollissima* (banana passionfruit) often start their invasion of a forest at the forest edge or in a clearing. Climbers travel along the ground till they find a tree. Trees can be swathed completely in weed foliage and, unable to photosynthesise, die. They can also become prone to wind throw because of top heaviness and the sail effect caused by the climber. Climbers are successful weeds as their ability to climb high into the canopy ensures their wind borne seeds travel far and wide.

Seeds from exotic trees can be deposited into the heart of a forest where they are able to grow to the canopy; often many times faster than a native tree. *Crataegus monogyna* (hawthorn) and *Acer pseudoplatinus* (sycamore) are examples of exotic trees that grow to crowd out most other species. The hawthorn spreads successfully because it produces many long-lived, well dispersed seeds, is extremely tough and versatile, tolerates hot to cold temperatures, damp to dry conditions, salt, wind, heavy damage, most soils, and semi-shade. The deciduous sycamore sheds its leaves to cover native ground covers, shutting out sunlight and likely altering pH levels. Once these trees are established they can form dense (occasionally pure) thickets, preventing the establishment of native plant seedlings.

WEEDBUSTING TIPS FOR FO

TRADESCANTIA

Interestingly, tradescantia does not produce seed in New Zealand because only male plants are present here. It is spread very easily by small sections of the stem moving to new locations and taking root. This can happen if garden waste has been dumped inappropriately or simply by a small section of stem being caught in an animal hoof or boot tread and then deposited elsewhere. Dogs are often allergic to tradescantia, breaking out in red, itchy pustules on their stomach, paws and chest if they have come into contact with it. It was introduced to New Zealand from Brazil as a ground cover, and a very successful one at that, being almost unstoppable.

Controlling it

Small quantities of tradescantia can be hand weeded and disposed of. (Take to the green waste area at the dump.) Because it grows so easily extreme care is needed not to drop any segment of the plant when walking out of the forest and it should not be added to your compost heap.

Unfortunately there is currently no successful organic method for controlling this weed (however, there is hope for successful biological control in the future). For large established colonies, spray using 6ml/litre of Grazon™. Be sure to wet the leaves only. If allowed to drip on the soil Grazon™ can affect surface rooted native trees and, in dry conditions, can kill them.

Repeat sprays 2 months apart are necessary during spring and summer. This plant will rapidly regain lost ground if given a break. Treatment over a 3-year period may be necessary to get tradescantia to low levels or eradicated altogether.



WEEDBUSTERS

OUR TOP OFFENDERS



KERRI LUKIS

OLD MAN'S BEARD

Old man's beard may look like our native clematis but it is a destructive weed. An easy way to tell the difference is to count leaflet numbers. Leaves on old man's beard are arranged in opposite pairs on the stems, and are made up of five (rarely three) widely spaced leaflets that fall in autumn. The native clematis leaf has three leaflets.

Controlling it

This hardy climber is difficult to keep under control. Spray it when its foliage can be accessed by using a knapsack sprayer with Grazon™ (6ml/litre). If it has climbed high into trees, cut through its vines at ground level. Wait for the stumps to sprout new growth and produce plenty of foliage and then spray.

At least two years of follow-up spraying at 3-monthly intervals will be needed to treat new growth sprouting from unaffected root tips. This plant loses its leaves in the autumn so spray when new healthy foliage reappears.

JERUSALEM CHERRY

This plant grows to one metre and produces many small spherical red fruits. Birds spread the seed. It is originally from South America and is poisonous to children and livestock.

Controlling it

Small quantities can be controlled by uprooting. Spraying with Roundup™ (10ml/litre) will also control it, but care must be taken as the herbicide will kill any soft-leaved plants it contacts.



SYCAMORE

This quick-growing tree can suddenly appear in a forest after seed has travelled quite some distance in high winds. Its classic maple leaf shape makes it easy to identify. Its seeds have two wings slowing its descent to enhance seed dispersal. By comparison rewarewa has only one wing on its seed.

Controlling it

Seedlings can be uprooted by hand. If too big to pull they should be cut with loppers (the wood is quite soft) and the stump treated with Vigilant™ gel if small numbers are present. Otherwise use Grazon™, or Tordon xt™ brush killer or a similar recommended stump treatment at 150ml/litre of either water or diesel. If using diesel make sure the mixture is agitated frequently. Use a paint brush to apply. Larger trees should be felled and their stumps treated. Only the outer ring of the stump needs to be treated as this is where new growth sprouts.



Weeds – common groundcovers

by Carolyn Lewis, Weedbusters National Coordinator

Healthy native ecosystems are amazing. They are balanced systems where each species has its own place and part to play. Natural changes within ecosystems are gradual so the system and its components can adapt without upsetting the balance – until an invasive species is introduced into the mix. That's when things start going wrong.

