

Section 4: Priority Waikato ecosystems

Native forest and scrub

Tall evergreen rainforest clothed more than 70 per cent of the Waikato region prior to human settlement. Forest composition varied mainly with altitude, topography and latitude. Coastal forests were dominated by pohutukawa and had other frost intolerant trees such as karaka, puriri and kohekohe. Lowlands were mainly covered in conifer - broadleaved forest with rimu and tawa most prominent. Within this zone, dense mixed conifer forests were a feature of some areas affected by recent volcanic eruption or on periodically flooded river flats. Poorly drained sites had swamp and semi-swamp forests with abundant kahikatea, pukatea and/or swamp maire.

The uplands including ranges and dormant volcanic cones were more variable and comprised various combinations of conifers, broadleaved and beech forest, with the major species including hardy trees such as kamahi, Halls totara, tawheowheo, tawari and silver beech. Northern forests were significantly different to those of the central and southern areas because of the abundant presence of kauri, tanekaha, hard beech and taraire north of the so called "kauri line" at approximately 38 degrees south latitude (approximately Kawhia through Te Awamutu to Tirau).

These patterns of forest composition are still evident on the landscape but the remaining forests (20 per cent of the Waikato region) are largely confined to the uplands with a patchwork of remnants and second growth characterizing the coastal and lowland zones.

Threats to native forest and scrub

- Forest/scrub clearance, where the clearance of scrub in particular removes opportunities to regenerate young forest. While the main phase of forest clearance is long over in our region, there are continuing problems associated with land use changes such as establishment of exotic plantation forests or new pasture.
- Grazers (such as cattle) and browsers (like possums and goats) cause the most destruction of forest and scrub. Where domestic stock has too frequent access or grazing intensity is too great, forest can be severely degraded. With continuing grazing the forest eventually collapses, as the canopy trees are unable to effectively regenerate. Browsing by goats, deer and possums leads first to compositional change as the most palatable species are targeted first, but eventually canopy collapse occurs if browser numbers are not controlled
- For the fauna dependent on forest habitat the main problem is predation by introduced animals such as possums, rodents, and mustelids (stoats, ferrets and weasels).



Kahikatea forest
Image courtesy of the Department of Conservation

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- Invasive weeds prevent regeneration of native trees by smothering the ground layer or tree crowns, by outcompeting the regenerating young trees. The smaller forest patches close to human activities are the most susceptible to invasion by a range of introduced weeds.

Which types of forest are most depleted in our region?

- Coastal and semi-coastal forest, e.g. Coromandel Peninsula.
- Conifer (e.g. kahikatea, totara) broadleaved forests of alluvial terraces and other high fertility soils, e.g. the Waikato Basin.
- Dense mixed conifer forests, e.g. Pureora Forest Park.
- Swamp forests, e.g. Hauraki Plains.

How do I know what to do, and when?

Use the table overleaf to help you prioritise your management actions. The actions are listed roughly in priority order, though each site is different and will require its own assessment.

Future priorities will be to:

- restore, regenerate and recreate forest habitat to enlarge the present scattered remnants of bush
- recreate mountain to the coast forests establishing corridors to each forest type
- achieve a healthy understorey of native vegetation within each forest type
- restore appropriate species of conifers to a sustainable level of self pollination
- re-connect lowland forest to coastal forest and lowland forest to sub-montane forest
- increase the numbers of birds, insects and other native animals that remain and return native animals that have been lost from natural areas.

Native forest and scrub hot tips

- Visit Environment Waikato's website for forest management fact sheets and information on weeds and animal pests: www.ew.govt.nz
- Read Environment Waikato's booklet "Planting Natives in the Waikato Region" for information on planting native trees and shrubs.
- Call 0800 BIODIV for ecological district planting guides.
- Phone the Department of Conservation (Waikato Conservancy) for their bush restoration template.
- Visit the Weedbusters website: www.weedbusters.org.nz
- Visit the Landcare Research website for the Green Tool Box and to read their factsheet on how to prioritise weeds: www.landcareresearch.co.nz
- Visit the New Zealand Landcare Trust website for the Biodiversity Restoring the Balance self-help kit and for information and resources for community groups: www.landcare.org.nz
- Visit the New Zealand Ecological Restoration Network website for information on ecological restoration: www.bush.org.nz/nzern
- Read "Native Forest Restoration - A Practical Guide for Landowners" by Tim Porteous.
- Visit www.formak.co.nz/default.aspx for the Forest Monitoring and Assessment Kit (FORMAK).
- Learn more about native plants on the Native Plant Conservation Network website: www.nzpcn.org.nz



