Environment Waikato Technical Report 2005/56

Waikato Regional Pest Management Strategy

Annual Report 2004/2005

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Environment Waikato
REGIONAL COUNCIL

Chairman's comment

The Waikato Regional Pest Management Strategy was developed under the Biosecurity Act 1993. The Act allows regional councils to develop a range of initiatives to tackle pest problems that are specific to each Region.

I take pleasure from the significant gains that have been made in Regional biosecurity. Highlights for the 2004/2005 year include possum control work in the Hakarimata Range (near Ngaruawahia) and Punga Punga Wetland (near Mercer). Partnership programmes with forestry companies and the Department of Conservation have been a great feature of projects to control climbing spindleberry and spartina, respectively.

A new ten-year resource consent to help manage alligator weed across the Region was obtained. A real co-ordinated effort between a number of agencies can now be made to control this highly invasive pest.

The high level of compliance with Strategy rules and the increasing amount of work we undertake to enhance the biodiversity of the Region has also made this year a success. The number of community possum control schemes is growing and there is increasing awareness of their value in catchment management, as well as for biosecurity and biodiversity outcomes.

The growth of these community rated schemes and other partnerships are recognition of the attitude and industry of Environment Waikato's staff and contractors. I congratulate those who are involved in the implementation of the Strategy.

Of course, a great deal remains to be done and we cannot do it on our own. To make sure that the Council and community expectations are met, we must continue to engage the wider community, increasing their knowledge of the need to tackle pest issues and enlisting their support.

I recommend this Annual Report on the Regional Pest Management Strategy to you.

David Peart
Chairman, Biosecurity Committee

September 15, 2005

Executive summary

This Annual Report is the third to record progress made in implementing the second Waikato Regional Pest Management Strategy (RPMS). It covers the period from July 1, 2004 to June 30, 2005. The Annual Report is a statutory requirement under section 85(1)(c) of the Biosecurity Act 1993.

Key achievements for the year are summarised below:

- We undertook successful possum control operations at Punga Punga, Whitehall and Hakarimata. The five percent residential trap catch goals set for these areas were bettered, with residual trap catches of 3.6 percent, 2.25 percent and 0.81 percent achieved respectively.
- There was a smooth transition of the Waipa-Puniu Stage II possum scheme from an Animal Health Board funded operation to being locally funded and run.
- An alligator weed inter-agency management group was established and a resource consent was approved that allows us to use improved control techniques.
- A number of Weedbuster initiatives were undertaken. We partnered with key agencies (such as the Department of Conservation, NIWA and district/city councils) to raise pest awareness.
- We managed and funded three successful high priority plant pest control programmes (for white bryony, alligator weed and climbing spindleberry).

The Department of Conservation undertook work to satisfy RPMS Crown 'exacerbator' obligations for controlling climbing spindleberry, old man's beard, woolly nightshade, ginger, gorse, pampas, possums and alligator weed, totalling $100,000 for the year. The Department of Conservation and Environment Waikato continue to work closely together to achieve RPMS and conservation objectives. Examples of these areas/projects include Moehau, Hikuai, Te Tapui and Hakarimata possum control, spartina control in Raglan/Kawhia/Aotea Harbours, climbing spindleberry control in the Kaimai Ranges and *Pinus contorta* control in and around Tongariro National Park.

Challenges for 2005/2006 include:

- Integrating Biosecurity work with greater emphasis on the Council's catchments and biodiversity services provided.
- Integrating bovine Tb control areas into community possum schemes.
- Planning urban pest control in Hamilton City (a joint initiative with Hamilton City Council).
- Making significant in-roads into Regional alligator weed control under a new ten-year resource consent.

The Regional Pest Management Strategy is an important enabling and regulatory document. The challenge for Environment Waikato is to meet increasing demands, making sure that its processes are sound and its decisions fair and equitable. This needs the continued co-operation and involvement of all land occupiers throughout the Region.

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1 Introduction

1.1 Background

The Biosecurity Act 1993 ('the Act') guides pest management in New Zealand. Its main purposes are to prevent new pests from entering the country through border control surveillance and to manage pests that are already established in the country. Regional councils are responsible for the latter. The Act enables Environment Waikato to develop an approach to pest management specific to the Region's needs and expectations by developing a Regional Pest Management Strategy.

The second Waikato Regional Pest Management Strategy (RPMS, or the Strategy) became operative on October 7, 2002. The Strategy details which plants and animals are declared pests and why, and outlines how each pest will be managed over the five years from 2002-2007.

The responsibility for most pest control work lies with landowners and occupiers. Environment Waikato has responsibilities to ensure land occupiers are aware of and meet their obligations for pest management on their properties. Environment Waikato will also undertake direct pest control where there is clear justification and Regional benefit.

Under section 85 of the Biosecurity Act, the management agency for a pest management strategy must prepare an operational plan. The RPMS Operational Plan may be covered as part of the Council's overall Annual Plan. The Plan must be reviewed and reported on annually, no later than five months after the end of each financial year.

This report is the third Annual Report to be completed by Environment Waikato under the second Waikato RPMS. The Act gives no guide to what an annual report should contain; therefore the report notes progress made against objectives and performance measures contained in the Council's 2004/2005 Waikato Regional Pest Management Strategy Operational Plan and expands on these objectives where appropriate. Financial information is in summary only.

1.2 RPMS implementation programmes

Each pest in the Strategy has been placed into one of four categories, based on its effects, distribution, density and the control methods available.

Eradication pest
A pest with limited distribution or density. The desirable end goal is eradication, although 'zero density' is more practical to achieve. Environment Waikato will fund and undertake control of these pests, such as rooks and alligator weed, including providing advice and information and monitoring control progress.

Containment pest
A pest that is well established in the Region. The goal is to prevent harmful effects on the environment, health and the economy and, where practicable for some pests, reduce the area affected by such programmes as community possum control schemes. Land occupiers are required to control plant pests under this category either across the whole property ('total control', such as woolly nightshade) or along a property boundary ('boundary control', such as gorse).

Potential pest
A pest of concern that Environment Waikato will monitor and record to ensure it doesn't become widely established in the Region (such as fringed water lily and rainbow lorikeet). Control of these pests may be undertaken at any time if required.

Nuisance pest
A pest generally widespread throughout the Region, which can cause unwanted and localised effects (such as hare and jasmine). The goal is to provide advice and assistance on control methods, promote voluntary control by landowners and undertake control in ecologically important areas.

Environment Waikato achieves practical pest management through the following methods.

Direct control
Environment Waikato funds and undertakes the control of 21 high-threat plant pests and six animal pests in a 'pest-led' approach. Control of relevant pests will also be undertaken in areas of high ecological importance on private land in the Region, under a 'site-led' approach.

Community initiatives
Communities with particular pest problems sometimes want to make a combined local effort. Environment Waikato can assist communities with group facilitation. We can also help with initial pest control to get numbers down to manageable levels or provide 'seed' money to help get the group started.

Information and advice
To help landowners control pests, Environment Waikato provides practical advice through factsheets, Environment Waikato's website (www.ew.govt.nz), field or demonstration days and through a direct Freephone link to accredited pest contractors throughout the Region (0800 BIOSECURITY - 0800 246 732).

Monitoring/surveillance
Regular property inspections make sure that Strategy rules are being adhered to. Monitoring (where robust techniques are available) is also undertaken before and after most pest control operations to ensure that control targets are achieved. Surveillance identifies new pest problems in the Region and in neighbouring Regions, and helps ensure that current problems are not getting worse.

Enforcement
Fair and reasonable rules, prescribed in the Strategy, require landowners to control pests to a specific standard. Every effort is made to achieve voluntary compliance. However, an enforcement procedure is available and is used when required.

Biological control
Environment Waikato helps the national research into biological control agents for pests, such as wild ginger and possums. We also propagate and release a number of known and approved plant pest biological control agents.

The majority of RPMS implementation work is undertaken by contractors. Biosecurity plant pest contractors in seven contract areas have primary responsibility for plant pest monitoring, advice, surveillance and enforcement. Physical control is generally undertaken by registered chemical applicators.

Up to 15 accredited Biosecurity animal pest contractors contend for a number of 'one off' or longer-term animal pest contracts. Some contracts involve ongoing facilitation (assisting and advising community possum control schemes).

1.3 Giving effect to the Strategy

Monitoring the performance of pest management agencies

Under section 85 of the Biosecurity Act, Environment Waikato, as the principal management agency, must specify the manner in which it intends to monitor its performance.

This RPMS Annual Report principally documents whether the Council's Biosecurity Group is:

- undertaking the stated work programmes
- achieving stated objectives
- acting on complaints and enquiries
- implementing the RPMS within budget.

The RPMS Annual Report may be subject to the scrutiny of Audit New Zealand. A copy of the Council's Annual Report for 2004/2005 is available to the public and should be read to give a wider picture of Environment Waikato's roles, responsibilities and achievements in managing the Region's environment. While there is no formal channel for submissions to be made or heard, Environment Waikato welcomes feedback on the content of either report at any time.

Monitoring effects of the Strategy

The RPMS must specify how the effects of the Strategy are to be monitored. The term 'effect' covers two areas:

- the effectiveness of the Strategy in terms of achieving the objectives
- the environmental effects of strategy implementation.

The bulk of this report should satisfy the first point. The second point is more difficult to quantify. The following discussion looks at a number of environmental effects of the implementation of the Strategy.

Monitoring the effects of pest management activities on the environment is a requirement under the Biosecurity Act and is consistent with the Resource Management Act 1991. While some monitoring has been carried out as part of internal audit checks, a comprehensive investigation or report has not been compiled by Environment Waikato.

The following points highlight both positive and negative environmental effects of pest management activities.

Positive effects

- Pest populations controlled to target levels - it is not practicable to eradicate the majority of plant and animal pests from the Region with the current levels of funding and methods available. However, significant gains are being made in specific high priority areas (such as rook control, possum control in the Hakarimata Range and old man's beard control across the Region).

- Vegetation monitoring - success of operations to control animal pests is relatively easy to determine. The long-term and more difficult assessment is whether native ecosystems are being satisfactorily restored.

- Environmental education - Environment Waikato advocates 'best practice', protocols and management options (such as Growsafe certification of chemical applicators). The information/educational programmes undertaken contribute to positive environmental outcomes by permanently changing attitudes and behaviour. However, the difficulty of how to measure the success of these initiatives remains.