Invasive plant species – weeds – interrupt the succession of native species and regeneration of natural areas. They often lurk on the margins of natural areas and take advantage of entry points – such as tracks, fallen trees, and clearances due to fire or erosion – to start their incursions. Shade tolerant weeds are particularly destructive because they can move quickly into healthy bush areas.

Ornamental groundcovers gone wild are one of the most serious threats to our bush, coastal areas and wetlands, as the areas they smother are usually where new native seedlings would establish and grow to eventually replace older plants.

Of the true groundcovers, the top offender is tradescantia (*Tradescantia fluminensis*), also known as wandering willie or wandering jew. Others include aluminium plant (*Galeobdolon luteum*), also known as artillery plant, and periwinkle (*Vinca major*). Lesser known problem plants are fairy crassula (*Crassula multicava*) and plectranthus (*Plectranthus ciliatus*). Even the tiny African club moss (*Selaginella kraussiana*) is a major problem in some natural areas, and is extremely difficult to eradicate once it is established.

Although not groundcovers in the true sense of the word, a number of other weedy types also behave in a similar way when the conditions for them are right. Those with dense bulbous or rhizomatous (a horizontal, usually underground stem that often sends out roots and shoots from its nodes) root systems are some of the worst offenders, forming impenetrable mats of root material that can go very deep and exclude all other species. The bulkier ones, such as wild ginger (*Hedychium* species) and arums (*Zantedescia* species), as well as smaller species such as montbretia (*Crocsmia x crocosmiiflora*), stinking iris (*Iris pseudacorus*) and aristeia (*Aristea ecklonii*), can all be major problems for native ecosystems.

Some of the smaller weedy grasses, such as Himalayan fairy grass (*Miscanthus nepalensis*) and palm grass (*Setaria palmifolia*), can act as groundcovers through their dense growth habits. Even some climbers and vines will grow horizontally if there is nothing to climb, forming thick mats of vegetation across the ground. Japanese honeysuckle (*Lonicera japonica*), climbing asparagus (*Asparagus scandens*) and convulvulus/bindweeds are good examples of this.

While some of these species are spread by wind or by birds, others do not set seed in New Zealand and only get into bush areas by spreading from sites where garden waste has been dumped. This is still a major source of weed infestations on bush margins, especially near roads.

Herbicide bycatch

By Alice Shanks, QEII regional representative

A QEII representative is usually pleased to see that a landowners have dealt to the weeds in their covenants. After all, the covenant document requires landowners to control biosecurity weeds such as gorse and broom. Most go beyond this and control other biodiversity weed threats as well.

However, certain weed control, if not carefully executed, can go against the whole purpose of the covenant by killing off the very indigenous vegetation the covenant is set up to protect.

Recently I visited a covenant where a patch of gorse had been killed with herbicide. The herbicide had been applied by air and the surrounding vegetation had also been covered. Sometimes this may not matter, but at this site, on a high, rocky ridgeline, with harsh weather and thin soils, the loss of the shrubland and emerging mahoe and kowhai trees that had been killed with the gorse had simply created an ideal habitat for the next gorse crop, because competition for space, light and water had been eliminated. In two years' time the yellow flowers will again attract attention, again be sprayed and any young shrubs and trees emerging will once again be burnt by herbicide.

Controlling weeds

There is a range of control options for weedy groundcovers, from physical control to herbicide application. Groundcovers are difficult to eradicate and repeat control efforts are needed. Check out the weed search at www.weedbusters.org.nz for specific control options for each weed species.

You can get help with weed identification from your local QEII representative, regional council biosecurity officers, or Department of Conservation area staff. If you want to try identification online, check out Landcare Research's plain language weed key at <http://www.landcareresearch.co.nz/resources/identification/plants/weeds-key>.

COMMON OFFENDERS

Massive roots and rhizomes

| | |
|-------------------------|--|
| Aristea | <i>Aristea ecklonii</i> |
| Tuber ladder fern | <i>Nephrolepis cordifolia</i> |
| Arum and 'green goddess | <i>Zantedescia ethiopica</i> |
| Elephant ear | <i>Alocasia brisbanensis</i> |
| Wild ginger | <i>Hedychium gardnerianum</i> , <i>H. flavescens</i> |
| Montbretia | <i>Crocsmia x crocosmiiflora</i> |
| Stinking iris | <i>Iris foetidissima</i> |
| Yellow flag iris | <i>Iris pseudacorus</i> |
| Agapanthus | <i>Agapanthus praecox</i> , <i>A. orientalis</i> |

Other space hogs

| | |
|-----------------------|----------------------------|
| Himalayan honeysuckle | <i>Leycesteria formosa</i> |
| Italian jasmine | <i>Jasminum humile</i> |
| Bears breeches | <i>Acanthus mollis</i> |
| Gunnera | <i>Gunnera tinctoria</i> |

Gorse can act as a nursery crop and provide shelter for future trees, and, as the above case illustrates, in some circumstances killing it off can push back the regeneration process. The seed bank of gorse and broom is large and far longer-lived than the landowner, so in following the approach above you could be setting yourself up for a long war.