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Choosing Actions: Native forest and scrub

Assess needs/plan

Do this before anything else! Seek professional advice if you need to identify the management issues for your site. Write up a plan of action. Get a copy of the bush restoration plan template from the Department of Conservation or 0800 BIODIV (246348).

Seek funding

Complete this table to determine what actions are needed and how much each will cost before you apply for funding. You may need to obtain funding before you can start on the work. Call 0800 BIODIV for funding advice.

Action and Priority	Comments
Fencing Control animals that adversely affect forest	<ul style="list-style-type: none"> If grazing animals can enter your site they will trample the soil and eat the plants, and their dung and urine will pollute the site. Heavier animals, such as cattle, are generally more damaging. Even a hot wire will be a good start to keep cattle out. A more robust type of fence will be required to keep out deer, pigs and goats. Be ready to tackle weeds as soon as the last stock are out, you may find the weeds 'take off' when grazing stops.
Control weeds 1 st Regional plant pests 2 nd Woody plants 3 rd Ground covers 4 th Others	<ul style="list-style-type: none"> Deal with weeds you are legally obliged to. See the plant and animal pests section in Environment Waikato's website www.ew.govt.nz Be vigilant for weeds in nearby sites that are not in your native forest - yet! Note also that getting rid of some weeds can just encourage others! Get good advice on weed management. Visit www.weedbusters.org.nz
Control pests 1 st Hoofed animal 2 nd Rabbits/hares (if planting) 3 rd Possums, rodents, mustelids, cats	<ul style="list-style-type: none"> Pests in native forest can include deer, pigs, goats, rodents, possums, mustelids (stoats, ferrets, weasels), rabbits/hares and feral cats. Target the large animals first, as they will be easier to find and if the site is well fenced may be able to be eliminated. Use a trained hunter to shoot deer, goats and pigs. Other pests will need ongoing control. Contact your local Department of Conservation office or Environment Waikato for advice. Note that in some situations other pests will be more important, for instance dogs in kiwi zones.
Planting 1 st Buffer 2 nd Enhance 3 rd Connections 4 th Maintain	<ul style="list-style-type: none"> First you should consider planting the edges of the native forest. If the site is of unnaturally low diversity, and isolated from natural seed sources, consider enhancement plantings. Make sure they are appropriate to the site - get advice. If you have to remove a lot of weeds consider enhancement planting of natives as soon as possible to reduce the chance of another weed filling the space. If your site is isolated from other natural areas, consider planting corridors of vegetation to encourage birds to move between them. Keep your plantings weed free until the plants are well established. Small plants can be smothered by rank grass. Protect from rabbits, hares and stock. Plant ecosourced plants which are characteristic of the area you are planting (natural plant populations are placed back in their natural range). Check nearby areas for clues to the appropriate vegetation of the area.

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Encourage native animals	If the site is very depleted of native animals, monitor the situation for a few years to see what turns up naturally. If you want to re-introduce wildlife you will need a permit from the Department of Conservation.
Monitoring Watch for new weeds!	Take photos of your site before you start and at regular intervals during your work. Keep records of which plants you planted survived so you can learn for next time. Keep records of for example annual possum capture rates. Use the forest monitoring and assessment kit (FORMAK). If the project is large and needs a lot of funding get a professional monitoring programme in place, to justify your application for the next round of grants.
Legal protection	If a site is not legally protected as a reserve or private covenant, it's generally best to seek legal protection when the site is in good condition. However, if you are planning to protect the site and you need to fence it, it pays to contact QEII National Trust first, as they usually pay a share of the fencing costs.



The Tui is a nectar feeder, important in pollinating native flowers
Image courtesy of the Department of Conservation