

WETLAND PLANTING GUIDE

DIFFERENT PLACES, DIFFERENT PLANTS

No two wetlands are exactly alike. The look of a wetland and its mix of plants and animals will vary with local conditions (e.g. climate, water flow, altitude and substrate). Several different types of plant/animal communities may be present in larger wetlands and all wetlands may change over time as environmental conditions change.

The following types of freshwater wetland are found in the Waikato region.



RAUPŌ

Raupō (bullrush) is a distinctive plant found in still, shallow water around lake edges and even ditches. Spotless crane and the threatened Australasian bittern often make their home in this environment.



KAHIKATEA FOREST

Stands of kahikatea trees are an impressive sight around the Waikato lowland. Kererū feed on kahikatea fruit. Other trees include mataī, kōwhai, cabbage tree, and pukatea.



JOINTED RUSH PEAT BOG

Characteristic peat bog vegetation includes the giant cane rush, *Sporadanthus*, which grows over a lower layer of wire rush. Sundews, orchids and sphagnum moss also grow in peat bogs.

MORE WAIKATO WETLAND TYPES...

SEDGELAND

Many sedge species grow in the Waikato – purei (*Carex*) is the most common. Sedgeland is excellent fernbird and crane habitat, particularly where it grows alongside areas of mānuka scrub or raupō.



MĀNUKA

This versatile tree grows in a wide range of habitats, not just swamps. Cabbage trees often dot the landscape in mānuka wetlands. Large populations of fernbird can be found among the dense mānuka.



FLAX

New Zealand flax (harakeke) is a hardy plant that thrives in lowland swamps but can also cope in quite dry conditions. Tūi love to feed on its nectar. Cabbage trees often dot the wetland and mānuka occurs around the edges.



NATURAL REGENERATION

This is the best option when an area is large or expensive to replant. However, blackberry, willow, grasses and other weeds can take over a wetland and keep it from developing into a native area. If this happens you will need to undertake weed control.



LOOK, LEARN AND THEN PLAN

Before you do any wetland planting, ask yourself some questions. What's there now? Always protect and enhance any desirable plants first. What are your aims? Erosion control? Wildlife? A water source? How much time and what resources do you have? Start small – you can always add to it later on. Download a copy of our Wetland Restoration Plan template from the Waikato Regional Council website.

SEEK ADVICE AND ASSISTANCE

Talk to Waikato Regional Council and other groups listed on Information and Contacts Factsheet 4 about your goals. They can give advice about what to plant, what consents are required, options for funding, etc.

Get some help. See if your local community has any willing volunteers. Are there any local Forest & Bird and Ducks Unlimited members, tree trusts, beautification societies or keen school and church groups who want to help out? They can help by gathering local seed, growing plants, planting, fencing and fund-raising.

PREPARE A PLANTING PLAN

- Divide your wetland up into the three plant zones (see What to Plant in Waikato Wetlands in this factsheet) and make a list of the plants you can use in each zone. Take into account sun, wind, frost risk and drainage. Choose plants characteristic of your wetland type. Check your list with your local nursery or pest officers to ensure they are not potential plant pests.
- Buy plants from nurseries that source plants from your district to ensure they are suited to your area's climate and soils.
- You may be able to grow some of your plants from seeds or cuttings taken from neighbouring wetlands – always seek permission before taking any plant material and ensure you can correctly identify them (many native wetland plants have invasive look-alikes).
- Decide where you want walkways and other features.

TIMING

Over summer, when water levels are low, plant suitable species right next to the water's edge. Hardy, frost tolerant species can be planted in autumn and frost sensitive species in spring. Plants requiring shelter or shade can be planted two to three years later once cover has developed.

SITE PREPARATION

Clear a one metre circle around each plant with a spade or herbicide to ensure they get enough light and nutrients.



PLANTING

Native plants have poor tolerance of being grazed by stock so fence the area first to protect your investment.

1. Set plants out in sites suitable to their growing requirements, leaving space for them to grow. Ground ferns, rushes and small sedges can be planted three per square metre. Larger plants each need around 1.5 square metres.
2. Dig a hole twice the size of the plant container, leaving some soft soil at the bottom. If the hole fills with water, wait for a drier time of year or move further back from the water's edge. Or dig a shallower hole and put your plant on a slight mound, allowing it to adjust to the conditions as it slowly sends its roots into the wetter soil. Set the plant in the hole and gradually fill in the soil, compacting it to remove air gaps. If a post hole borer is used, rough up the sides to allow the roots to penetrate.
3. Form a hollow around the base of the plant to trap rainfall on dry sites. Give the plants and surrounding soil a good watering if needed.
4. Staking the plants at this stage will make them easier to locate later to weed around.

WEEDS AND PESTS

Maintain plantings by clearing weeds around them for two to three years until well established. Pests such as rabbits and possums will need to be controlled, particularly during the seedling stage. See Wetland Restoration Factsheet 1.

