



Controlling problem weeds in riparian zones

Restore our riparian zones

Quality for Life



greater WELLINGTON
REGIONAL COUNCIL



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Introduction

Over the past several hundred years, the landscape in the lowland areas of the Wellington region has changed from mostly native bush to pastoral farming. Urbanisation has also steadily encroached onto these lands.

For the region's streams, this has contributed to soil erosion, changes in form, deteriorated water quality and the loss of vegetated riparian margins (that is, plants living along the stream banks). Many streams now offer poorer living environments (habitats) for fish and plant life, fewer recreational opportunities and reduced biological diversity.

Recognising this, the Greater Wellington Regional Council (Greater Wellington) is working with community groups to restore riparian areas and improve water-based habitats and water quality.

This guide has been produced to help in such restoration projects, as weed control – especially before planting – has a vital role in ensuring plants have the best chance of survival. This particularly applies to streamside areas that have become weed-infested wastelands. Well established weeds like blackberry and convolvulus need to be thoroughly cleared to avoid plantings being swamped in their first spring. Weeding early also has a number of advantages, as working around young plants is difficult and can result in a disheartening and expensive casualty rate.

The guide outlines **non-chemical** and **chemical** ways to control weeds, including their advantages and disadvantages. It's important to note that often a combination of methods gives plants the best opportunity to survive.



Waterfall and stream in central Wellington.



Small rural streams like this suffer from high levels of contamination and high water temperatures.

Non-chemical control methods

Hand weeding or mechanical control



Wandering willie being put into a bag and water being added to help it rot.

Hand weeding can be done with tools such as weed-eaters and grubbers or by digging up the plants by hand.

Weeds can sprout from fragments, so all plant material (including roots) should be removed from the site. If you wish to compost the weeds, put them in plastic shopping bags and leave them tied up to rot for 12-18 months before adding them to your compost. You can also dry or burn weeds, but make sure there is no objectionable smoke beyond your property boundary and that smoke doesn't cause a hazard.

Advantages: you're only removing the plants you don't want. Other desirable plants are generally undamaged.

Disadvantages: weeding is labour intensive and time consuming. The soil disturbance may also encourage weed seeds buried in the soil to germinate. Inexperienced weed-eater operators can easily damage native plants.

Weed-mats



A young cabbage tree with carpet around the base to protect it from weeds.

You can stop weed germination by putting weed-mats around plants, either as a blanket over the entire area or around individual plants. Each blanket should be at least one square metre in size.

Recommended matting materials include used natural fibre carpet, woollen weed matting, cardboard and wet newspaper. If you're using carpet, make sure plants don't rub against the hard edge – they can die from the 'ring barking' this causes.

We don't recommend polythene because it is not biodegradable and must be removed after the plants have grown. Also, it prevents rain from penetrating the soil, drying out the streamside zones.

It's important to make sure matting is held down firmly to stop it moving in floods or high winds. Try using mulch or rocks, or holding it down with wooden or wire pegs. Alternatively, push the mat corners into the ground with a spade.

Advantages: matting helps to retain moisture and offers some weed control, depending on the material you use.

Disadvantages: in windy conditions, matting can blow around and damage the plants.

Mulch

You can spread organic material (at least 100mm thick) around the base of your plants. This prevents weed invasion and stops the soil drying out.

Ideal mulch materials are bark, untreated sawdust and plant materials (pulled weeds). If you're going to use pulled weeds, make sure they are not the kind that sprout from small fragments or have viable seed attached.

It's a good idea to add fertiliser as the mulch decomposition process takes nitrogen from the soil, depriving the plants.

Avoid putting mulch too near the stream; if it floods, the material might be washed away and cause downstream blockages.

Advantages: mulch helps to retain moisture and provides long-term weed control depending on the material you use.

Disadvantages: weeds will penetrate mulch if you lay it too thinly. It can also be blown away by wind, disturbed by birds, dogs and other animals, and washed away by rain or in high stream flows.



Mulch has been used around these plants to suppress weeds.

Chemical control methods

You'll need to apply herbicides in most situations. How much you apply, and how you apply it, will depend on the weed species and infestation levels.