Negative effects

- Environment Waikato (through its contractors) uses a range of pesticides, herbicides and biological control agents to effectively manage many pests. There is a wealth of information on the actual and potential effects of these methods and Environment Waikato aims to keep at the forefront of new technology. Using any one method persistently is not advantageous, but the consequences of doing nothing are such that the Region cannot afford to not act and let areas be destroyed by pests. The key is to minimise the adverse effects of the various methods on the environment and ensure communication is open and accurate.

- Environment Waikato is governed by very tight legislation and industry operating procedures for the use of controlled pesticides such as cyanide, DRC 1080 and DRC 1339 under the Hazardous Substances and New Organisms Act (HASNO). Extensive consultation and public notification is required and Environment Waikato is committed to continually improving our consultation with landowners. Residue in the environment and deaths of non-target species are important issues, and one which the scientific community is continually investigating.

- The issue of spray drift is addressed in the Council's Regional Plan. Contractors are encouraged to employ best practices and adhere to Regional Plan requirements when spraying plant pests on Environment Waikato's behalf.

Overall, the Council's view is that the positive benefits of the Strategy outweigh the negative effects.

1.4 Report format

This Annual Report has been prepared in a similar format to, and should be read in conjunction with, the Waikato Regional Pest Management Strategy Operative 2002-2007.

Under each RPMS activity area (section two), performance measures have been listed in the left hand columns. The comments in the right hand column note the achievements made for each performance measure. If the performance measure has not been met the reasons are noted. A statement from the Department of Conservation regarding their RPMS-related pest control obligations and achievements for 2004/2005 is provided at the end of section two.

Section three focuses on two case studies. The first looks at the discovery of an infestation of Senegal tea at Te Kowhai and subsequent treatment. The second looks at the agency partnership possum control operation completed in June 2005 in the Hakarimata Range.

2 Progress in implementing the Strategy

2.1 The financials

The RPMS implementation expenditure budget for 2004/2005 was $3,326,000. An overall operational surplus of $47,423 was achieved.

The breakdowns below summarise the end of year financial positions under the two programme headings:

Plant pest programme

- Expenditure $1,813,000
- Actual expenditure $2,005,600 (negative variance $192,600)
- Revenue $715,000
- Actual Revenue $745,544 (increased revenue of $30,544 was received to help offset the above deficit)
- Net deficit $161,600

Animal pest programme

- Expenditure $1,513,000
- Actual expenditure $1,392,000 (positive variance $120,500)
- Revenue $399,000
- Actual Revenue $487,605 (increased revenue of $88,605 was received)
- Net surplus $209,115

Variations to Programmes

The plant pest programme achieved an overall deficit due to fully committed work programmes and reabsorbing a staff member back into the Biosecurity Group following a secondment elsewhere in Council. This was not originally budgeted for. However, the animal pest programme achieved a net surplus to counter the plant pest deficit.

A major animal pest project, re-treating the Port Waikato possum control scheme ($160,000), was deferred until 2005/2006, at landowner requests.

Argentine ant trial control scheduled for Morrinsville did not eventuate because of poor weather before Christmas 2004 and resulting planning delays. Rook control was scaled back due to difficulties with pre-feeding at rookeries, using planned ground only poisoning techniques.

2.2 Direct control

Environment Waikato undertakes direct control of 21 plant pests and six animal pests. These pests pose a serious threat to the Region. Eradication, or achieving zero density, is the long-term goal for most of these pests.

Work is directed by Hamilton-based staff. Biosecurity contractor's co-ordinate control work between the Council and spray contractors, and control small infestations of the relevant plant pests. Animal pest work is undertaken for environmental and agricultural protection and is tendered to Environment Waikato's accredited animal pest contractors.

Plant pests
Budget $438,800
Actual expenditure $513,964

Performance measures	Achievements
Maintenance control of known sites of nassella tussock fine stemmed needle grass, African feather grass and white bryony.	Achieved. Known sites were monitored. Infestations have been reduced to low levels and sites are visited annually to carry out control as needed. The focus for white bryony was surveying Aria township over an extended search zone to identify any plants missed in previous year. Control is carried out by manual cutting and treating. There has been a 69 percent average reduction in each class size (four size classifications are used based on tuber size) since treatment began - refer to section 2.5 for more detailed information.
Progressive control of known sites of old man's beard in King Country, Waikato and Hauraki districts.	Achieved. **King Country -** Control focused on aerial control work on two remaining properties untreated in the 2003/2004 season. All known sites in the King Country have now received initial treatment. Follow-up control work and monitoring is the focus for 2005/2006. Smaller-scale control was carried out in the **Waikato/Waipa/Hamilton areas**. One large site exists at Miranda and has been persistent there for the last 20 years. This infestation has been reduced significantly in the last two years of control.
Continue zero density programme objectives for alligator weed infestations in the lower Waikato delta, Lake Whangape, Kopu, Te Rore and Hamilton areas.  **Alligator weed**  **Lower Waikato delta showing reed beds infested with alligator weed**	Substantially achieved. Alligator weed is found across a diverse range of sites and habitats, with infestations in five of the seven contract areas. This year saw the formation of an interagency management working group, made up of representatives from the Department of Conservation, NIWA, spray contractors and Environment Waikato staff and contractors. The biggest achievement of the year was obtaining a ten-year resource consent to carry out spraying through most of the year at all the sites, using aerial and ground control methods with the herbicide metsulfuron. The previous resource consent only applied to the lower Waikato delta and was restricted to three months of the year. These agencies are now better placed to undertake a fully integrated control programme with the best available techniques. **Waikato delta:** Limited control work with an airboat was carried out in the delta, as there were very poor weather conditions in the 2004 Spring/Summer season. Lowest incidence areas were controlled and once the resource consent was obtained, ground control started at the same time as aerial

Alligator weed in Geraghty Road onion crop

Biosecurity contractor Philip Mabin monitoring machinery hygiene at Perry's Quarry, Hamilton

Areas with alligator weed are fenced off

control. In May 2005, 54 hectares of reed beds in the delta were sprayed. Follow up work on 45 hectares was done in June 2005. Some monitoring observations are outlined in section 2.5.

Other sites in the North Waikato vicinity that were treated include a Geraghty Road market garden, Kariotahi Beach, Port Waikato township, Waikaretu Stream and numerous small sites along the Waikato River margins.

The Department of Conservation continued to manage the control programme at **Lake Whangape**, which included two aerial controls during the year. In conjunction with Environment Waikato, the bulk of the vegetation has been controlled (refer before and after photos in section 2.9), effectively preventing re-infestation by floating weed mats in the lake and into the Whangape stream and Waikato River.

Paddocks at **Kopu** (near Thames) with infestations are responding to ongoing control, including spraying and re-grassing (refer to graph in section 2.5 for more information).

The **Te Rore** site (near Te Awamutu) had aerial control of willow trees and drainage works to lower water levels before intensive spray programmes began.

Hamilton sites had the following work:

- Perry Landfill - Aerial spray applications and weed burial management options investigated.
- Perry Quarry - Subject to lots of machinery activity, which could aggravate spread. Three new sites became established and were sprayed.
- Hamilton Organic Recycling Centre - Several spray applications in a pond and drains.
- Netherville Village - 25 sites in retirement village surveyed and sprayed.
- Somerset Heights - Three spray applications within a pond and nearby properties.
- Resolution/Wairere Drives - Four sprays carried out as new sites were found.

All of the Hamilton sites have been declared Restricted Places under section 130 of the Biosecurity Act, which limits how activities can be carried out.

Further sites were identified during the year in Cambridge (maize paddock) and Kihikihi.

Control programmes implemented as appropriate for Pinus contorta sites.	Achieved. Contorta pine has been reduced to low levels

	on the tussock lands adjoining Desert Road by regular and ongoing control operations. During the year approximately 3,500 hectares were searched by helicopter and 85 sites of trees were cut down. Some sites contained mature, seed producing trees, while the majority were immature trees. The intention to carry out surveillance on a three yearly cycle will see a significant reduction in seed producing trees. The Department of Conservation also carried out similar operations on lands they administer adjoining this operational area.
Maintenance control of known sites of climbing spindleberry in North King Country, Taupo, Waipa and East Waikato areas.  **Climbing spindleberry (before control)** **Waikato Riverbank, Cambridge**  **Climbing spindleberry (after control)** **Waikato Riverbank, Cambridge**	Substantially achieved. **North King Country:** We focused on follow-up control at 32 known sites and initial control on four new sites found since 2003/2004 treatment. A mix of methods was used, including aerial control, gun and hose and cutting and painting stems (refer to monitoring section 2.5). We have reduced plant numbers by an average of greater than 80 percent over all sites. **Taupo:** Five main infestations have been subject to ongoing control and have been significantly reduced in size. Ongoing challenges remain within pine forest near Motuoapa, due to dense undergrowth and difficult access. **Waipa/East Waikato:** Infestations along the Waikato riverbank (near Cambridge), a small site near Te Aroha and five infestations in the Kaimai Ranges were treated. New sites were discovered and controlled near Horahora.
Assist the Department of Conservation with control of spartina in coastal areas - timetable dependent on outcome of resource consent application.	Achieved. Spraying using the herbicide Gallant was undertaken at Raglan, Aotea, Waikawau, Whangapoua and Manaia under resource consent. A total of seven hectares was sprayed at the Coromandel sites. In Raglan and Kawhia harbours, 46 hectares of infested area were treated.
Maintain the capability to investigate and control high priority infestations.	Achieved. Contractors exercised their discretion in tackling a number of low incident, potential threat pest problems in the Region. Examples of such pests and locations are: • Japanese knotweed - Taupiri (trials), Ngaruawahia, Mangatangi, Taupo and King Country. • Moth plant - King Country, Waipa,

 **Moth plant**	Hamilton City and Tahuna. • Mignonette Vine - Waipa and Hamilton City. • Chilean rhubarb – Taupo. • Ginger - King Country, Taupo. • Boneseed - Raglan, Huntly, Waikokowai, Port Waikato. • Chocolate Vine - Te Pahu. • Mile-a-minute - Hamilton City. During the year two sites of Senegal tea (at Te Kowhai and Waiuku) were discovered and treated. Sites were sprayed with glyphosate in January and April 2005. See case study one in section 3 for more details of this invasive aquatic plant. In Hamilton City, Italian buckthorn (Rhamnus) was tackled for the first time, in two operations. The sites were near the Ruakura Research Centre and along the rail tracks. Substantial trees were removed and 365 plants were destroyed (see photos below). Plant pest control in two priority Hamilton gullies (Melville and Boundary Road) was carried out. Because of steep and difficult access, industrial abseilers were used to control woolly nightshade (6,000 trees cut/treated) and wild ginger (200 stumps cut/treated). This is an ongoing partnership programme between Environment Waikato, Hamilton City Council and gully owners.
Implement control programmes for selected Key Ecological Sites (KES) in conjunction with the animal pest programme.	Achieved in part. Pampas control at Pukemokemoke KES was carried out.