There are techniques to reduce overspray, spray drift and off-target damage of broadcast herbicide. They can cost more up-front in time and money than aerial application but if you factor in the cost of planting nursery-grown replacement trees and shrubs, the time and money of a careful control programme can be seen as a cheaper investment in the long run. Alternative control options include:

- cut and paste individual bushes
- knapsack application on calm days
- prills placed at the base of bushes
- drill and poison tree weeds
- basal bark spraying of tree weeds.

Covenantors have long timeframes when it comes to weed elimination and the recovery of indigenous vegetation in their covenant. Covenants are, after all, in perpetuity.



www.weedbusters.org.nz



Artillery plant



Tradescantia



Wild ginger



Agapanthus



Fairy crassula



Snow poppy



Montbretia/Crocsmia



Yellow flag iris

Genuine groundcovers

Plectranthus
Mexican daisy
Snow poppy
Tradescantia
Fairy crassula
Artillery plant
Periwinkle

Plectranthus ciliatus
Erigeron karvinskianus
Eomecon chionantha
Tradescantia fluminensis
Crassula multica
Lamium galeobdolon
Vinca major

Horizontal climbers

Japanese honeysuckle
Ivy
German ivy
Cape ivy
Convolvulus/bindweed

Lonicera japonica
Hedera species
Senecio mikanoides
Senecio angulatus
Calystegia sylvatica

Groundcovering grasses

Palm grass
Himalayan fairy grass

Setaria palmifolia
Miscanthus nepalensis



Plectranthus



Arum and 'green goddess'



Himalayan fairy grass



Mexican daisy



German ivy



Japanese honeysuckle



Stinking iris



Elephant ear



Ivy

Anti-social climbers

Exotic climbers and vines are some of the most striking and attractive plants in gardens. Many have masses of colourful flowers, or interesting foliage and fruit. They are great for covering unsightly fences or sheds, or for trailing up trellises for privacy or shelter. But these climbing beauties have a dark side when they get out of control. A number of them end up as unruly nightmares for both owners and neighbours, and a major threat to the environment if they escape into natural areas. Carolyn Lewis of Weedbusters NZ explains.

CLIMBING ASPARAGUS – JEFFSMITHPHOTOGRAPHY.CO.NZ

Most of the weedy climbers smothering our bush and forests were originally ornamental garden species. One of the best known is old man's beard (*Clematis vitalba*), but there are other less 'famous' ones, such as climbing spindleberry (*Celastrus orbiculatus*) and mignonette vine (*Anredera cordifolia*), that have shown their true nature in the last few decades. These weedy climbers are now banned from sale, propagation and distribution, and have recently been joined on the unwanted list by the showy chocolate vine (*Akebia quinata*) and the eye-catching cat's claw creeper (*Macfadyena unguis-cati*). Others, such as jasmine (*Jasminum polyanthum*) and wonga wonga vine (*Pandorea pandorana*), are also causing concern in some regions of New Zealand.

Climbers and vines are biologically programmed to spread, and to head into the sunlight wherever they grow. Contrary to popular belief, most don't strangle the plants they grow over in their quest to enjoy the sun; they just use these plants as support to get to where they want to go. Because of this they don't need sturdy stems to support them, and most have spindly, flexible stems anchoring them to the ground.

There are exceptions to every rule, of course. Jasmine can ringbark the plants it grows up, and climbing spindleberry will wrap itself so tightly around tree trunks that the trunks can't grow in diameter.

Also contrary to popular belief, climbers and vines don't live off the plants they use for support. Some species, like ivy, produce aerial roots that can capture water and nutrients in the bark of the trees they are growing up to allow them to grow even if their root system is removed from the ground. Luckily this is not the case with most climbers, which will die if their root system has no contact with soil.

These features do not mean that the supporting plants are unaffected. Many plants and trees are damaged or killed from the

weight of vines and climbers. This is especially true of the moth plant (*Araujia sericifera*) and the mignonette vine that produce large amounts of heavy propagules. Supporting plants can also die from lack of sunlight caused by the dense foliage of weedy piggybackers like the chocolate vine or Japanese honeysuckle (*Lonicera japonica*).

If these climbers and vines can't find something to climb up, they will spread along the ground, forming dense mats as effective as any groundcover at keeping out native seedlings and smothering low growing plants.