You can apply herbicide:

- by foliage spraying
- onto a cut stump
- after 'frilling' the trunk

Take care when using herbicides near streams. If you're working on public land, use a professional contractor qualified to use herbicides. You'll find an overview of the regional rules on this at the back of this guide.



A bank that has been sprayed for planting of natives.

Foliage spraying

Foliage spraying is the most common chemical weed control method in riparian areas. It is best suited to low weed growth or for re-sprouting stumps, and can be used to control weeds before planting and/or around established plants. You can either spray the entire area or spot spray – but to be successful, you must spray the entire plant.

Before spraying consider:

- how long the chemical will stay in the soil (residual herbicides)
- how close to the stream you can spray
- the weather conditions
- whether you're using a 'broad spectrum' (which affects all plants) or 'selective' (which doesn't affect desirable plants) herbicide. You can get this information from the manufacturer's product label.

Add a wetting agent ('surfactant') to the mixed herbicide. This will help it stick to the weed and increase the amount of herbicide it absorbs.

When applying the herbicide, place a shield around the plants to protect them from spray drift. Shields are simply two pieces of material at right angles to each other, with a handle protruding from the top.

Advantages: foliage spraying provides long-term weed control if you use a residual herbicide. You can also use selective herbicides. It is usually less labour intensive than other weed control methods.

Disadvantages: you can damage the plants if you don't apply herbicides carefully and correctly. Chemicals can leach into the waterways.



A cut stump of Darwin's barberry being sprayed.

Cut stump method

The cut stump method involves cutting the tree or shrub as low as possible and applying the herbicide immediately to the stump.

However, if you don't do it immediately, a protective skin will form over the wound (usually within five minutes) and the stump will need re-cutting.

Advantage: stump cutting destroys standing trees and allows a natural breakdown. It requires only small amounts of herbicide and poses minimal risk to desirable plants or water. It is also simple to use.

Disadvantages: stump cutting opens areas to light, which can trigger weed germination. There are also dangers from dead trees falling, including into streams where they can obstruct the flow.



A sycamore getting deep axe cuts into the trunk before being treated.

Frilling

Frilling involves making deep cuts into tree trunks at regular intervals around the base. Herbicide is applied to the fresh cut using a paintbrush or low pressure sprayer (e.g. knapsack). It is important not to ring bark (i.e. remove a ring of bark from the tree), as this reduces the herbicide absorption.

Advantages: frilling stops the plant from seeding almost immediately. You can mulch the cut trees or shrubs and use it around plants.

Disadvantages: frilling opens areas to light, which can trigger weed germination. There are also dangers from dead trees falling, including into streams where they can obstruct the flow.

Helpful hints

Alongside weed control, you can do a number of other things to enhance plant growth. The sooner your plants grow together and block out the light reaching the ground the better as this will help to suppress weed germination.



Two fertiliser tablets that will help the plants grow strong and healthy.

Fertiliser

Fertiliser helps plants grow quickly. It can be very important in nutrient-deficient soils or where you've used mulch. We recommend tablet fertilisers in riparian areas. Drop a tablet into a 15-20cm hole beside the plant so its roots can absorb the nutrients.

Aqua gel

In dry, sandy soils, aqua gel helps plants survive their first summer. Mix the crystals with water and, before planting, put two handfuls in a slot beside the plant location so the gel and fertiliser don't touch.



A handful of aqua crystals that have been mixed with water will help the plants through any summer droughts.

Plastic plant protectors

Plastic plant protectors were designed to protect plants from hares, but they're also good for protecting young plants from wind and herbicide spray. Do not leave the protector on too long as they can restrict the growth of the plants. You also need to check the protector after a flood as they can damage the plants they are protecting.



Plastic protector around a karamu that can be removed.

Spacing

Plant shrubs no more than one metre apart, and grasses and reeds about half that. In the second or third year, once the canopy has been formed and weeds suppressed, you can interplant your tree species. This mimics nature, as many native tree species need shelter and shade in the early growth stages.