ENJOY YOUR WETLAND AREA!

After three years, your plantings should take care of themselves but keep an eye out for weeds. Keep a photographic record to remind yourself how much you've achieved. Invite school groups and those involved in the project to visit the wetland.

MORE PLANTING TIPS

- For a higher chance of survival use larger potted plants. They are also less likely to be uprooted by pūkeko.
- Set your plants out in groups so they can shelter each other and suppress weeds. More plants can be added to the edge of each group as time and resources permit.
- In poor soils, a slow release fertiliser or blood and bone can be added.
- A 10 centimetre deep mulch (e.g. untreated wood chips, compost, newspaper, non-synthetic carpet underlay or rotted hay) can be used to help conserve water, keep weeds down and add nutrients.
- In dry areas, leave a low grass cover around plantings for the first summer (until March/ April) to help conserve water.
- Fast growing plants such as mānuka can be used as nurse plants to provide shade for seedlings underneath, but don't plant them too densely or they will create too much shade and litter for an understorey to develop.
- Most plants listed as tolerant to standing water must first be planted in moist conditions before becoming flooded. Plant these species near the end of summer when water levels are lowest. Place them near the edge of the open water, where you can safely access them, and let them spread naturally into deeper water.

WHAT TO PLANT IN WAIKATO WETLANDS

There are three different wetland environments: standing water, boggy with temporary flooding and moist soils. Use our plant tables below to find the native plants best suited to your wetland area and to help you complete your wetland plan. Not all plant species listed will be suitable for your area or situation, and the list is not exhaustive – other species may work for your site. Coastal and upland areas, in particular, will have their own species associations.

Discuss your plant list with local experts like native plant growers, botanical societies or your local council or Department of Conservation office. The Department of Conservation has produced a number of planting guides for Waikato-specific situations that are available on their website.



Key to plant suitability

1. tolerates or needs
2. tolerant of some
3. not tolerant

STANDING WATER

PLANT	FROST	SUN	WIND	BIRD FOOD	HEIGHT	COMMENT
Jointed twig-rush <i>Machaerina arthropophylla</i>	1	1	1-2	No	1m sedge	Grows in up to 10cm water. Best on peaty soils.
<i>Machaerina articulata</i>	1	1	1-2	No	1.8m up-right sedge	Sturdy with shiny, dark green stems. Grows dense stands at lake edges in up to 30cm of water. Provides bird nesting and shelter.
<i>Machaerina rubiginosa</i>	1	1	1-2	No	1m sedge	Grows in up to 10cm water, in shallow drains or pools.
Kukuraho/marsh club rush <i>Bolboschoenus fluviatilis</i>	1	1	2	No	1.5m up-right sedge	Wide-leaved, summer green sedge common in coastal areas. Able to grow in water 0-20cm deep. Fast growing. Stems die back over winter.
Pūrei/makura <i>Carex secta</i>	1	1	2	No	2m sedge	Forms tussocks on pedestal-like stems in shallow open water and boggy margins. Excellent food, shelter and nesting for ground birds. Can be split or grown from seed.
Bamboo spike sedge <i>Eleocharis sphacelata</i>	1	1	2	No	2-3m sedge	Plant at edges of water and it will spread into deeper water. Can grow in water up to 2.5m deep.
Kāpūngāwhā/lake club rush <i>Schoenoplectus tabernaemontani</i>	2	1	2	No	1.2m herb	Tall, slender blue-green reed that grows in fertile water up to 0.8m deep. Tolerant of fluctuating water levels. Provides good cover for shy wetland birds.
Raupō <i>Typha orientalis</i>	1	1	2	No	2-4m herb	Common sight in sheltered fertile waters, growing in up to 1m of water depth. Has high wildlife value, although dense growths limit access. Dies back in the winter