As with any invasive weed, climbers and vines spread in a variety of ways. Banana passionfruit (*Passiflora mollissima*), Chilean flame creeper (*Tropaeolum speciosum*) and asparagus weed plants produce seed-bearing fruit that is spread by birds. Others, such as Chilean glory vine (*Eccremocarpus scaber*), cat's claw creeper and old man's beard, have wind-spread seeds. Mignonette vine has nodules along its stems that fall off and can be carried a long way by water.

Some weedy climbers and vines, like blue morning glory (*Ipomoea indica*) and convolvulus, do not (or very rarely) set seed in New Zealand but will grow from stem fragments. These can only get to bush areas by people moving them there. Even without seeding, these climbers are some of the most commonly found throughout New Zealand, indicating that dumping garden waste is still a major source of weed infestations on bush margins, especially near roads.

Controlling vines and climbers is a challenge, and control options range from physical removal to applying herbicides.

In most cases, cutting stems that have taken root will cause the foliage above ground level to die off. With many vines and climbers, any stems that make contact with the ground will take



Banana passionfruit



Blue morning glory



Blue passionfruit



Bushy asparagus



Cat's claw creeper



Chilean flamecreeper



Chocolate vine



Chilean glory



Climbing asparagus



Climbing dock



Climbing spindleberry



Cup and saucer vine



Ferny asparagus



Japanese honeysuckle



Jasmine



Mignonette



Mile-a-minute



Moth plant



Old man's beard



Smilax

Where to go for help

Check out the weed search at www.weedbusters.org.nz for specific control options for each weed species.

If you are not sure which weeds you have growing in your covenant, you can get help with identification from your local QEII contact, regional council biosecurity officers, or Department of Conservation area office staff.

If you want to try identification online, check out Landcare Research's plain language weed key at <http://www.landcareresearch.co.nz/resources/identification/plants/weeds-key>.



www.weedbusters.org.nz

root, so ensure that these stems are cut and that no fragments are left on the ground to regrow. Don't try pulling vines off the supporting vegetation as you will cause more damage to the plants you are trying to save! The pieces of stem that have formed root systems need to be dug up and disposed of off-site or treated with herbicide to prevent them from resprouting.

There are plenty of non-weedy climbers that can be used in place of weedy exotics, and gardeners are encouraged to plant these

instead. New Zealand has some truly gorgeous native climbers, including puawananga (*Clematis paniculata*), the orange flowered rata (*Metrosideros fulgens*), and Three King's vine (*Tecomanthe speciosa*). Non-native alternatives that stay where they are planted include yellow jessamine (*Gelsemium sempervirens*) and Chilean bellflower (*Lapageria rosea*), as well as star jasmine (*Trachelospermum jasminoides*) and firecracker vine (*Manettia luteorubra*).

Weeds – taking on sneaky succulents and rampant rhizomes



Controlling weeds with rhizomes, bulbs or corms is a tricky process and takes a long time – ask anyone who has tried to get rid of oxalis from their garden! If using herbicides, the product needs to last long enough in the plant to get to the underground storage system to kill there as well as the foliage above ground. Expect to treat this weed category several times for lasting results, and make sure you use the right method. Check out the Weedbusters website www.weedbusters.org.nz for control options.

Sneaky succulents

They may be often delicate looking, but a number of succulents have started making their unwelcome presence felt in New Zealand's natural areas. They are a particular problem on "poor" ground (sandy, rocky, gravelly soils) where they can spread rapidly to form large infestations.

Weedy succulents are spread mainly by fragments moved in soil or by people dumping garden waste. They can form extensive mats, smothering other plants and crowding out native species that would normally grow in the infested areas.

Pig's ear (*Cotyledon orbiculata*) is a common offender, followed closely by the exotic iceplant (*Carpobrotis edulis*). These are often found near beaches where they have "escaped" from holiday home gardens to invade the dunes nearby.

Other offenders include fairy crassula (*Crassula multicava*), often found in gardens in the northern parts of New Zealand, and a growing problem on northern off-shore islands where they have been planted around baches that are located close to natural areas.

At the other end of the country, stonecrop (*Sedum acre*) is spreading into dry grassland and rocky landscapes in Canterbury and Otago.

While pig's ear and fairy crassula are now banned from sale, propagation and distribution in New Zealand, stonecrop and exotic iceplants are still available. There are plenty of other non-weedy succulents that can be used in their place, so ask your local garden centres for some environmentally-friendly options.

Rampant rhizomes (and bulbs and corms)

Weedy species that form bulbs, corms, or rhizomes (swollen root systems resembling tubers) are particularly hard to kill, for even if the foliage is completely removed, the underground "survival units" allow the plant to resprout and continue growing.