Planning

It's important to plan your weed control programme to identify potential issues. Remember to consider the site's history and identify local weed problems. If the area has been grazed, weeds will grow soon after stock is removed. If you eliminate weeds before planting, you'll save time, money and resources.

Work out a timetable for your spraying, planting and other related work, and keep to it. That way, you'll stop the weeds seeding and getting ahead of your planting.



The closer the plants are planted the less likely weeds will establish.

In weedy urban sites, especially where blackberry or convolvulus is a problem, start weed control at least a year before planting. This will allow you to control regrowth. On other sites, spraying weeds a few weeks before planting will give your plants a head start.

You can either blanket or spot spray (for areas of about one square metre) areas where the plants will be going. This removes grass and weeds that compete with your plants for nutrients and light.

Involve contractors when you start planning. They'll advise you on the best time to spray and should be booked about two months in advance. Note that spraying can't be done in wet or windy weather conditions, and any delays can cause spring weed growth to swamp young plants.

Weed control for specific plants

All spray rates are for knapsack sprays, not guns and hoses.



Agapanthus (*Agapanthus praecox*)

An evergreen plant forming dense clumps to 60cm tall, with thick rhizomes and long narrow leaves, and blue to white flowers.

Treatment methods

- Dig out. On large sites, follow up with spraying.
- Spray: 4g Escort + 200ml glyphosate + 10ml penetrant / 10L water. We recommend you bruise the leaves before spraying.
- Cut stump: cut leaves close to ground. Treat the fresh stump with 1g Escort + 50ml glyphosate + 2ml penetrant / L water or with Vigilant gel. At least three to four follow-up treatments will be needed.



Arum lily (*Zantedeschia aethiopica*)

An evergreen, clump-forming perennial up to one metre tall, with large, arrow-shaped leaves and distinctive white, funnel-shaped flowers.

Treatment methods

- Dig out the tubers. Dispose of them in plastic bags or bury them deep.
- Spray: 3g Escort + 150ml glyphosate + 10ml penetrant / L water.
- Cut stump and mulch the stems and leaves. Treat the stump with 1g Escort + 100ml glyphosate + 10ml penetrant / L water.



Banana passionfruit (*Passiflora mollissima*)

A vigorous climbing vine with three-fingered leaves. Pink tubular flowers throughout the year develop into oval fruit that turn yellow when ripe.

Treatment methods

- Pull the roots up. Cut the plant off above ground or tie the stems in the air to prevent the vines touching the ground and growing new roots.
- If there are large masses of foliage on the ground, spray with Grazon 6m/L + penetrant.
- Where you can't pull the roots up, use Banvine at a vine application rate or Grazon at a gorse application rate.
- Stump swab: Escort 1g/L water; or Tordon BK 100ml/L; or Banvine 200/L.



Barberry (*Berberis glaucocarpus*)

A spiny, woody, evergreen or semi-deciduous shrub growing to three metres tall. It has very sharp spines that are single or divided into three. Small yellow flowers are followed by small purple berries covered in a yellow bloom.

Treatment methods

- Spray: 6ml/L Tordon BK + penetrant.
- Cut stump and treat with Escort at label application rate or Tordon BK 100ml/L water.



Blackberry (*Rubus fruticosus*)

A scrambling prickly shrub, up to three metres tall. Stems are erect, arching and covered with numerous prickles. Leaves are dark green with a lighter underside. White or pink flowers in summer are followed by black fruit. Roots can spread for metres making mature plants difficult to dig out.

Treatment methods

- Dig out (small patches only). Dispose of root crowns and rhizomes.
- Spray: Escort; or Tordon Brushkiller; or Grazon, all at label application rates, in late summer to autumn. If you are spraying regrowth, make sure the stems are at least one metre long and have fully grown leaves to allow maximum chemical absorption.

Good control of blackberry relies on the herbicide being absorbed by the leaves through to the extensive roots and therefore there needs to be enough large leaves on the plant to take in the herbicide.



Broom (*Cytisus scoparius*)

An erect, much-branched, almost leafless, deciduous shrub up to three metres tall. It produces beautiful golden-yellow flowers in spring, followed by explosive pods.