Rhamnus stand, East Street

Before direct control

Rhamnus stand, East Street

After direct control

Animal pests
Budget estimate $443,930
Actual expenditure $462,597

Performance measures	Achievements
Undertake direct control operations on up to 12,000 hectares of rateable land of key ecological significance (for possums, rats, mustelids and goats where appropriate). Sites to be included are: • Hakarimata Range (west of Ngaruawahia) - 3,968 ha. • Punga Punga wetland (near Glen Murray/Onewhero) - 3,471 ha. • Mount Karioi surrounding private land (near Raglan) - 1,013 ha. • Te Tapui Reserve (retreatment of failed 2003/2004 operation, near Matamata) - 2,382 ha. • Moehau (initial and maintenance work near Colville) - 2,000 ha. • Other KES areas (such as Whenuakite, Kapowai, Manaia) - approximately 1,500 ha.	Achieved. Possum control was carried out over 13,000 hectares in the six main areas. Significant pest control was carried out at 10 other locations throughout the Region to enhance Regional biodiversity values. Refer to Appendix 1 for project details.
Provide up to one third of the cost of fencing Key Ecological Sites (KES) to make them stock proof (criteria apply).	Achieved. Fencing projects that have been completed or in current planning stages include Whenuakite KES, West Taringapeka bush KES, Glen Murray bush KES, Te Umukaraka KES, and Kaimarama river flats KES. The majority of these projects are complemented by covenants and landowner funding through the QEII National Trust.
Undertake (trial) control of Argentine ants in a commercial/residential part of Morrinsville township.	Not achieved. Due to delays in approving the pesticide (X-tinguish) for use, and cool weather in the early part of the Summer, this work was deferred until 2005/2006.
Undertake rook control at known North Waikato and Taupo rookeries.	Achieved in part. Limited ground baiting success was achieved at a Tahuna rookery. Numbers were reduced by a half. Baiting trials were held at a rookery near Whakamaru, with no success. Birds at this location would not eat the pre-feed bait. Aerial control is scheduled again for 2005/2006.

2.3 Community initiatives

Community-driven plant pest projects are commonly initiated during liaison between environmental groups and plant pest contractors. Local goodwill and action can happen for little capital outlay.

Plant pests
Budget **$164,138**
Actual expenditure **$55,000**

Performance measures	Achievements
Facilitate community initiatives for woolly nightshade control - Thames-Coromandel, Waipa, North King Country and North Waikato areas.	Achieved. Community initiative activities were centred on the Coromandel sites, Kennedy Bay and Kauaeranga Valley. The second year of initial control work was achieved at Kennedy Bay. A very successful initial aerial control operation was carried out in Spring 2004 at targeted Kauaeranga Valley sites. This was a forerunner to a wider community-backed scheme, for which initial control will carry on into 2005/2006. The total area covered in 2004/2005 was 51 hectares. Other initiatives were developed for (core) Port Waikato and (outlier) Mahoenui sites, which will be built on in subsequent years.
Facilitate community initiatives for privet in the Region as appropriate.	Achieved. Privet control initiatives were carried out in Mangatarata and Whatawhata. Follow up was carried out from previous initiatives undertaken in Tuakau, Kawhia, Otorohanga and Te Kuiti. In the Mangatarata area, 88 percent of survey respondents favoured privet control in a defined area, which includes State highway and local road reserves. Total control is expected to be achieved within three years.
Facilitate small-scale community initiatives to assist communities to control plant pests as requested by groups and in accordance with the RPMS and Weedbusters programme.	Achieved. A comprehensive Weedbusters programme was carried out in the Region and well supported. Some initiatives developed include: **Events:** Home and Garden Show, Small Block Expo, Floravision, National Fieldays and the Kiwiana Festival. **Education:** Enviroschools Expo, school visits to Kinohaku School and Raglan School. New Weedbusters school resources are available on the website. **Weedbusting:** Regular weedbusting groups operate at Jubilee Bush, Barrett Bush, Hamilton East riverbank (Hamilton) and at Hatepe (Taupo). A Raglan weedbusting event will be followed up in the 2005/2006 Summer. Pukemokemoke Bush Trust has begun weedbusting recently. Waikato Girl Guides spent a day weedbusting in a Hamilton city gully and are likely to support more events.

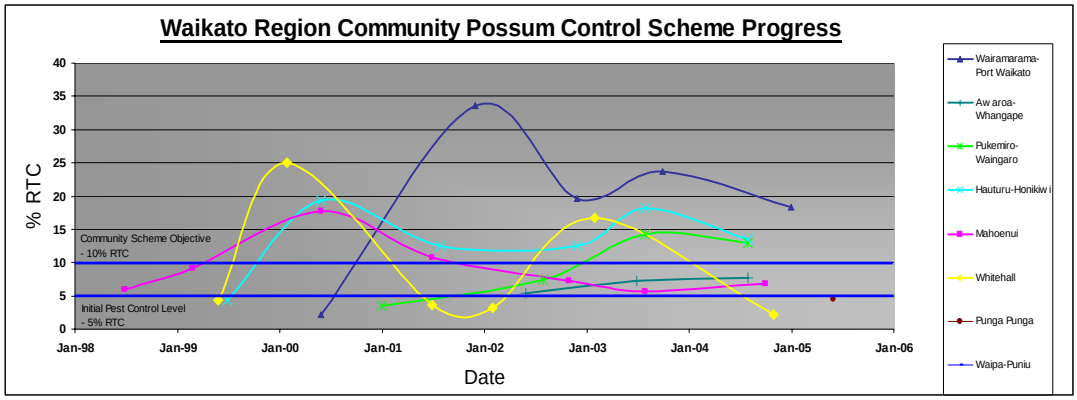
Animal pests
Budget **$479,186**
Actual expenditure **$466,258**

Environment Waikato supports active community participation in addressing possum problems. The level of assistance offered depends on the expectations and commitment of communities, the benefits to be gained from controlling an area and the risks of re-invasion. Environment Waikato will generally provide support, including necessary training, cost price materials and help with initial poisoning operations in new community possum control schemes.

As at July 1, 2004, there were eight major community possum control schemes operating in the Waikato Region.

Performance measures	Achievements
Retreat large bush areas in private and owned land within the Port Waikato possum control scheme (Franklin District) by June 30, 2005.	Not achieved. This re-treatment was deferred at landowner requests, due to stocking issues at proposed control sites. Work is scheduled to take place in October/November 2005.
Feasibility studies undertaken in the Glen Murray and Opuatia areas to assess costs and interest in possum control.	Achieved in part. A number of meetings and a trend monitor were carried out in the Opuatia area. Agreement was reached to implement a targeted property rate for ongoing possum control. The first control operation is scheduled for March 2006. Monitoring for the Glen Murray feasibility study was carried out and requests for proposals sought from contractors for the control work.
Maintain Environment Waikato obligations in existing community possum control schemes: • Mahoenui • Port Waikato-Wairamarama • Hauturu-Honikiwi • Waingaro-Pukemiro • Awaroa-Whangape • Whitehall • Waipa-Puniu (Stage 2) • Punga Punga	Achieved. There are eight large-scale community possum control schemes in various stages of implementation in the Region, covering over 90,000 ha and involving over 450 landowners. Appendix 2 contains an overview (table) of recent results achieved and compares the results with historical data. A graph on the next page shows the trends emerging as work continues. Two landowner maintenance community possum control schemes (Mahoenui and Awaroa) are tracking below their 10 percent residual trap catch targets. Three other schemes (Port Waikato, Hauturu-Honikiwi and Waingaro) exceed their 10 percent residual trap catch goals. They are within the 11-18 percent range but are tracking downwards. The Port Waikato and Waingaro schemes will be reviewed during 2005/2006 with the goal of bringing them into the rated scheme format. One new scheme at Punga Punga received its initial control, and maintenance work will continue in 2005/2006. Two rated maintenance schemes (Whitehall and

Performance measures	Achievements
 **Biosecurity begins at home. Dead possum at Environment Waikato offices, Hamilton, August 2005**	Waipa Puniu) exceeded their 5 percent and 3 percent residual trap catch targets, respectively. The Whitehall scheme result was particularly successful (2.52 percent residual trap catch achieved during a comprehensive 2004 operation), building on the complementary control in neighbouring Te Tapui Reserve (3.3 percent RTC). Environment Waikato also decided to undertake remedial control work in the Te Rauamoa Reserve, which is part of the Hauturu-Honikiwi scheme, and contributed funds towards boundary control work at Port Waikato, Mahoenui and Hikuai.
Encourage 'small scale' community initiatives which remain community driven and funded, for possums, mustelids and feral cats.	Achieved. Environment Waikato has a number of small-scale control schemes operating where limited 'seeding' money and information is provided to groups to initiate control work. In 2004/2005, Environment Waikato helped 13 groups (11 possum schemes and two mustelid schemes) on the Coromandel Peninsula (refer to the end of Appendix 2 for more information).
Two new small-scale schemes to be implemented in the Hauraki Coromandel contract area.	Achieved. New schemes started at Whiritoa and around the Whangapoua Harbour. Refer to Appendix 2 for more details.



2.4 Advice and information

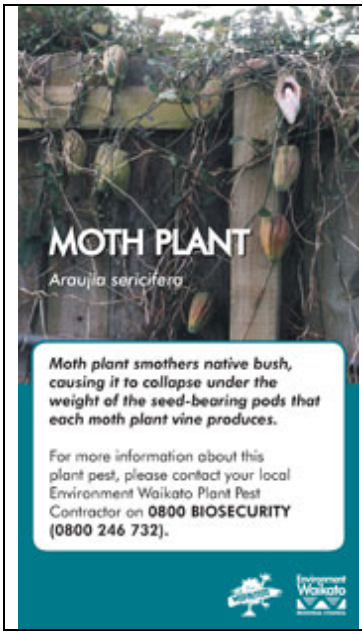
Providing information and practical advice will help land occupiers to recognise pest problems at an early stage and promote a greater land occupier understanding and acceptance of their pest control obligations and responsibilities.