This weed category has a wide range – from the small delicate (on the surface!) montbretia (*Crocosmia x crocosmiiflora*) and aristeia (*Aristea ecklonii*) to the large and leafy wild gingers (*Hedychium* species) and arums (*Zantedescia* species), including the green-tinged "green goddess" arum lily. In between there are the clumping weeds like the yellow flag iris (*Iris pseudacorus*) and stinking iris (*Iris foetidissima*).

These rampant weeds can thrive in a variety of conditions. Some (for example wild ginger) are shade tolerant, making them particularly dangerous in bush areas where they can infiltrate the undergrowth. Others, such as the yellow flag iris, are happy to grow with very wet feet, making them a threat to waterways and lakes, as well as surrounding areas that get occasional or seasonal flooding. Arums lurk on the edges of wetter areas, and will spread into wetlands without much encouragement at all.

As well as spreading by their underground structures, many of these weeds also spread by seed, making them doubly effective at invading areas where they don't belong.



Aristea in flower



Arum lily



Ice plant (exotic)



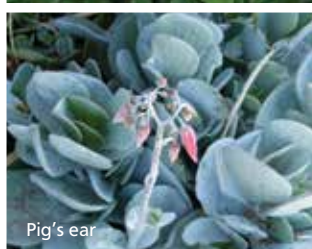
Fairy crassula



Kahili ginger flowerheads



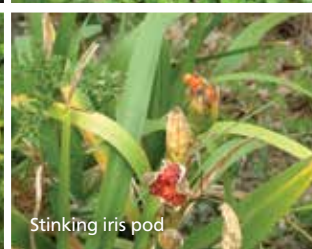
Montbretia



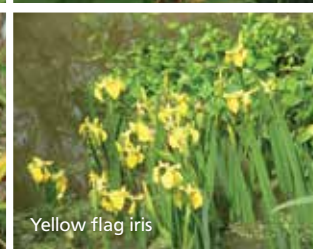
Pig's ear



Sedum acre



Stinking iris pod



Yellow flag iris

Privet – let's get rid of it!



Tree privet (*Ligustrum lucidum*) and its close relation, Chinese privet (*Ligustrum sinense*), are unwanted pest plant species in New Zealand. They were originally introduced as ornamental and hedging plants. By the 1950s both had escaped home gardens to spread throughout most parts of New Zealand.

What's the problem?

Privet is a hardy plant that can tolerate most environmental conditions, making it a very successful weed. Its seedlings grow easily to form a dense carpet, smothering out other species.

Tree privet can grow as high as taraire or pohutukawa over time, and eventually dominate and replace canopy trees in most forest types.

Chinese privet is often found growing in clusters in farm hedges, at road and stream edges, in wastelands, and along old railway lines, but also in forest remnants where it can displace lower shrubby natives.

The privet's berries and leaves are poisonous to humans and animals and the pollen from its fragrant flowers can trigger allergic reactions.

How to get rid of it

- Physical removal of the entire plant and all fragments to a land fill is the best organic method.
- Herbicides suitable for privet control include those containing the active ingredient glyphosate.
- For medium to larger shrubs use the STUMP TREATMENT method, where the woody stems are cut back and a herbicide gel is applied to the cut surface area.
- For larger trees use the CUT AND INJECT method, where shallow cuts are made around the trunk of the tree with a machete or hatchet and then filled with herbicide gel. Alternatively, drill a hole and fill with herbicide gel.
- For small to medium sized shrubs and trees use the SPRAY method, preferably using a spray with a penetrant. To get maximum benefit this needs to be done on all leafy surfaces during the active growing season.

What does it look like?

Tree privet

- grows up to 15m
- has oval glossy leaves
- produces racemes or clusters of small, cream-coloured fragrant flowers produced from November to March
- produces bluish or purplish-black fruit.



Chinese privet

- grows up to 5m
- has dull green leaves
- produces white, fragrant flowers from September to December
- produces dull black-coloured fruit.



MORE INFORMATION

Contact your regional council biosecurity officers to find out about the status of privet where you live, who is responsible for its control and/or advice on how to control it yourself.

Covenantors can contact their National Trust regional representative for advice on controlling privet and other weeds.

Visit www.weedbusters.org.nz for help and advice on identifying and controlling all types of weeds.

Privet control test case



Privet has been successfully eradicated in a Waikato covenant. A year ago a small thicket was cut down and a herbicide gel (Cut'n'Paste) was applied to the stumps. The 'after' photos show the effectiveness of the treatment a year on. A stump that missed treatment shows just how lushly privet will re-sprout after being chopped down.