Treatment methods

- Dig out small plants, while minimising any soil disturbance.
- Spray: Grazon 6ml/L + penetrant from spring to summer.
- Stump swab: Grazon or Escort at label rates.
- Wick wiper: Grazon 200/L water from spring to summer.



Buddleia (*Buddleja davidii*)

A many-stemmed shrub, up to four metres tall with dull green, narrow, tapering leaves up to 20cm long. The leaves are usually serrated and often hairy, as is the stem. In early summer, the plant produces numerous tapering heads of sweetly scented lilac flowers with orange centres.

Treatment methods

- Pull or dig out small plants.
- Spray: glyphosate 20ml/L water from February to April.
- Follow up six-monthly.



Cape ivy (*Senecio angulatus*)

A scrambling perennial up to two metres tall. Stems usually form a dense mass. It has thick, fleshy, coarsely toothed leaves, with one to three teeth each side. It produces yellow daisy-like flowers in loose heads during winter.

Treatment methods

- Hand pull or dig out small plants. Dispose of the roots at your local landfill.
- Cut stems below waist height, then spray below this point: glyphosate 10ml/L water; or 2g Escort + penetrant/10L water.
- Stump swab: Escort 5g/L water; or glyphosate 100ml/L water.
- Follow-up work is required.



Climbing asparagus (*Asparagus scandens*)

A scrambling, shade-tolerant climber with tuberous roots. Feathery leaves support small orange berries in autumn.

Treatment methods

- Dig out the tubers and dispose of them. Mulch the stems.
- Spray: glyphosate 20ml/L in spring to early summer only. Do not add penetrant when spraying against tree trunks. Spray lightly, avoid runoff, and note total coverage is not required. Autumn to winter, spray only in frost-free areas on healthy growth. Increase the rate to 30ml/L.
- Weed wiper: glyphosate 330ml/L, no penetrant. Total coverage is not required.



Climbing dock (*Rumex dagittatus*)

A climbing or scrambling perennial with shoots up to three metres long. Small green, pink or reddish flowers in late spring or summer are followed by green or reddish fruits. The leaves are large and arrow-shaped.

Treatment methods

- Dig out tubers and rhizomes (small sites only). Dispose of them at your local landfill.
- Spray in summer: Escort at barberry rates + penetrant; or Tordon BK at 6ml/L; or Tordon Gold at 12ml/L.



Cotoneaster (*Cotoneaster franchetii*)

An evergreen shrub or small tree up to four metres tall with grey-green leaves (younger leaves have a white, hairy underside). It has white flowers in summer, followed by bunches of glossy red fruit.

Treatment methods

- Dig out small plants.
- Spray: Escort (barberry rates) + penetrant in summer to autumn.
- Stump swab: Escort 5g/L water; or Grazon 100ml/L water; or Vigilant.



Fennel (*Foeniculum vulgare*)

An upright, aniseed-smelling perennial up to two metres tall, with many stems and finely divided leaves that die down in winter. It produces yellow flowers in large, showy umbels on the stem.

Treatment methods

- Dig out small sites.
- Spray: glyphosate at 10ml/L water + penetrant; or Tordon Gold at label rates; or Grazon at label rates.



German ivy (*Senecio mikanioides*)

A scrambling or climbing vine three to five metres tall, with ear-shaped appendages at the base of the leaf stalks. It produces yellow daisy flowers that lack the outer ring of ray florets.

Treatment methods

- Hand pull or dig out small plants. Dispose of the roots.
- Cut the stems below waist height, then spray below this point: glyphosate 1%; or Escort 2g/10L water + penetrant.
- Spray: Tordon BK at 6ml/L + penetrant; or Tordon Gold at 12ml/L + penetrant.
- Stump swab: Escort 5g/L water; or glyphosate 100ml/L water.



Gorse (*Ulex europaeus*)

A very spiny, woody perennial shrub up to two metres tall. It produces glorious yellow flowers, mostly in autumn and early spring, followed by explosive seed pods.