Plant pests
Budget **$277,400**
Actual expenditure **$316,460**

Animal pests
Budget **$135,741**
Actual expenditure **$66,284**

Performance measures	Achievements
Ensure that information on pest control methods is available on Environment Waikato's website (www.ew.govt.nz)	Achieved. All plant and animal pest fact sheets are available on the website. Relevant web pages were updated to reflect changes to RPMS policy. New and revised factsheets were produced in hard copy, with better control information and photos providing easier identification, for Senegal tea, evergreen buckthorn, privet, wild ginger, moth plant, old man's beard, Australian sedge and boneseed.
On request, attend meetings and discussion groups of interested parties to discuss pest issues and control options.  **Woody Weed comes to the Environmental Education Expo** **Summer 2005**	Achieved. We attended over 40 meetings throughout the Region with farming groups, urban groups, gardening circles and schools. These meetings covered a variety of biosecurity and related issues. Six of these visits were undertaken by Coromandel contractors Roger and Robyn Smith to schools at Opoutere, Te Rerenga, Thames (two schools), Whenuakite and Karangahake - a total of 12 classroom sessions. These talks focused on the importance of controlling cats and dogs and informing youngsters of their impact on wildlife, especially kiwi. Through feedback received, several messages seem to have registered with pupils: leave poison baits and traps alone, take dogs on kiwi aversion training courses and put a collar and bell on domestic cats.
Action public enquiries and complaints within 24 hours and respond to requests for information.	Substantially achieved. Over 2,000 enquiries were received in writing and by phone and were actioned. Most enquiries were dealt with within 24 hours and the majority within the Environment Waikato customer service charter timelines. A new Biosecurity enquiry database was implemented during the year, linking contractors to Environment Waikato's main office.

	The 0800 BIOSECURITY Freephone, linking landowners directly with their area's contractors, is well used in central parts of the Region. Minor connection problems exist in peripheral areas.
Produced timely media releases and other publicity material (including newsletters to community groups) on operation planning and results.	Achieved. Over 35 media releases and newsletters were created and distributed during the year. Most media releases were generated after monthly Biosecurity Committee meetings, reflecting on reports on operations/issues received and discussed. These media releases are often repeated word for word in the Regional papers and are an excellent way to inform people, especially rural ratepayers, about Biosecurity work. Each community possum control scheme was provided with updates on scheme progress and monitoring results as significant pieces of work were completed. An advertising programme for plant pests and 'Weedbuster' groups continued during 2004/2005, targeting high threat, visible plants such as privet, moth plant, pampas and woolly nightshade (refer to three such advertisements on the following page).
Provide a plant identification service.	Achieved. Over 25 samples were brought in by members of the public and identified. In-house experts and the University of Waikato provided excellent service.
Undertake a comprehensive educational awareness campaign for alligator weed in the Region by February 2005.  	Achieved. Field meetings and site visits were held with a number of regional, district and city council field staff, and some Dexcel and Pioneer Seed staff. We made presentations to Pukekohe Vegetable Growers Federation, Federated Farmers, Dairy Liaison Group and AkaAka Otaua Drainage Subcommittee. Articles were published in Fish and Game magazine and the Contractors Federation newsletter. Contacts were made with other organisations, which will be followed up on. 'See ya later alligator' promotional resources were developed (including a waterproof ID card, fridge magnets, flyers and posters - refer to the left hand column for an example poster) and sent to the Department of Conservation, landowners adjacent to the Waikato River and Lake Whangape, Dexcel, Federated Farmers, Contractors Federation and others as the opportunities arose. Targeted advertising in Regional newspapers was carried out. As a result of this campaign several suspected alligator weed sightings were reported. Checks by Biosecurity staff confirmed one new site at Kihikihi, near Te Awamutu.



A number of pest fish awareness activities were carried out during the year.

- Articles were published in regional and national biosecurity publications
- We made a submission on a live koi harvesting proposal, which was subsequently turned down
- We facilitated two interagency pest fish management group meetings
- We produced promotional materials (such as waterproof ID cards, key rings and banners) for various initiatives.

2.5 Monitoring

Environment Waikato undertakes four types of monitoring.

- **Compliance monitoring** to assess whether landowners are meeting obligations placed on them through the RPMS.

- **Audit/performance monitoring** to assess whether contractors have met contract specifications during operations.

- **Trend monitoring** which includes general observation of specific pests that have a low presence in the Region (such as rooks). Possum trend monitoring is undertaken before tenders are released. Also notes any peculiarities in population dynamics that would indicate a potential problem.

- **Vegetation monitoring** to assess the health of ecosystems under the direct control programme by monitoring such things as foliage density and canopy condition and re-growth following pest control operations.

Under the plant pest programme, monitoring is a large component of contractor time. Monitoring is closely linked with the enforcement procedures if there is non-compliance with Strategy rules.

The following points summarise the Strategy rules.

Plants where total control is required across the whole property include:

- boneseed
- climbing asparagus
- mignonette vine
- moth plant
- Pinus contorta
- wild ginger
- woolly nightshade
- pampas (Otorohanga, South Waikato, Waitomo, Taupo and Waipa Districts, Hamilton City and part Rotorua, Waikato, Matamata-Piako and Hauraki districts. Also road and rail verges, and quarries/mines)
- broom (road and rail verges and quarries/mines)
- gorse (road and rail verges and quarries/mines)
- ragwort and nodding/plumeless thistle (essentially dairy country in central Waikato and Coromandel).

Plants with boundary control standards, where the plant must be cleared a certain distance back from a property boundary, include:

- Australian sedge/gorse/broom - 20 metres
- ragwort and nodding/plumeless thistle - 50 metres (essentially hill country areas of the Region)

Other rules include:

- privet (urban and rural areas on complaint)

Plant pests
Budget $415,557
Actual expenditure $396,840

Performance measures	Achievements
Inspect properties and localities on a seasonal basis to ensure compliance with the standards established in the Regional Pest Management Strategy.	Achieved. Refer to the enforcement section (2.6) for information on compliance with RPMS rules.
Maintain the Biosecurity Information System (BIS) in a generic format with the ability to produce reports detailing operational activities and enforcement actions.	Achieved. The Biosecurity Information System has been operating for over a year and many improvements have been made in that time. As records amass, the full capacity of the database will be revealed, especially the ability to analyse plant pest infestation information which will assist in the review of the RPMS.

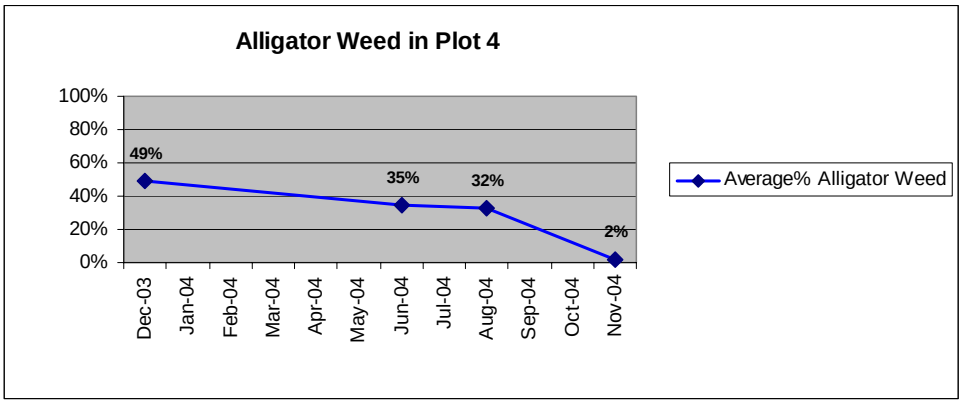
Performance measures	Achievements
Inspect nursery and plant outlets in the Waikato Region, at least annually, and carry out enforcement action against outlets that sell, propagate or distribute plant pests that are banned.  **Biosecurity contractor Heidi Pene checks a nursery for National Pest Plant Accord compliance**	Achieved. We have visited over 120 nurseries. In late 2002 the National Pest Plant Accord came into effect, which bans over 100 plants from display, sale and propagation country-wide. Contractors report an excellent understanding by nurseries in general of the need for such an Accord, and a good awareness of biosecurity plant pest issues. However, some banned plants were identified during inspections, but once made aware, store managers disposed of them voluntarily and immediately. These 'finds' highlight some shortcomings of the National Pest Plant Accord, especially with regard to little known plants and hybrid plant species.
Undertake compliance monitoring of the verge policy as outlined in the Regional Pest Management Strategy for the Region's roads.	Achieved. There has been good co-operation from district councils, especially Matamata-Piako, Waikato, Waipa and Otorohanga districts. Greater funding is being allocated for plant pest control, particularly privet, by these councils. Plant pest control on State highways has improved markedly since 2003/2004. Contractors in eastern and southern parts of the Region continue to undertake satisfactory control. West Waikato problems have reduced, with some significant progress made. Progress in the King Country continues to be slow and more attention and resourcing is required in this area. Compliance of the RPMS rules in relation to the Region's rail network continues to be satisfactory.
Inspect quarries, mines and stockpiles in the Waikato Region to ensure compliance with the standards established in the RPMS.	Achieved. Over 100 quarries/mines were programmed for compliance. Pampas, gorse and broom are recurring problem plants. Compliance by quarry operators has been very good.

Performance measures	Achievements
Monitor outcomes of direct control operations, as appropriate.  **Monitoring alligator weed vegetation plots at Port Waikato** **August 2005**	Achieved. Detailed monitoring programmes were continued during the year for alligator weed, white bryony and climbing spindleberry. A summary of the key observations in relation to these three pests are made on the next page. New monitoring programmes were established for the infestations of Senegal tea found near Waiuku and Te Kowhai (refer to sections 2.2 and 3).