Samples of the New Zealand-made product, Cut'n'Paste, were provided to the National Trust to test on woody weed species. The landowner in this trial case says he is pretty happy with the results. 'The paste was easy to use and effective. I have got more in to carry on with the good work,' he says.

Weeds along waterways

By Weedbuster's Carolyn Lewis



Fencing off and replanting areas along waterways can really help improve water quality and provide wildlife and bird corridors, but one of the biggest issues landowners face with these areas down the track is weed invasions. Without a good plan for initial weed knockdown and then ongoing control, these areas can become a weedy mess.

The weeds that you will be dealing with along your waterways will vary depending on the nature and location of the riparian area. Waterways in the middle of rural areas are more likely to have the bird- and wind-spread seeds of weedy species growing in surrounding areas. Waterways closer to towns or near roadways might have weeds introduced through dumped garden waste, as well as seeds from nearby homes.

Blackberry (*Rubus fruticosus*) is, in my experience, the nastiest one to work around because of its prickles. Blackberry can form thick mats up to a metre high, and spread sideways to take root everywhere it touches the ground.

Weedy vines, such as old man's beard (*Clematis vitalba*), blue morning glory (*Ipomoea indica*), banana passionfruit (*Passiflora species*), and Japanese honeysuckle (*Lonicera japonica*), can cause serious damage to the forest canopy as well as to individual trees. These vines smother the tops of trees, preventing light from reaching the leaves below, and eventually causing the forest canopy to collapse. That opens a pathway for even more weeds to invade.

Weedy shrubs and trees such as tree privet (*Ligustrum lucidum*) and Chinese privet (*Ligustrum sinense*), hawthorn (*Crataegus monogyna*) and barberry (*Berberis glaucocarpa*) can be a major problem around waterways — as can cracked willow (*Salix fragilis*) and grey willow (*Salix cinerea*). Depending on where you are in New Zealand, you may also be dealing with elderberry (*Sambucus nigra*), flowering current (*Ribes sanguineum*), and woolly nightshade (*Solanum mauritianum*). These weedy shrubs and trees alter natural ecosystems by shading the ground, changing the soil conditions, and displacing native species.

Weedy ground covers and herbaceous plants can smother native plants and prevent native seeds from germinating and growing. Weeds like wild ginger (both yellow ginger (*Hedychium flavescens*) and kahili ginger (*Hedychium gardnerianum*)), montbretia (*Crocsmia x crocosmiiflora*), and tradescantia (*Tradescantia flumenensis*) are notoriously hard to get rid of and need ongoing control efforts. Weedy grasses like pampas (*Cortaderia jubata* and *C. selloana*) can crowd out other species and become a major problem in riparian areas.



African clubmoss –Selaginella



Barberry flowers



Hawthorn in flower



Elderberry in flower



Elephant's ear foliage



Wild ginger in full flower

Mix and match control methods to suit the situation

Take stock of the weeds you have before planning what to do with them. Every site will be different and different approaches may be needed to get the best results.

Things you will need to consider before starting include:

- Is it best to spray the whole site and then deal with the regrowth and what is underneath?
- Can you treat trees while they are standing, or do you want to clear the area to see what you have there to deal with?
- Is it okay to leave the cut branches where they fall, or will that make future weed control harder under a mass of woody waste?
- Can you leave the plant material there to rot down or will you need to remove it? If removing it, where can you dispose of it safely?

Once you have a plan in place, run it past someone with weed control experience to see if they think it is practicable.

Busting weed infestations is never an instant fix. Do the initial knockdown once, and do it right. Then leave it a season and deal with the next lot of weeds that come up — either regrowth from initial treatment, or germinating seedlings. Then, and only then, start planting species that you want to establish in the area (unless you are prepared to return to the site regularly to weed around your new plantings).



Montbretia flowers



Woolly nightshade flowers

Controlling vines and climbers

Individual vines can be **cut and stump treated**, making sure that remaining vines don't touch the ground where they can regrow. For large infestations, you can cut all the vines, leave them in the trees to die down, then **spray the regrowth** the following season. Avoid the temptation to pull cut vines down as you might damage the trees the vine is growing over.

Controlling weedy shrubs and trees

Several methods can be used to control weedy shrubs and trees. The one you choose will depend on the size of the infestation, and how persistent the species is. Be aware that most weedy shrubs and trees will resprout if you simply cut them down. Small plants can be **pulled by hand**, but **cutting and treating stumps** is the best method to use for most situations, particularly with smaller trees and shrubs and those that are likely to resprout from the base (for example, wilding pines, elderberry, Darwin's barberry). This method minimises the release of herbicide into the environment while still being effective.