Treatment methods

- Pull or dig out small plants.
- Cut stump and treat with Gazon 50ml/L water, or Tordon BK at 100ml/L water; or Escort at 5g/L water.
- Spray: Gazon, Escort or Tordon BK at label rates.



Greater bindweed (*Calystegia silvatica*), also known as convolvulus

A robust, sprawling, climbing, hairless perennial, growing to four metres and producing very large, white, trumpet-shaped flowers. It has large triangular or arrow-shaped leaves. The aerial parts usually die down in winter, while an extensive underground rhizome system makes the plant difficult to control.

Treatment methods

- Spray: Banvine at vine rates; or Escort at 0.5g/L water + penetrant; or Tordon BK at 6ml/L; or Tordon Gold at 12ml/L.
- Stump swab: Escort 5g/L water; or glyphosate 100ml/L; or Banvine 200ml/L water. Mulch the stems.



Hawthorn (*Crateagus monogyna*)

An erect, many-branched shrub, up to six metres tall. The stems have numerous small branchlets armed with spines and thorns up to 25mm long. The leaves are variable, triangular to ovate and coarsely serrated. It forms white, cream or pink scented flowers in clusters at the branchlets ends, which are followed by clusters of shiny red berries.

Treatment methods

- Dig out small plants.
- Cut stump and treat with Escort at label rates; or Grazon at 100ml/L water; or Tordon 50ml/L water.
- Spray: Escort at label rates.



Hemlock (*Conium maculatum*)

An erect annual or biennial herb, up to three metres tall. The leaves are 50cm long, glossy green and fernlike, and carried on hollow hairless stems marked with purple blotches. Hemlock has a long, branched taproot. It forms white flowers in dense umbels on the ends of stems, followed by white or grey fruit in autumn.

Treatment methods

- Dig out.
- Spray: glyphosate, Tordon BK, Grazon or Escort at label rates.



Japanese honeysuckle (*Lonicera japonica*)

A vigorous, climbing shrub capable of growing up to 15m, with opposite paired leaves. From September to May, tube-like white to yellow flowers appear in pairs, followed by glossy black berries.

Treatment methods

- Dig out small sites. Dispose of roots and stems.
- Spray: Tordon BK or Escort at old man's beard rates in summer to autumn. In sensitive areas use glyphosate at 20ml/L water + penetrant.
- Stump swab: Escort 5g/L water; or Tordon BK 20ml/L water + penetrant. Dispose of as above.
- Vine in bottle: cut and dispose of all stems possible. Treat the remainder with Escort 1g/20ml water, 5-10m apart.
- Check for new sprouts six-monthly until clear.



Jasmine (*Jasminum polyanthum*)

A vigorous, evergreen climber growing to 10m that can twine up through supporting vegetation and smother host plants. Jasmine has small, shiny, dark green leaves with seven leaflets. The younger foliage is often tinged with red. The flowers are white-pinkish, tube-like and fragrant.

Treatment methods

- Spray: in summer, Escort 5g/10L water + penetrant; or Tordon BK 6ml/L water + penetrant.
- Stump swab: Escort 5g/L water. Dispose of all cut stems.
- Vine in bottle: pull up all stems possible and dispose of them. Treat the rest in summer with Escort 1g/20ml water, 5-10m apart.



Large-flowered mallow (*Malva sylvestris*)

A shrub up to two metres tall, usually with a single main stem. The lilac or deep pink flowers are four centimetres in diameter, in clusters of two to seven. The velvety leaves are almost round, up to 20cm in diameter.

Treatment methods

- Dig or pull out.
- Spray: glyphosate 20ml/L water; or Tordon Brushkiller 6ml/L water.



Mexican daisy (*Erigeron karvinskianus*)

A sprawling perennial herb up to four centimetres tall with lawn-daisy-like flowers often tinged with pink. The stems are long, thin and much branched and the leaves are small, narrow and fragrant when crushed. The plant flowers all year round in warmer parts of the country.

Treatment methods

- Dig out small plants.
- Spray: Tordon BK at 6ml/L water + penetrant; or glyphosate 10ml/L water + penetrant; or Escort 2g/10L water + penetrant.