BOGGY WITH TEMPORARY FLOODING

PLANT	FROST	SUN	WIND	BIRD FOOD	HEIGHT	COMMENT
<i>Astelia grandis</i>	2	2	2	No	2m lily	Large, flax-like plant that prefers shady damp sites under kahikatea or swamp maire.
Toetoe <i>Austroderia fulvida</i>	1	1	2	No	2m grass	Native toetoe (not pampas). Pioneer. Grows on damp sites and stream banks in open areas. Fast growing. Provides wind shelter and erosion control. Propagates by seed or division.
Toetoe <i>Austroderia toetoe</i>	1	1	2	No	3-5m grass	Native toetoe (not pampas). Pioneer. Grows in damp and dry soils. Can grow on poor soils. Less common in lowland areas than <i>A. fulvida</i> .
Kiokio <i>Blechnum novae-zelandiae</i> or <i>B. minus</i>	2	1	1	No	1m fern	Full sun or shade. <i>Blechnum minus</i> is more tolerant of shade and standing water.
<i>Carex gaudichaudiana</i>	2	1-2	1-2	No	0.5m sedge	Grows in swamps and exposed sites next to streams, rivers and lakes. Tolerates flooding. Sward forming.
<i>Carex maorica</i>	2	2	3	No	0.5m sedge	Tolerates flooding. Often found under shade.
Pūrei/makura <i>Carex secta</i>	1	1	2	No	2m sedge	Grows in shallow water, boggy margins and dry soil. Provides shelter and nesting for ground birds.
<i>Carex subdola</i>	2	1	2	No	0.5m sedge	Grows in swamps and exposed sites next to streams, rivers and lakes. Tolerates flooding. Sward forming.
<i>Carex virgata</i>	1	1-2	2	No	1m sedge	Boggy margins, shelter and nesting for birds. More tolerant of dry than <i>Carex secta</i> .
<i>Carex geminata</i>	1	1	1	No	1m sedge	Sward-forming, wide-leaf sedge that forms thickets on damp seepages.
Mingimingi <i>Coprosma propinqua</i>	2	2	2	Yes	3m shrub	White/blue fruit in spring. Distributed by birds. Prefers boggy to dry soils.

PLANT	FROST	SUN	WIND	BIRD FOOD	HEIGHT	COMMENT
<i>Coprosma rigida</i>	2	2	2	Yes	2m shrub	Grows under kahikatea stands and other woody wetland vegetation.
Hukihuki/swamp coprosma <i>Coprosma tenuicaulis</i>	2	2	2	Yes	3m shrub	Found in bogs or swamps, its black fruit attracts birds.
Tī kōuka/cabbage tree <i>Cordyline australis</i>	1	1	2	Yes	12m tree	Tolerates wet and dry soils. Young plants eaten by rabbits. Able to grow from seed. Hardy. Good for erosion control.
<i>Cyperus ustulatus</i>	1	1	1	Yes	1m sedge	Tolerates wet and dry soils.
Kahikatea/white pine <i>Dacrycarpus dacrydioides</i>	1	1-2	2	Yes	60m tree	New Zealand's tallest tree. Plant with side shelter in a moist site. Possum hardy. Red fruit attracts birds in autumn. Can be grown from seed. Separate male and female trees.
<i>Dicksonia squarrosa</i>	2	2	2	No	4-6m tree fern	Hardy. Grows in open or shaded sites. Fibrous roots reduce erosion.
<i>Gahnia xanthocarpa</i>	2	1	2	No	2m sedge	Large tussock-forming sedge, tolerant of sun or shade in damp areas.
Pukatea <i>Laurelia novae-zealandiae</i>	2	2	3	No	30m tree	Fast growing tree, able to handle a wide variety of soils. Will tolerate periodic flooding as breathing roots develop in waterlogged soils. Can be grown from seed.
Mānuka/tea tree <i>Leptospermum scoparium</i>	1	1	1	No	5m tree	Fast growing hardy pioneer. Useful as a nurse crop. Good for erosion control. Can withstand some grazing and grow on a wide range of soils.
<i>Machaerina rubiginosa</i>	2	1	2	No	1m sedge	Grows in up to 10cm water, in shallow drains or pools.
<i>Machaerina tenax</i>	2	2	2	No	0.5m sedge	Grows on boggy or damp sites with poor soils, usually under the shade of mānuka.
Pākihi rush <i>Machaerina teretifolia</i>	2	1	2	No	1m sedge	Grows on exposed sites in boggy conditions. Grows in peat soils.
Harakeke/NZ flax <i>Phormium tenax</i>	1	1	1	Yes	1-3 m herb	Fast growing hardy pioneer in full sun or shade. Withstands 5cm of water flooding and dry soils. Does not have deep or wide roots but useful for drain edge protection. Unpalatable to possums. Easily split into small fans or grown from seed. Particularly attracts tūi. Pioneer.
Maire tawake <i>Syzygium maire</i>	3	2	3	Yes	16m tree	Has red berries. Develops breathing roots in waterlogged soils in sheltered areas.