Drilling (or slashing) and injecting stems is useful for large shrubs and trees (for example, crack willow) in places where felling them would damage the surrounding vegetation. You can use a sheep drench pack and gun, or a plastic squeeze bottle with a long nozzle. As this method involves leaving dead shrubs and trees standing, you will need to consider the potential danger from falling dead branches to people using the area.

Overall spraying can be effective for young plants less than a metre high. Spray all parts of the plant using a knapsack sprayer or handgun. Follow label directions carefully and don't let the herbicide come in contact with desired plant species.

Controlling weedy herbs and ground covers

Digging or pulling works for small infestations, but you must make sure you remove for disposal all the plant material, including leaves and underground stems, corms and roots, since many pest herbs can grow from the tiniest of stem fragments (for example, selaginella and tradescantia). A variation on this treatment for tradescantia is to roll the plant material up like a carpet to avoid breaking it into too many pieces. Revisit the site regularly to remove any new weed growth.

Overall spraying may be needed for large infestations, with ongoing follow-up action.

Controlling weedy grasses

Overall spraying is the best option for controlling large infestations of weedy grasses or areas of low-growing grasses. Herbicides are available that kill only grasses.

Always follow herbicide label directions carefully to protect non-target plants and animals.

WHERE TO GET MORE INFO:

Weedbusters New Zealand's booklet 'Weedbusting' looks at the different control techniques mentioned above — you can request this free resource from info@weedbusters.org.nz.

Try an online weed search at www.weedbusters.org.nz for information on control options for various weedy species, from physical control, to control using herbicides.

Covenantors can ask their QEII regional representative for advice on tackling weeds in their covenants.

Weed myths busted!



1

Myth # 1 – Birds need weeds to feed them

Weeds such as privet, cotoneaster, and strawberry dogwood are spread by seeds inside tasty berries. Birds love to eat these bad berries, but they won't starve if they are removed from the menu. There are plenty of non-weedy plants that produce lots of berries that are a good food source for birds. Check out your options in the Plant Me Instead booklet series available on the Weedbusters website <http://www.weedbusters.org.nz/resources/plant-me-instead-booklets/> or source plants for your garden/covenant at this website – www.naturallynative.co.nz.



Kereru gorging on the fruit of weedy African olive trees



How weeds spread: bird poop full of weed seeds

2

Myth # 2 – Monarchs need moth plant

The monarch's caterpillars will happily chomp on the weedy moth plant (*Araujia hortorum*) but things get sticky once they emerge as butterflies and start feeding on the plant's flower nectar. The gummy nectar plasters up the butterflies' feeding parts, causing them to slowly starve to death. It's not for nothing that the moth plant is also known as cruel vine! Look for other plants to feed the voracious caterpillars that won't end in a death sentence for the monarch butterflies. Check out www.monarch.org.nz for some ideas.



3

Myth # 3 – Pretty plants aren't a problem

Most of our environmental weeds are garden plants that have jumped the fence and spread into natural areas, causing damage by crowding out native species. They were brought into New Zealand originally as ornamentals prized for their beautiful flowers and foliage. But as the saying goes 'beauty is as beauty does'. These invasive plants need to be judged by their weedy behaviour, not their good looks.



The pretty Mexican daisy is now a troublesome weed

4**Myth # 4 – If it doesn't seed, it can't be weedy**

Many weedy plants produce seeds that are spread by birds, wind, water, or humans. It is easy to think that those that don't produce seeds are problem-free. Think again – seedless weeds include tradescantia, Manchurian wild rice, alligator weed, and blue morning glory. They are spread by fragments taking root, or stems layering when they touch the ground, forming new plants. Climbers and groundcovers are particularly bad for spreading this way. Fragments can be spread by water, soil movement, and by people moving them around, either inadvertently, or by dumping them where they shouldn't.



Blue morning glory and tradescantia are spread without seeds

5**Myth # 5 – Variegated plants aren't weedy**

Just because you don't see variegated foliage in natural areas, it doesn't mean they don't spread. They just escape from cultivated areas in disguise. Japanese spindle tree (*Euonymus japonicus*) and 'gold stripe' pampas (a variegated form of *Cortaderia*) are a case in point – both are spread from the seeds of variegated parent plants, but the offspring grow plain old green.



Variegated plants (like the Japanese spindle tree pictured) can change colour in the wild

6**Myth # 6 – Weedwaste is greenwaste and can be composted**

Leaves and branches of weedy plants are often safe to compost or mulch, but many weeds can grow easily from stems and root fragments. Unless your compost heap gets extremely hot, you are taking a big risk trying to dispose of weed waste this way. As far as seeds, berries, roots, bulbs, or tubers go – it is not even worth trying. And whatever you do, don't just cut down or dig up weeds and throw them over the fence to rot down in gullies, reserves, or waste areas. Doing this is a sure-fire way of creating a new infestation of weeds that someone else will have to deal with. It also creates another seed source for weeds to spread from.