Mile-a-minute (*Dipogon lignosus*)

A vigorous scrambler/climber whose leaves have three roughly heart-shaped leaflets, each up to 5.5cm long. The flowers are pea-like and coloured white to pink or lavender.

Treatment methods

- Hand pull small plants and dispose of them.
- Spray: in spring to autumn, Banvine at vine rates; or Escort 3g/10L water + penetrant; or Tordon BK 6ml/L water + penetrant.
- Stump swab: Escort 5g/L water; or Tordon Brushkiller 100ml/L; or Banvine 200ml/L of water. Dispose of all cut material.



Montbretia (*Crococsmia x crocosmiiflora*)

A plant with broad, stiff, grass-like leaves growing from perennial corms, with attractive orange-red flowers in summer. It often forms large colonies along roadsides and streams.

Treatment methods

- Dig out very small sites. Dispose of the corms.
- Spray: glyphosate 10ml/L + Escort 4g/10L water + penetrant at full leaf stage.
- Weed wiper: Escort 1g + glyphosate 100ml + penetrant 20ml/L water at full leaf stage.
- Follow up six-monthly.



Nasturtium (*Tropaeolum majus*)

A scrambling, hairless, pleasant-smelling annual or short-lived perennial climbing to two metres tall, with large, shield-shaped leaves. It produces beautiful scarlet, orange or yellow flowers about four centimetres in diameter.

Treatment methods

- Pull up all vegetation and dispose of it.
- Spray: glyphosate 10ml/L water in spring to summer.
- Follow up six-monthly.



Old man's beard (*Clematis vitalba*)

Property owners have an obligation to remove this plant from their properties (Regional Pest Management Strategy 2002-2022).

A deciduous woody vine with strongly ribbed stems and leaves arranged in groups of five. It produces small, creamy flowers from December to February, followed by masses of fluffy seeds.

Treatment methods

- Spray: Tordon BK at 6ml/L + penetrant in spring to autumn.
- Stump swab: cut stems at ground level. Escort 5g/L water; or Tordon BK 100ml/L; or Grazon 100ml/L; or Banvine 200ml/L of water; or Vigilant gel. Leave stems in the air to dry. Dispose of cut-away segments.



Onion weed, three cornered garlic (*Allium triquetrum*)

A perennial with grass-like leaves, growing from small bulbs, with snowdrop-like flowers on stalks up to 50cm long. The leaves and flower stalks are triangular in section and have a strong garlic smell when bruised.

Treatment methods

- Dig out – best done when the soil is moist. Dispose of the bulbs, or crush them and mulch.
- Weed wiper: Amitrole 330ml/L of water + penetrant in spring to summer only. Avoid contact with the ground.
- Spray: Escort 3g/10L + penetrant.
- Site will need follow-up treatment.



Pampas (*Cortaderia selloana/jubata*)

A very tall grass (up to three metres) with large, fluffy seed heads – very similar to toetoe, although pampas snaps easily when pulled and toetoe does not. The leaves are dark green on both surfaces and the leaf sheaths of mature plants have long hairs. The seed heads are either cream or pink.

Treatment methods

- Dig out small plants and mulch or compost them.
- Spray: glyphosate + penetrant at label rates in summer to autumn.
- Chainsaw at ground level and treat with Tordon BK 50ml/L water.



Periwinkle (*Vinca major*)

Periwinkle forms a dense mat of long-running, hairless stems with roots at the nodes. It has dark green, glossy, sometimes variegated leaves up to four centimetres long. It produces purple-blue tubular flowers up to five centimetres in diameter all year round.

Treatment methods

- Dig out very small sites and dispose of the plant. Check for regrowth.
- Spray: glyphosate 20ml/L + penetrant (spray regrowth with 30ml/L mix); or Escort 1g/10L + glyphosate 20ml/L + penetrant.
- Weed wiper: glyphosate 500ml/L + penetrant.



Plectranthus (*Plectranthus ciliatus*)

A very vigorous runner that spreads along the ground. The undersides of the leaves, and the veins that show through to the upper side, are purple.