MOIST SOILS

PLANT	FROST	SUN	WIND	BIRD FOOD	HEIGHT	COMMENT
Putaputawētā/marble leaf <i>Carpodetus serratus</i>	2	1	2	No	Small 10m tree	Grows in swamp forest understorey.
<i>Coprosma areolata</i>	2	2	2	Yes	4m shrub	Grows well as an understorey species under kahikatea, mataī and rimu.
<i>Coprosma rigida</i>	2	2	2	Yes	1m shrub	Grows under kahikatea stands and other woody wetland vegetation.
Karamū <i>Coprosma robusta</i> and <i>Coprosma lucida</i>	2	1	1	Yes	3m shrub	Quick cover. Good for erosion control with fibrous roots. Bird distributed seeds. Eaten by rabbits, but not possums. Can be used as a nurse crop. Grown from seed or cutting. Pioneer.
Round leaved coprosma <i>Coprosma rotundifolia</i>	2	2	2	Yes	4m shrub	Grows well as an understorey species under kahikatea, mataī and rimu.
Mamaku/black tree fern <i>Cyathea medullaris</i>	2	2	3	No	15m tree fern	Plant with shelter in a moist site. Fibrous roots reduce erosion. Can be grown from seed. Fast growing. Eaten by possums.
Whēkī-ponga <i>Dicksonia fibrosa</i>	1	2	2	No	6m tree fern	Grows in hardy, open or shaded sites in cooler, higher elevation locations. Fibrous roots reduce erosion.
Pōkākā <i>Elaeocarpus hookerianus</i>	2	2	3	Yes	14m tree	Often grows with kahikatea in moist conditions.
Poataniwha <i>Melicope simplex</i>	2	3	1	No	4m shrub	Slow growing. Browse-tolerant, understorey plant.
Māhoe/whiteywood <i>Melicytus ramiflorus</i>	3	2	2	Yes	7m tree	Birds distribute the blue berries, which are also eaten by possums and stock. Grows from seed/cutting. A fast growing plant, yet long lived.
Small flowered māhoe <i>Melicytus micranthus</i>	2	2	2	Yes	4m shrub	Grows well as an understorey species under kahikatea, mataī and rimu.
Black maire	2	2	2	Yes	20m tress	Best on fertile soils. Slow growing. Plant to add diversity. Browse tolerant.
Kaikōmako <i>Pennantia corymbosa</i>	1	2	1	Yes	6m shrub	Slow growing. Plant to add diversity. Possum hardy.
Mātai <i>Prumnopitys taxifolia</i>	1	2	2	Yes	20m tress	Propagates by seed or cutting. Berries eaten by birds.
Patē <i>Schefflera digitata</i>	3	2	3	Yes	6m tree	Plant with shelter on a moist site. Reduces erosion. Can establish by seed or cutting. Fast growing. Attracts tūi and waxeyes. Highly palatable to possums and rabbits.
Tūrepo/milk tree <i>Streblus heterophyllus</i>	2	2	2	Yes	12m	Slow growing. Browse tolerant.

WEED CONTROL

In wetlands where many native plants tend to be short, such as sedges, weeds can be a major problem and will often require ongoing management. Smothering by tall grass or rampant bindweed is a common cause of planting failure. Weeds can be cleared by hand or with a grubber or herbicide.

Ponds that get plenty of sunlight and nutrient-rich run off can become choked with algae. A good inflow of water is needed to continually flush the pond and extra depth will help keep it cool. Overhanging trees and plantings will provide shade and trap run off from the surrounding catchment.

HERBICIDES

The use of a suitable herbicide will greatly reduce the need for manual weeding, however, they should be used sparingly and only when necessary in wetland areas. Chemicals are transported rapidly through water, making wetlands more sensitive to pollution and herbicides, and only certain herbicides are registered for use over water. Selective herbicides can be useful for controlling bindweed or blackberry near flaxes and sedges. Do not spray blackberries while they are fruiting to reduce the risk of people eating sprayed fruit

The best time to spray is in late summer when water levels are lower and most nesting and flowering has taken place. Only spray on calm days to avoid spray drift affecting neighbouring plants. New herbicides available in gel form avoid spray drift problems and can be useful on woody plants such as willows.

Applying herbicide onto aquatic weeds or clearing more than one hectare of willow may require consent from Waikato Regional Council, so check with us first.

Further information on suitable herbicides and suggested application rates can be obtained from plant pest officers at Waikato Regional Council.



WANDERING WILLOWS

A variety of willows were introduced into New Zealand for bank stability, shelterbelts and fodder. However, their dense growth can block streamflow and shade out native species. Crack willow and grey willow are particularly invasive. Broken branches of crack willow take root easily in muddy soils, and grey willows have tiny windblown seeds. There are several options for control:

- Cut down trees close to the ground and stack cuttings in a dry place for burning. All remaining stumps should be coated immediately with a glyphosate herbicide.
- Drill a hole in the base of each tree at a 45° angle and inject 80 millilitres of a glyphosate herbicide. This method only works during summer.
- Willows can form an effective shelter for native plant seedlings but they need to gradually be removed as the understorey develops. It can help to cut through any willow roots around new plantings to reduce root competition. Clearing overhead willow branches will provide more light for the new plants.
- Aerial spraying can be used for large-scale willow control but may require a consent from Waikato Regional Council.

HELPFUL HINTS

When working with spades and machinery in weedy areas, wash them down before using elsewhere on the farm.

Fencing out stock will also reduce the spread of weeds.