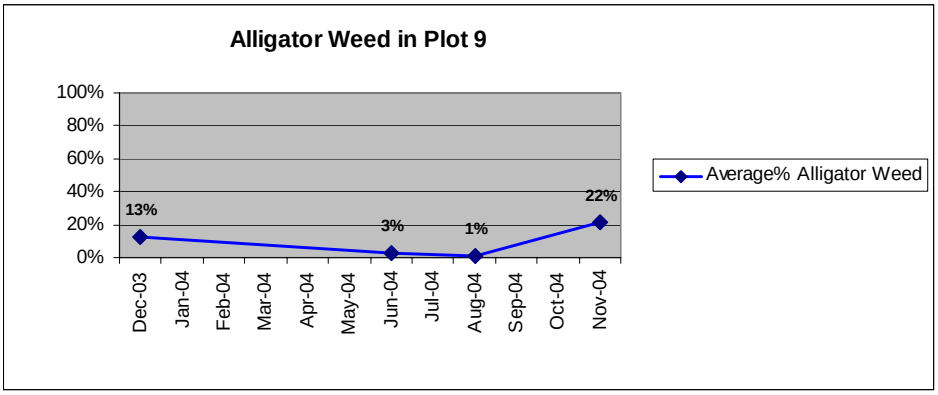
Alligator weed

Nine sites in the Waikato delta were monitored in August and November 2004 (see map below for site location). Overall, sites sprayed twice showed good control compared to sites only sprayed once. Not all plots were treated in 2004/2005.

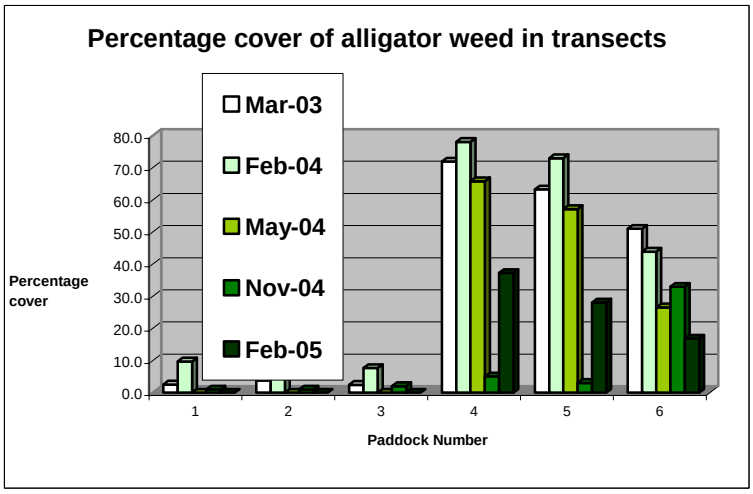
The first graph below shows the decrease in alligator weed density at plot four following ongoing treatment over two years.



Where control had not been able to be undertaken in 2004/2005 (plot nine), there had been an increase of the biomass of alligator weed in comparison to the competing vegetation.

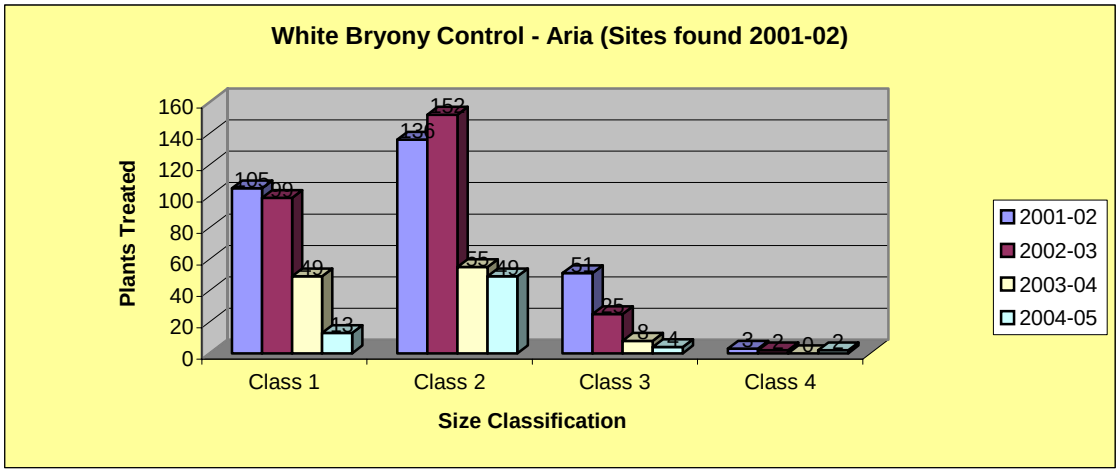


At the Orongo (Kopu) site, alligator weed is still in all paddocks. The graph below shows an increase in percentage cover between November 2004 and February 2005, but significantly lower than previous years in all six paddocks.



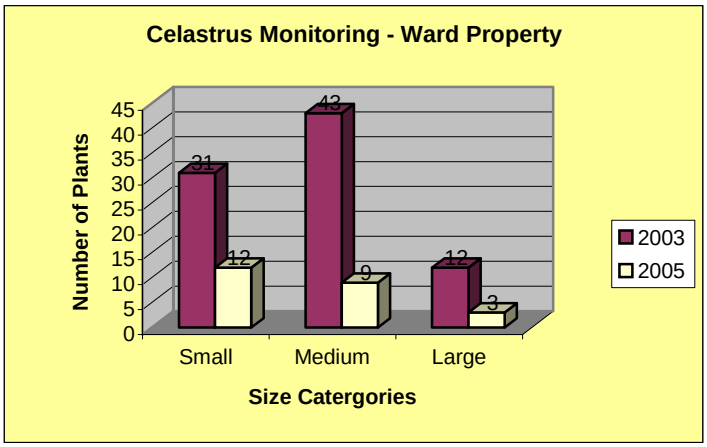
White bryony

A monitoring programme has been in place for four years at Aria, in the King Country. Each plant treated was recorded according to one of four tuber size classifications. The results in the graph below show an average 69 percent reduction in each size class since treatment began in 2001/2002.



Climbing spindleberry

Five of 32 King Country sites were selected for monitoring purposes. Successful control results were evident, with an average reduction in plant numbers greater than 80 percent over all five sites. Monitoring on the Ward property (see graph below) typifies the success of this work.



Animal pests

Budget **$245,187**

Actual expenditure **$187,290**

A nationally used trap catch protocol is used for possum monitoring work. Design work is carried out by Hamilton based staff and all monitoring is contracted.

Performance measures	Achievements
Acknowledge complaints of rabbit infestations from landowners and undertake compliance monitoring within ten working days of the complaint being lodged. Issue pest control programmes where rabbit infestation levels have been exceeded.	Achieved. Complaints were received mainly from central Waikato, Waipa and Coromandel districts, despite known rabbit problem areas in and around Taupo district. Most complaints were monitored and all but one (Kinloch) was determined to be below RPMS trigger levels set for enforcement. Advice was given and several small commercial control operations were completed by our contractors as a result of these inspections.
Undertake random compliance monitoring of community possum control schemes to ensure scheme standards are being met (Mahoenui, Port Waikato, Waingaro, Awaroa and Hauturu-Honikiwi).	Achieved. Refer to summary table of monitoring information at the end of this section. See Appendix 2 for comments on the implementation of these schemes.
Undertake pre and post operation trend and performance monitoring for operations undertaken by Environment Waikato contractors. Trend monitoring is also undertaken for possum control as part of feasibility studies carried out.	Achieved. Twenty-nine separate reports were received, which are summarised in table form at the end of this section. Results were reported to the Council as appropriate through the monthly reporting system.

Performance measures	Achievements
Undertake trend monitoring for rooks to determine presence and distribution.	Achieved in part. Monitoring for rooks was not carried out, due to the emphasis on ground control methods at one or two rookeries only.
A kiwi survey at Whenuakite will be supported.	The kiwi survey was carried out at Whenuakite and 68 kiwis were found, up on the 31 counted in the previous count in 2001.
The Department of Conservation and Environment Waikato will collaborate on monitoring possible rainbow lorikeet sightings in the west Taupo area.	Department of Conservation and Environment Waikato staff worked together on a rainbow lorikeet survey and awareness campaign in the north/west Taupo area. No further sightings were made following this programme.
Undertake vegetation monitoring for selected direct control possum operations to monitor ecosystem health and vegetation recovery.	Achieved in part. A staff member attended a course on the use of the FORMAK (Forest Monitoring and Assessment Kit). This kit will be particularly useful for empowering care groups to monitor the changes in forest health and biodiversity. Kits will be distributed to care groups who have the capacity to use them. Kapowai, Harker Reserve and Bald Hill groups were supplied kits during the year.
Undertake limited pest fish surveys to help determine density and distribution at key locations.	Achieved. Removing koi from Waitoa River was investigated but not progressed due to wide distribution of koi in connecting river systems. A joint Department of Conservation/Environment Waikato site visit was made to Kinloch area to check for koi in a single pond. This turned out to be a false sighting and a further visit to Orakei Korako (Waikato River) was made with more work on netting required.

	Operation	Location	Results
1	Mt Karioi	Raglan	3.72 percent residual trap catch Performance monitor
2	Mt Kokako	Raglan	33 percent residual trap catch Trend monitor
3	Waingaro Big Bush	Waingaro	1.4 percent residual trap catch Performance monitor
4	Hakarimata	Ngaruawahia	22.12 percent residual trap catch Trend monitor
5	Waingaro Community Possum Control Scheme	Waingaro	13 percent residual trap catch Landowner monitor
6	Awaroa/Whangape	Glen Murray/Huntly	7.68 percent residual trap catch Landowner monitor
8	Te Tapui Reserve	Matamata	4.62 percent residual trap catch Performance monitor
9	Te Tapui Reserve	Matamata	21.96 percent residual trap catch Trend monitor in buffer area
10	Mahoenui community possum control scheme	Mahoenui	6.9 percent residual trap catch Landowner monitor
11	Hauturu community possum control scheme	Otorohanga	13.6 percent residual trap catch Landowner monitor
12	Te Tapui Reserve	Matamata	0.67 percent residual trap catch Performance monitor
13	Whitehall community possum control scheme	Cambridge	2.52 percent residual trap catch Performance monitor
14	Port Waikato community possum control scheme	Port Waikato	18.4 percent residual trap catch Landowner monitor
15	Waipa-Puniu community possum control scheme	Pirongia/Otorohanga	2.25 percent residual trap catch Performance monitor
16	Whitehall community possum control scheme	Cambridge	5.36 percent residual trap catch Performance monitor (buffer)
17	Opuatia community possum control scheme	Glen Murray	12.85 percent residual trap catch Trend monitor
18	Punga Punga community possum control scheme	Churchill/Mercer	7.95 percent residual trap catch Performance monitor
19	Harkers Reserve	Onewhero	3.36 percent residual trap catch Trend monitor
20	Pukemokemoke	Tahuna	7.5 percent residual trap catch Trend monitor
21	South Pukemore	Taupiri	25 percent residual trap catch Trend monitor
22	Glen Murray community possum control scheme	Glen Murray	31.6 percent residual trap catch Trend monitor
23	Whenuakite Kiwi Key Ecological Site	Whitianga	68 Kiwi counted as compared with 31 at the last count
24	Steuart Russell Key Ecological Site	Awakino	5.4 percent residual trap catch Trend monitor
25	Hikuai	South Coromandel	7.36 percent residual trap catch Trend monitor
26	Waingaro- Sudano	Waingaro	1.67 percent residual trap catch Compliance monitor
27	Punga Punga community possum control scheme	Mercer	3.6 percent residual trap catch Performance monitor (rework)
28	Thames Coast	Thames	19.1 percent residual trap catch Trend monitor
29	Te Rauamoa Reserve (Hauturu community possum control scheme)	West Otorohanga	1.94 percent residual trap catch Performance monitor

Note: CPCS = Community Possum Control Scheme

2.6 Enforcement

Enforcement procedures are mostly used under the plant pest programme where breaches of Strategy rules occur. Rural communities in particular demand a robust process that reduces pest problems.