Treatment methods

- Pull up and dispose of the plant.
- Spray: Escort 2g/10L water + penetrant; or glyphosate 10ml/L + penetrant; or Grazon at fennel rate.
- Weed wiper: Escort 1g/L water; or glyphosate 250ml/L; or Grazon 100ml/L. All + penetrant.
- Weed mat: leave for three to six months.

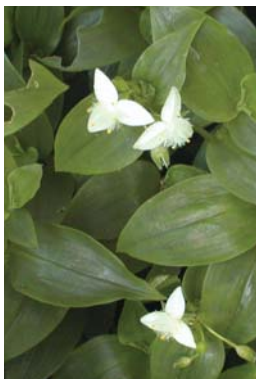


Pussy willow (grey willow) (*Salix cinerea* and *S. fragilis*)

A deciduous, shrubby, thicket-forming small tree, sometimes growing as tall as five metres. Several sturdy branches arise at ground level, and the tree has a rounded crown. Its oval leaves are shiny above and covered with soft, usually grey, hairs underneath. Abundant yellow or silky white catkins appear before the leaves in early spring.

Treatment methods

- Spray: total coverage of glyphosate 15ml + penetrant, at full leaf stage only.
- Drill and fill/cut and squirt: in summer to autumn: one hole (two centimetres deep) every 10cm or cut per 10cm of trunk circumference, and treat with glyphosate. Continue to fill each hole until the chemical has stopped draining.



Wandering willie (*Tradescantia fluminensis*)

A dark green creeping ground cover, also known as wandering Jew or wandering willie. It has shiny, fleshy leaves and small white flowers. Tradescantia forms dense mats, smothering all native ground cover and preventing seedlings from establishing.

Treatment methods

- Rake and roll up (usually only in small spots, to minimise the initial spray) – this is best done in times of drought. Work towards the centre. A follow-up spray is usually required. Note tradescantia presents major disposal problems, as dropped fragments can spread infestation.
- Spray: Grazon or Hydrocotyle Killer 6ml/L water + penetrant. Follow up quickly (within two to three months). You need two to three treatments for total control and are likely to achieve limited results during colder months.
- Weed wiper: Grazon or Hydrocotyle Killer 250ml/L + penetrant. Follow up after two to three months.



Wattle (*Paraserianthes lophantha*)

A fast-growing evergreen up to five metres tall with greenish-yellow bottlebrush-like flowers. It has flat, green or brown seedpods up to 15cm long and each tree can produce large quantities of black seed.

Treatment methods

- Hand pull or dig small plants, ensuring minimum soil disturbance.
- Spray: Grazon at label rates in spring to summer.
- Stump swab: Grazon or Escort at label rates. Large trees don't need to be stump treated.
- Drill and fill large trees: one hole (two centimetres deep) per 10cm of trunk circumference. 10ml Grazon or 2ml Escort (@ 20g/L water) per hole.



Wild ginger (*Hedychium gardnerianum* and *H. flavescens*)

Kahili and yellow ginger produce thick beds of rhizomes, forming a dense ground cover. Sweetly scented flowers appear in late summer.

Treatment methods

- Dig or pull out small plants and dispose of the rhizomes.
- Spray: cut stems right down, Escort 2g/L water. Add penetrant in winter.
- Drill and fill: cut stems right down. Drill one centimetre into at least every second rhizome. Squirt Escort 2g/L water.

Greater Wellington contacts

If you're planning a riparian planting, contact Greater Wellington for support and advice.

Wellington 04 384 5708

Masterton 06 378 2484

Upper Hutt 04 526 5325

Consent requirements for weed control activities

Regional rules

Herbicides are part of the definition of 'contaminant' in the Resource Management Act 1991.

Discharges of herbicides as powders and sprays are controlled in Greater Wellington's *Regional Air Quality Management Plan*.

Rule 1 of the Plan allows herbicide application as a Permitted Activity, although the conditions will depend on whether the herbicide is being applied on public or private land, and whether the application method is hand-operated sprayer or something else.