Dumped weeds have contaminated a natural planting



Good plant or bad weed?

Many native wetland species have exotic doppelgangers that have become invasive weeds in the wild. You want to be sure you remove the right one when out weeding. Karen Denyer of the National Wetland Trust of New Zealand shares tips to help you identify some errant species.

NATIVE



Tough toetoe (*Austroderia* species)

- Tough midrib and hard to rip its leaves
- Base of leaf has a bluish look
- Flower head curves

WEED LOOK-ALIKE

Pesty pampas (*Cortaderia* species)

- Weak midrib and leaves easy to rip
- Usually has dead, curled-up leaves at its purplish base
- Flowers are more upright



Uncommon calystegia (*Calystegia sepium* subsp. *roseata* — sometimes called convolvulus)

- Pink flowers
- Visible sepal
- Slender green bracts at the base of the flower



Bothersome bindweed (*Calystegia sylvatica*)

- White flowers (hybrids can have pale pink flowers with overlapping bracts)
- Sepal hidden
- Swollen green bracts at base of flower



Welcome water milfoil (*Myriophyllum robustum*)

- Threatened native plant
- Tends to look more bronze coloured than its bluer parrot feather look-alike
- Pointy tips



Pesky parrots feather (*Myriophyllum aquaticum*)

- Aggressive weed
- Bushier than the native look-alike
- Rounded tips



NATIVE

Regal king fern (*Ptisana salicina*)

- Endangered native
- A range of habitats including wet rocky gullies, shady streams and damp forests
- Large graceful arching fronds
- Spores under its fronds



WEED LOOK-ALIKE

Royal pain (*Royal fern/Osmunda regalis*)

- Rampant in Waikato and moving towards Auckland
- Upright fronds
- Spore bearing fronds look like dock flowers
- Dies back in winter



Joyweed (*Alternanthera nahui*)

- Flowers look a bit like clover flowers
- Flowers form at the leaf base

Irksome alligator weed (*Alternanthera philoxeroides*)

Flowers are on stalks



Marvellous swamp millet (*Isachne globosa*)

- Sword-forming grass spears
- Dainty seed heads
- Little row of hairs in the base of the leaf



Merciless Mercer grass (*Paspalum distichum*) and other exotic grasses

Exotic grasses have a papery ligule in the leaf base



More information

Over 90 percent of New Zealand's wetlands have been drained or filled. The National Wetland Trust of New Zealand is working towards reversing this trend. Find out more about their work at www.wetlandtrust.org.nz.

Weedbusters — www.weedbusters.org.nz has information about weeds and how to control them.

New Zealand Plant Conservation Network — www.nzpcn.org.nz — for information about New Zealand's native plants.



Blue morning glory



Chilean flamecreeper



Climbing dock



Japanese honeysuckle



Moth plant



Blue passionfruit



Chocolate vine

Weedy plants are one of the greatest threats to New Zealand's natural environment. Many weeds are ornamental plants that have 'jumped the fence' from gardens and gone wild. Humans are often the cause of weed problems in the wild and can also be the solution. All of us can take steps to help manage the negative impact of weeds.

Weed information and useful links

Weedbusters

www.weedbusters.org.nz

Weedbusters is a weeds awareness and education programme that aims to protect New Zealand's environment from the increasing weed problem. The weedbusters website has diverse resources to help with weed identification and control.

Landcare Research weed key

<http://www.landcareresearch.co.nz/resources/identification/plants/weeds-key>

A key for the identification of weeds in New Zealand.

New Zealand Weeds – Massey University database

http://www.massey.ac.nz/massey/learning/colleges/college-of-sciences/clinics-and-services/weeds-database/weeds-database_home.cfm

Designed for members of the public and for students studying weeds.

Plant Me Instead booklets

www.weedbusters.org.nz

Plant Me Instead booklets profile the environmental weeds of greatest concern regionally. Suggestions are given for locally-sold non-weedy species that can be used to replace problem plants in your garden. Download booklets from the weedbusters website.

New Zealand Plant Conservation Network

www.nzpcn.org.nz

This website provides information about native plants and their conservation in New Zealand. The Network's main focus is nationally threatened plants. It also provides information on exotic plants.

National Pest Plant Accord

<http://www.biosecurity.govt.nz/pests-diseases/plants/accord.htm>

The National Pest Plant Accord (NPPA) is a cooperative agreement between the Nursery and Garden Industry Association, regional councils and government departments with biosecurity responsibilities. All plants on the NPPA are unwanted organisms under the Biosecurity Act 1993. These plants cannot be sold, propagated or distributed in New Zealand.

Many regional council websites have local weed information and control strategies.

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