Environment Waikato uses a three-step process, allowing every opportunity for voluntary compliance at step one.

- Step one Pest control programme - suggested steps to be taken to achieve compliance.
- Step two Notice of direction – documents what action needs to be taken by a set date.
- Step three Notice of intention to act on default – Environment Waikato engages contractors to control pest and places statutory land charge (lien) on the property title if debt remains unpaid.

Plant pests only
Budget $102,893
Actual expenditure $88,651

Performance measures	Achievements
Develop as appropriate pest control programmes for plant pests for identified properties in the Region.	Achieved. Over 720 pest control programmes issued. Compliance is generally excellent at this 'voluntary' compliance stage.
Initiate appropriate enforcement action against land occupiers who do not comply with plant pest control programmes and rabbit and community possum control programmes as outlined in the RPMS.	Achieved. Thirty-two Notices of Direction (section 122 of the Biosecurity Act) were issued for non-compliance. Six Notices of Intention to Act on Default (section 128 of the Biosecurity Act) were issued for non-compliance of above s.122 notices. No liens were lodged for failure to pay debts for s.128 work carried out by the Council. The first Notice of Direction was issued with regard to non-compliance of a possum control programme issued at Waingaro. The work was carried out without further action being necessary.

2.7 Surveillance

Surveillance is carried out for RPMS 'potential' plant and animal pests and may be extended to those pests that are listed in the National Pest Plant Accord. Surveillance includes opportunistic observations, targeted surveys of specific areas and surveys for specific high-threat pests.

Work under the following three performance measures should be carried out by Hamilton based technical staff, using contractors where practicable for field work. Funding is provided through the plant pest monitoring allocation, but with the RPMS review this year, little or no developmental work on a wider surveillance programme for the Region has been undertaken.

Performance measures	Achievements
Provide training for contractors in monitoring techniques to ensure Regional and operational consistency.	Not Achieved. Due to staff changes, this service was not available. Appropriate staff have been seconded to the RPMS review process for 2005/2006 and 2006/2007. However, this review will aid the development of a surveillance programme that is appropriate for the Region and is politically acceptable.
Review database capability to ensure user-friendly input, retrieval and manipulation of data is possible.	Achieved in part. A Biosecurity Information System (BIS) is currently running but is more applicable for the monitoring/enforcement programme. There is some way to go before this system is fully functioning for surveillance purposes.
Field observations regarding distribution and abundance of pest plants in identified potential pest categories of the RPMS recorded on database.	Achieved in part. Thirty-two entries were made by contractors from field visits.

Paul Schilov from the Department Of Conservation with chocolate vine

2.8 Biological control

For plant pests that have well-established biological control options, biological control can provide the most effective long-term control (when used in conjunction with

traditional control methods). The benefits of biological control extend beyond the individual land occupier.

Contractors are responsible for determining suitable release sites, releasing appropriate agents and monitoring their spread. Hamilton-based staff are responsible for a contract with Landcare Research New Zealand Ltd, contributing to national research priorities.

Plants
Budget $87,378
Actual expenditure $84,946

Performance measures	Achievements
Establish, manage and record new biological control sites as set down in the biological control strategy in the RPMS.	Achieved. We received input from Landcare Research (Lincoln) on historical release sites. To date, the effectiveness of biological control agents in the Region has been mainly restricted to the ragwort flea beetle, with a good population appearing to be widespread throughout the Region. The gorse spider mite also appears to be widespread throughout much of the Region. However, it appears to be having only a marginal effect on the infestations of gorse.
Contribute to research for new agents for wild ginger, woolly nightshade, pampas and boneseed.	Achieved. The collective national programme examined the merits of introducing agents to control nine plant pests - banana passionfruit, barberry, boneseed, nassella, gorse, moth plant, tradescantia, wild ginger and wilding trees. Much of the research focused on host-testing material of critical importance to New Zealand, liaising with researchers in other countries and assessing what, if any, native or exotic invertebrates feed on the plant pests in New Zealand. The future for tradescantia control looks promising. In Brazil, there are three species capable of causing significant damage. A Hawaiian scientist has isolated a bacterium that attacks and kills kahili ginger and New Zealand specimens appear susceptible. Some work has focused on biocontrol agents for wilding conifers. Concern has been raised about the potential vectors of various overseas diseases being introduced to New Zealand, to provide biological control for wilding pines, where no risks currently exist.

Environment Waikato also contributes annually to a national collaborative programme looking at biological control options for possums.

2.9 Department of Conservation - RPMS obligations 2004/2005

The RPMS expects Crown organisations to adhere to Strategy rules and provide funding for pest control in the same way as private landowners are required to. The Department of Conservation manages considerable Crown land in the Region, invariably involving plant and animal pest problems.

The following table summarises the Department of Conservation contribution to RPMS activities for 2004/2005. Four Department of Conservation conservancies are incorporated within the Waikato Region - Waikato, Bay of Plenty, Wanganui and Tongariro-Taupo. Any enquiries regarding this work should be directed to the Department of Conservation Waikato Conservancy (Hamilton office).

Location/site	Pest species	Expenditure ($)
Environment Waikato contribution to RPMS costs	RPMS pests	18,000
Lake Whangape	alligator weed	12,000
Kaimai -Mamaku FP	climbing spindleberry	3,440
Ramaroa Rd SR	old man's beard	1,000
Hikuai Community	possums	3,000
Mahoenui Weta SR	possums	5,500
Maungakawa SR	possums	1,500
Te Karaka SR	possums	2,500
Mokau	pampas	9,000
Maniapoto aerial	pampas	15,000
Maniapoto roadside	pampas	1,000
Morepork Gully	ginger	3,120
Cathedral Cove RR	woolly nightshade	5,000
Kauri block	ginger, pampas, gorse	3,740
Lake Waikare	woolly nightshade	6,000
Opoutere RR	ginger	3,520
Selwyn SR	possums	2,240
Taupo Reserves	pampas	5,000
Total		**$100,560**

Lake Whangape

Alligator weed in 2002

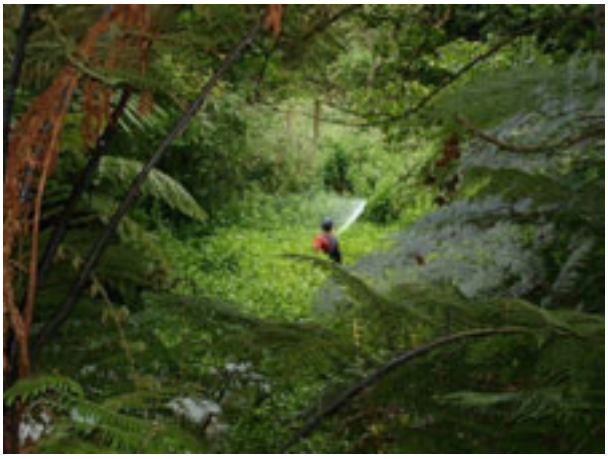
Lake Whangape

Alligator weed in 2005

3 Case studies

Case study one: Senegal tea infests Te Kowhai

Senegal tea (*Gymnocoronis spilanthoides*) is native to central and southern America and was originally brought into New Zealand as an ornamental plant for ponds and aquariums. It is an extremely aggressive freshwater weed and inhabits wetlands and still or flowing waters. By changing habitats and smothering other useful species, Senegal tea may displace traditional food sources of value to Maori. It may also impede the flow of water and interfere with recreational activities such as boating.



Spraying Senegal tea at Te Kowhai

Summer 2005

Senegal tea is spread by seed or by stem fragments, which readily form new roots. Seed can be dispersed by water movement and in soil attached to vehicles, machinery or animals. Fragments can be dispersed by water movement, deliberate planting, clearing and dumping pond vegetation or by drainage machinery.