The following is a general description of the plan requirements. Before you use herbicides, please read the rules on our website (www.gw.govt.nz) or contact the Consents Help Desk on 0800 496 734.

Small-scale applications on private land

If the herbicide is being applied by a hand-operated system with a capacity of 20 litres or less, or if the area being sprayed is less than 50 metres from a neighbouring property or public land and another application method is used, the person applying the herbicide must make sure that:

- only herbicides registered for use over water bodies are applied over water
- they follow manufacturers' instructions on concentrations and application rates
- herbicides are mixed and diluted more than 20 metres from the stream
- they don't spray on windy days or in other circumstances when herbicide could drift and cause effects beyond the target area
- they notify Greater Wellington if there is any discharge into the stream.

Large-scale applications near other properties

If the herbicide is being applied within 50 metres of a neighbouring property using a system with a capacity of more than 20 litres, the requirements for small-scale applications apply. The person applying the herbicide must also:

- notify and write to the nearby neighbours detailing the herbicide that will be used and when it will be used, who will be using it, and how they can get in touch with that person
- keep a spray diary recording when the herbicide was used, what was used, the weather conditions, how the requirements to notify neighbours were met, and whether anything unusual happened.

Applications on public land

If herbicides are being applied on public land or beside roads, it is best to hire a contractor who has the relevant GROWSAFE certificate. They must follow the requirements for small-scale applications and:

- put up signs stating that spraying is in progress
- put signs on vehicles if they are being used for spraying.

For further information

For more information about resource consent requirements, contact the Consents Help Desk on 0800 496 734, check the Regional Plan User Guide at www.gw.govt.nz, or email regional.plan.enquiries@gw.govt.nz.

Requirements under HSNO

Herbicides that have hazardous properties are subject to the Hazardous Substances and New Organisms (HSNO) Act 1996. Under this Act hazardous substances are assigned controls (conditions) that manage the various stages of a substances lifecycle, including controls on its use. These controls apply regardless of any conditions of a Resource Consent or rule in a Regional Plan, except that the conditions or rules can be more stringent than the HSNO controls.

Two types of controls need to be considered when using herbicides.

Do you need to be an approved handler?

The approved handler control requires the user to have a test certificate that demonstrates they have the knowledge and skills to use a herbicide. A person can become an approved handler either through completing a training course or by demonstrating prior experience.

Are there any use-based controls?

Use-based controls place restrictions on the use of a substance.

A herbicide does not necessarily have either of these types of controls, the more hazardous a substance the greater number of more restrictive controls.

Examples of how the Act applies to weed control in riparian zones are:

- Most glyphosate based herbicides can be applied around water bodies without the need to be an approved handler.
- Escort and similar metsulfuron-methyl based herbicides must be under the control of an approved handler when applied onto or into water – this may include spraying in a riparian zone as spray drift needs to be managed so it does not enter the water body. (Note that if sold in small pack sizes for domestic or home garden use, the approved handler requirement does not apply. However, riparian weed control would not generally be considered as domestic or home garden use.)

The provisions of the HSNO Act relating to pesticides came into force on 1 July 2004 with a staggered phase in period. The requirement to be an approved handler applies from 1 January 2005.

For further information:

Refer to the herbicide label or Safety Data Sheet, both are required to have information relating to the HSNO controls that apply.

The herbicide manufacturer or distributor.

The Environmental Risk Management Authority, www.ermanz.govt.nz or 0800 376 234

References and further reading

Department of Conservation 2000: *Weed Manager – a guide to the identification, impacts and management of conservation weeds of New Zealand*. Department of Conservation, Wellington.

Greater Wellington Regional Council 2004: *Mind the Stream. A guide to looking after urban and rural streams in the Wellington region*. Greater Wellington Regional Council, Wellington.

Greater Wellington Regional Council 2004: *Restoration Planting: A guide to planning restoration planting projects in the Wellington region*. Greater Wellington Regional Council, Wellington.

Porteous, T 1993: *Native Forest Restoration – A practical guide for landowners*. Queen Elizabeth the Second National Trust.