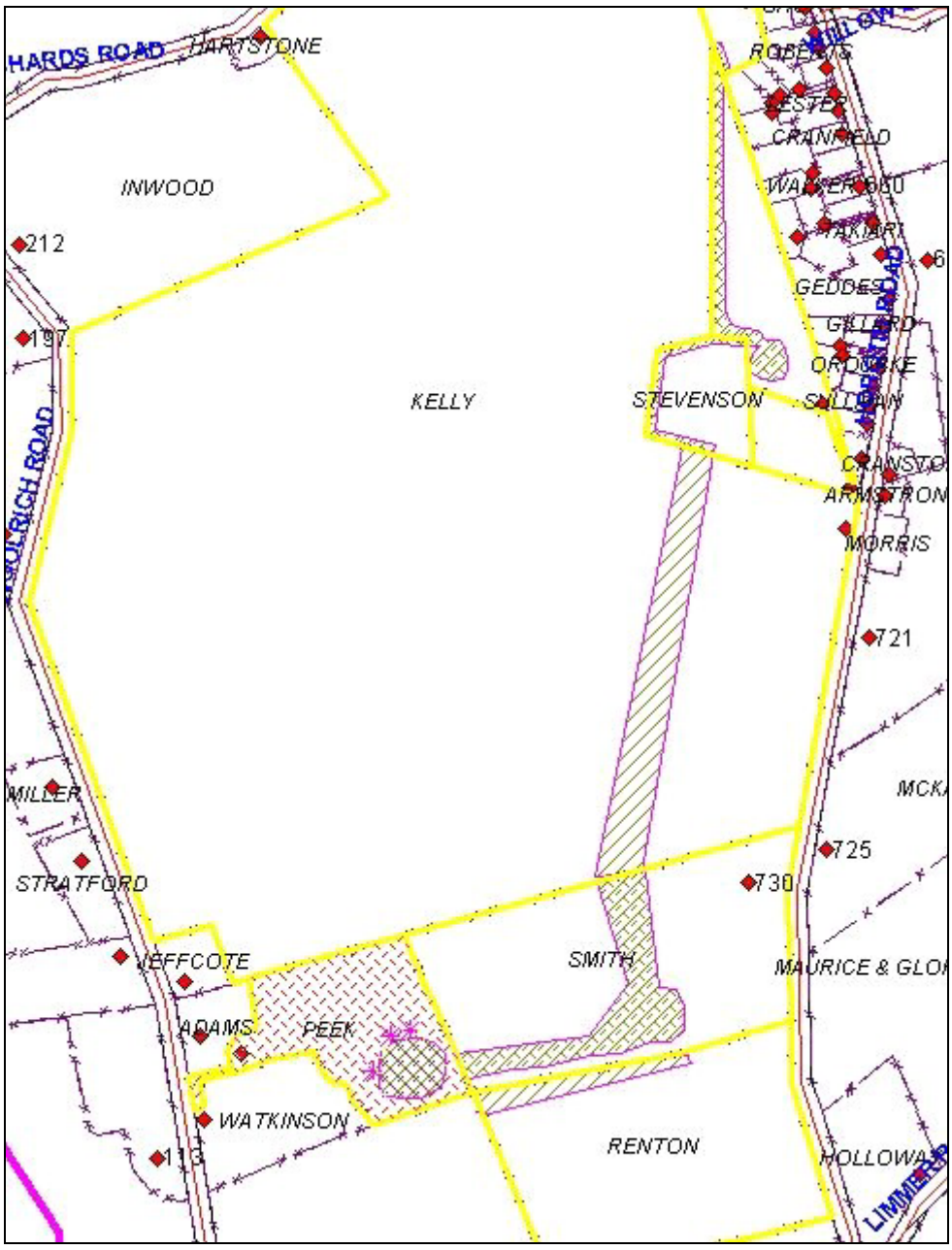
Environment Waikato is responsible for controlling Senegal tea. It is a total control plant under the Regional Pest Management Strategy and the goal is to eradicate it from the Region. Senegal tea can be controlled using the herbicide glyphosate. Because it grows easily from fragments, a lot of care is needed not to disturb it or transport it to new sites.

A significant infestation was discovered during the year at Te Kowhai (north-west of Hamilton). A landowner saw publicity about alligator weed spread in the Region and reported what they thought may have been alligator weed in their stream and pond. Following the positive identification of Senegal tea, a surveillance exercise was carried out behind the western edge of Te Kowhai village in early December 2004, to gain an idea of the extent of the infestation.

A total of eight properties were affected - see mapping of the infestation on the next page. The plant had spread downstream from the original infestation in a small artificial pond. The Senegal tea was growing in the pond and draining creek, as well as in a number of locations where the drain had been cleaned by a digger. The piles on dry land containing Senegal tea were actively growing.

The Senegal tea in this area was sprayed with a high pressure hose just before Christmas 2004, using Roundup Renew™. In areas where conditions were right and a good coverage was obtained, there was 100 percent effectiveness. In other areas it may have been as low as 20 percent due to lack of good spray coverage because of poor access, and where rain had halted spray operations.

A follow up spray was carried out in mid January 2005. The plant was effectively stopped from producing any seed for the season. Ongoing control will be required to reduce the infestation area and eventually eradicate Senegal tea from Te Kowhai. Following this discovery, another infestation of Senegal tea was found near Waiuku in April 2005. A similar control regime to that at Te Kowhai has begun.



Senegal tea infestation at Te Kowhai

Senegal tea

Before spraying

Senegal tea

After spraying

Case study two: Agency partnership restores Hakarimata Range

A possum control operation in the Hakarimata Range (west of Ngaruawahia) and surrounding farmland area has yielded excellent results. The operation was a partnership between Environment Waikato, the Hakarimata Restoration Trust and the Department of Conservation, and aimed to restore the Range's native forest.

Aerial 1080 control at Hakarimata Range

June 2005

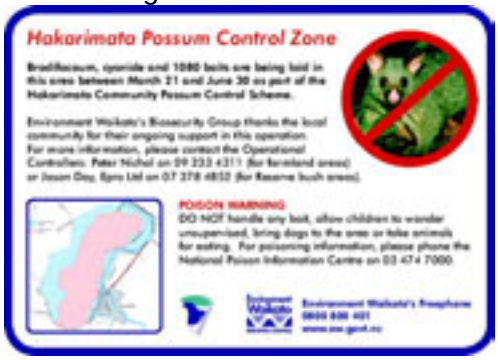
The Hakarimata Range is a significant feature of the Waikato landscape. It is one of our largest remaining lowland forests and is home to a wide range of native plants and animals. Forest plants have been struggling to feed native birdlife and regenerate due to heavy browsing by possums and rats.

In March 2001, Environment Waikato, in partnership with the Northern Hakarimata Walkway Group, carried out possum control over 1,800 ha in the northern half of the Range and adjacent private land. This operation was successful, reducing possum numbers to a residual trap catch of two percent (the target was five percent or lower). Infestation levels in the southern part of the Range were surveyed in August 2004. A high residual trap catch average of 22 percent meant that we needed to retain gains in the northern half of the Range and undertake possum control on the southern section as soon as possible.

In June 2005 aerial control with 1080 cereal pellet bait was carried out over 2,200 hectares of bush. Ground control over 1,800 hectares of adjacent land was carried out between March and July 2005.

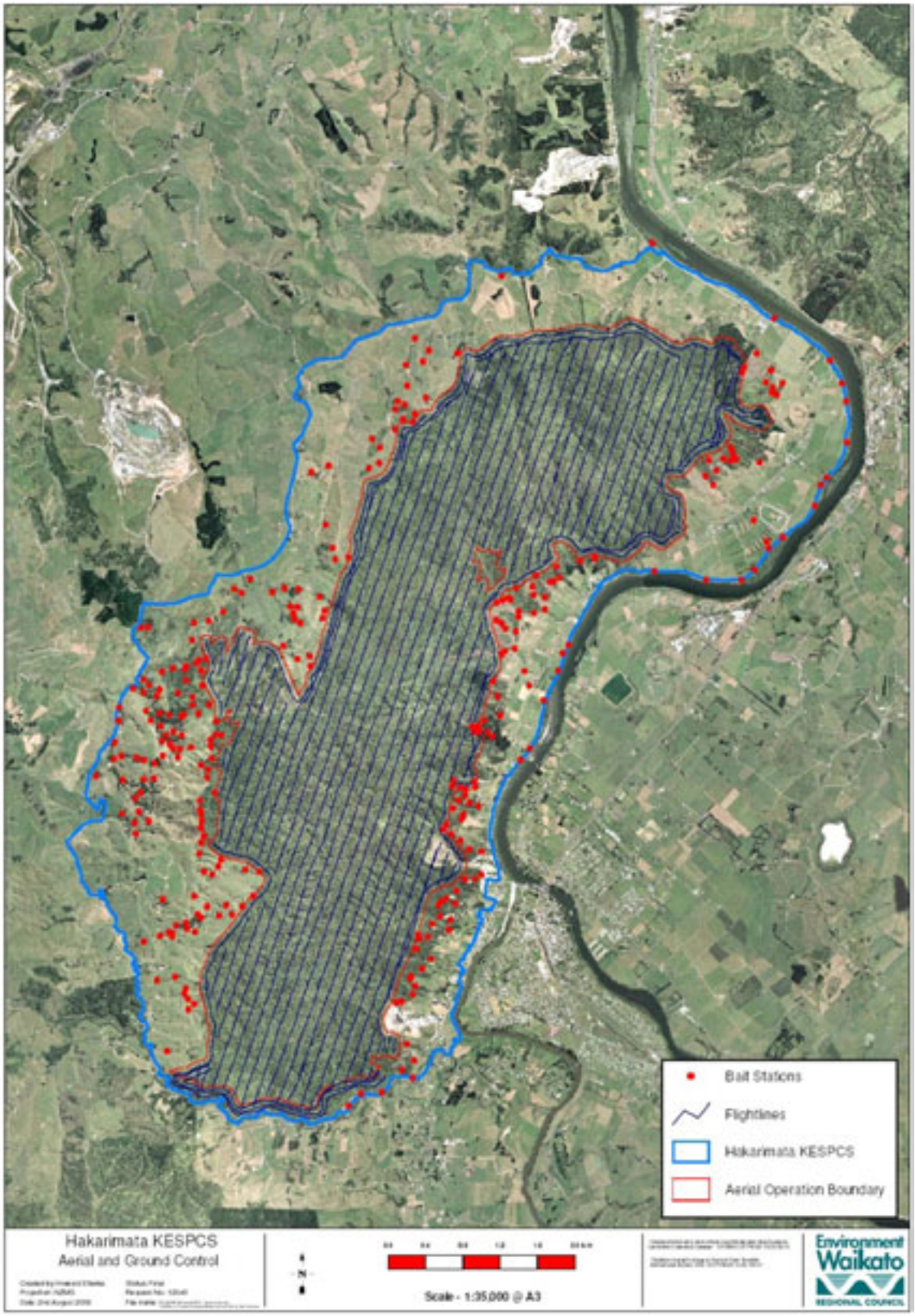
We needed to reduce possum numbers to an average residual trap catch of five percent. The targets were exceeded, with 1.05 percent achieved from the aerial operation and 0.57 percent from the ground operation. Trustee and Waahi Whanui environment manager Norman Hill says "iwi are very pleased that such a culturally and environmentally important place is once again on the right track to recovery." Trust chairman Brian Smith says "it was marvellous to have landowners and the whole community behind the project."

Environment Waikato will carry out annual maintenance control work in the farmland buffer around the reserve. As a result of the control work, reinvasion of possums into farmland and the reserve will be minimal. The Hakarimata Restoration Trust will undertake goat and rat control within the Range shortly.



The effectiveness of the possum control operation will become evident in the next few months, as kohekohe and other plants flower. Tui, kereru and other forest birds should enjoy good fledgling success, without the presence of possums and rats.

The map below shows the operational area. The lines across the central bush area represent the actual flightlines flown by helicopter with 1080 bait. The red dots show placement of bait stations throughout the farmland area.



Map of aerial and ground work in Hakarimata

4 Conclusion - challenges for 2005/2006

In concluding this annual report, it is timely to look ahead at some of the immediate challenges for 2005/2006:

- Implementing pest control under the Biodiversity mandate Council has, constrained by a limited budget and working with landowners with different objectives and perspectives for site management. Much of the 2005/2006 work in this area will focus on the Coromandel Peninsula.

- Maintaining the interest in eight community possum control schemes to ensure that initial and maintenance control work occurs. Managing the expectations of other interested groups will also be a challenge, given the Council's finite resources. New scheme areas to be investigated include Glen Murray, Waimai/Te Akau and reviewing existing Port Waikato and Waingaro schemes. These will involve implementing targeted rates to fund maintenance work, in partnership with Environment Waikato, provided that clear community support is demonstrated.

- Integrating bovine Tb areas that come off vector control into the community possum control scheme programme (such as Opuatia and surveys at Arohena, Whareorino, Tokoroa and Whangamarino).

- Undertaking a larger scale programme for alligator weed control in the lower Waikato delta, under the new ten-year resource consent, and working to introduce new agrichemicals (Garlon 3A) which can safely be used over water.

- Tackling urban pest issues in Hamilton City, in an integrated way, for Biodiversity outcomes.

Pest management is complex and ever changing. Pest management agencies such as Environment Waikato need to be able to respond to new pressures as they arise. As the number of effective eradication and control programmes increases and decreasing pest numbers are noticed, expectations of landowners and community groups are likely to also increase.

Appendix 1: Areas treated under the Key Ecological Sites programme

Name		Contractor and date worked	Area (ha)	Operation details and results
1	Te Tapui Reserve (near Cambridge)	Epro Ltd October/November 2004	2,382	Completion of 2003/2004 operation. Aerial 1080 control in two stages. Residual trap catch of 0.67 percent returned for 600 ha block. Overall result for 2,382 ha reserve was 3.36 percent residual trap catch.
2	Punga Punga Wetland (near Mercer)	Anderson Forestry Services Ltd March/June 05	3,471	Initial control work centred on 350 ha. Wetland had very high possum numbers. Overall result achieved 3.6 percent residual trap catch. Total cost $75,000.
3	Hakarimata Range and private farmland (near Ngaruawahia)	Epro Ltd & Farm and Forest Pest Services Ltd May-June 2005	4,000	Aerial 1080 control of possums achieved in June 2005 over 2,500 ha. Residual trap catch of 1.05 percent achieved. Complimentary ground work achieved in area surrounding the Range achieved a 0.57 percent residual trap catch. Overall 0.81 percent residual trap catch achieved. Total cost $144,700.
4	Mount Karioi (near Raglan)	EcoFX Pest Solutions Ltd May 2005	1,013	Maintenance control following aerial and initial control in 2003/2004. Two pulse feeds of bait stations undertaken. Total cost $33,000.
5	Moehau (Stage 3)	Anderson Forestry Services June 2005	1,717	Started possum control in planned stage three of the scheme. Maintenance undertaken in stages one and two. Further consultation carried out with key landowners. Total cost $62,570.
6	Whenuakite (near Whitianga)	EcoBalance (I. Baggaley) April/May 2005	450	Maintenance control carried out in core area of KES to compliment adjoining work in Department of Conservation reserve. Kiwi monitoring paid for by Environment Waikato. Total cost $34,200.

Other significant work under the Key Ecological Sites programme included:

Harkers Reserve (near Tuakau)
Strengthening the Environment Waikato/steering group relationship though meeting attendance, bait delivery and undertaking trend monitoring. Management plan produced and opportunities investigated for expanding the area covered - cost $5,000.

Pukemokemoke Reserve (near Tahuna)
Helped develop reserve management plan, trend monitoring, pampas spraying and privet pulling.

Bald Hill Landcare (near Waiuku)
Created a new care group in conjunction with Auckland Regional Council. Pest control programme designed for possums/rat and biodiversity. Trap catch monitoring provided - cost $4,300.

Kapowai Kiwi Group (near Whitianga)
Group established 2002/2003 but had lost some enthusiasm. Production of a management plan occurred, including expansion into neighbouring Parakau site. Biodiversity monitoring commenced and a monitor is due in Spring 2005 - cost $1,877.

Moehau Environment Group (Northern Coromandel)
We are working closely with this group to establish intensive rat control on core kiwi areas. Stoat traps and covers provided for extension of network into Kennedy Bay area to compliment Department of Conservation predator trapping area - cost $21,000.

Pukemore Key Ecological Site (near Huntly)
Planning work including monitoring carried out as a forerunner to possum control work. Key relationships were established, but the operation was deferred due to poor fencing of bush block.

Sharpe Road Key Ecological Site (near Onewhero)
We put up bait stations and provided baits to the property owner.

Manaia peninsula (near Coromandel)
Nine visits made to replenish 30 bait stations during the year, to protect pohutukawa. Some trees will not survive but others look like they have been saved.

Papa Aroha Group (near Colville)
Support provided to maintain coastal bait stations. Land access is difficult.

Hunua Range (near Kaiaua)
Supported this Auckland Regional Council possum control programme, over 600 ha of which is contiguous bush extending into the Waikato Region, adjacent to Hunua Range possum control.

Appendix 2: Summary of work completed under the community possum control scheme programme

The following table summarises work undertaken to date in eight schemes, which are in various stages of implementation.

Scheme and facilitator	Initial operation timing	Initial residual trap catch result percent	First monitor residual trap catch percent	Second monitor residual trap catch percent	Third monitor residual trap catch percent	Fourth monitor residual trap catch percent	Fifth monitor residual trap catch percent	Sixth monitor residual trap catch percent
Mahoenui EcoFX	July 1998	6	9.12 March 1999	17.7 June 2000	10.7 July 2001	7.26 November 2002	5.65 August 03	6.9 October 2004
Hauturu-Honikiwi EcoFX	July 1999	4.3	19.4 June 2000	12.5 August 2001	12.5 December 2002	18.11 October 2003	13.6 October 2004	
Whitehall-Te Tapui Environment Waikato managed	June 1999	4.3	25 (worst case areas) February 2000	3.6 (achieved by contractors) July 2001	3.16 (second monitor done) February 2002	16.8 February 2003 - trend	2.52 November 2004	
Wairamarama-Port Waikato EcoFX	June 2000	2.2	33.67 (worst case areas) December 2001	19.7 December 2002	23.7 October 2003	18.4 January 2005		
Pukemiro-Waingaro Farm and Forest Pest Services	January 2001	3.5	14.3 Dec 2001	7.37 August 2002	14.3 August 2003	13 August 2004		
Awaroa-Whangape Epro	October 2001 and December 2002	5.41 (June 2002) Swamp re-monitored 3.38	stage 1 - 15.67 (August 2002) stage 2 - 2.98 (December 2002)	7.27 (July 2003 - combined areas into one monitor)	7.68 August 2004			
Punga Punga	March–June 2005	3.6						

Anderson Forestry Services		June 2005						
Waipa-Puniu EcoFX	Ex Tb operation Transferred in 2005	2.25 February 2005						

Summary of small scale community possum control initiatives on the Coromandel Peninsula

There are currently 13 small-scale community initiatives on the Coromandel Peninsula.

1 Sandy Bay, Port Charles

Tina Morgan's team are regular buyers of bait. Their efforts are still making a considerable impact on the animal pest population in this area and ties in with the Mist Preservation Trust Moehau, Department of Conservation and Environment Waikato poisoning operations. There are 26 bait stations in use.

2 Tuateawa Kiwi Care

The group fills over 70 stations per month. This scheme continues to compliment the Department of Conservation operation at Kennedy Bay.

3 Coromandel Forest and Bird

The group concentrates mainly in the Long Bay and Wyuna Bay areas. Six members regularly refill stations. They are now controlling mustelids on Wyuna Peninsula. There are 25 bait stations in use.

4 Cooks Beach

John Langdon and Adele Smaill are continuing with the good work in this area, refilling stations at Ferry Landing and Cook's beach. Adele reported that there appears to be little or no increase in possum sign or damage within the area. There are 30 bait stations in use.

5 Paku Hill

The poisoning programme has been continuing his on Paku Hill (Tairua). There are four bait stations in use.

6 Opoutere

Run by Grant Crook, this group is very active and bait on a consistent basis. There are approximately 18 bait stations in use.

7 Onemana

The trees on Onemana foreshore remain in excellent condition thanks to the group's good work. A steering group facilitator has commenced work. There are 15 bait stations in use.

8 Whangapoua

Whangapoua ratepayers are involved in this scheme. An Environment Waikato contractor now services the eight stations along the beach. A local facilitator is still being sought for this role in the future.

9 Little Bay

Little Bay ratepayers are involved in this scheme. Robyn Neville runs this group. He also operates eight bait stations along the beach and the bait is removed before the school holidays. There are eight bait stations in use.

10 Hahei mustelid scheme

Fifteen traps were purchased by Environment Waikato in 2003/2004. Diary notes on successes are forwarded to Environment Waikato.

11 Flax Mill Bay mustelid scheme

In all 12 traps are in use, mainly on QEII Trust land on the eastern site of Whitianga Harbour. The land is also an Environment Waikato identified Key Ecological Site.

12 Whiritoa

Ten bait stations have been placed in bush at the northern end of Whiritoa beach. The bait stations are filled once a month.

13 Whangapoua Harbour Group

The group has 14 adjoining landowners and most properties are under a QEII covenant. Whangapoua harbour and Whangapoua beach group may converge to form one large group in the near future.

Other locally managed initiatives include New Chums beach. The trees along the beach continue to be protected through the efforts of George Simpson and Roger Smith. At Port Jackson Coast Rd, Anthea Ward has established a bait station line of 60 bait stations to protect young pohutukawa, which have been planted by Thames Coromandel District Council. She has received funds from Project Crimson to purchase the bait stations and supply the first year of bait. This year she has paid for the bait herself.

Over 840 bags of brodifacoum poison and 265 bait stations were used within the Coromandel Peninsula area over the year. Total expenditure for bait and bait stations was $30,072,50.