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Protect

Summer 2009

Magazine of the New Zealand Biosecurity Institute

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Editor's Note

Hi everyone, how are you all. It has certainly been a busy year for me in Southland. I have just finished my first year as editor of *Protect*. I hope you have enjoyed the changed format. I was also on the organising committee for NETS – what a great experience. The committee was a wonderful group and judging by the feedback, NETS was one of the best. To my fellow committee members – give yourself a pat on the back for such a great job.

This year at work has been busy with a great mixture of field work and office work. We are very lucky in Southland we get to some awesome remote places that are stunningly beautiful. On the home front we have been busy with the garden and setting our place up as a B&B. In addition we have had several requests from garden clubs wanting to visit our garden which has been an affirmation of the work we have put into it.

As we go into the final weeks of the year I urge you to take care over the Christmas season, have fun, enjoy the break from work and have a great New Year.

All the best, **Lynne Huggins**

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New Zealand **Biosecurity** Institute

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Seasons greetings

Executive meeting

The Executive met in Queenstown prior to NETS2009. One of the major items of business was the matter of whether or not the Institute should hold a public liability policy. We have done some preliminary investigations into costs and packages available for not-for–profit organisations. The cost ranges between $500 and $1000 for various levels of cover. The first question we asked and are still seeking answers for is, "What would be liable for?" We are still establishing our potential exposure and also the risk that NZBI activities may or may not carry. Our intent is to ensure that our members are covered in the event of any catastrophe that may occur while performing or partaking in Institute business.

NETS2009

NETS2009 was excellent. Thank you to the organising committee once again for putting together an excellent three days of presentations and field trips. The feedback from delegates was very positive and also included some constructive criticism which will help us make NETS even better in the coming years. NETS2010 is in Blenheim, on July 21-23, 2010. "Know how, can do, job done" is the theme, so if you have some know-how and want to share it, please see the call for papers.

Bush Telly

At the 2009 AGM we voted to sponsor the Bush Telly initiative for $1000. At this year's Ellerslie Flower Show, Bush Telly won the Supreme Award for Design Excellence and the Judges' Supreme Award and as a result has got extensive TV, radio and newspaper coverage. For more information please visit www.bushtelly.org.nz/. The sponsorship gives NZBI 5, five-minute topical interview slots that will form a DVD able to be used by members in education or extension activities. Topics are going fast but if there is a biosecurity topic or pest species you would like highlighted by Bush Telly then please respond to louise.cook@tbfree.org.nz by the end of January and we will endeavour to put it on the list.

Awards

The Professional Development and Study awards spring intake has expired with only a few applicants seeking funding. There is another application period for the Professional Development Awards so do not let the opportunity pass you by.

On behalf of the Executive, we hope you enjoy the summer and don't forget that whatever you're doing "Slip, Slop, Slap and Wrap" then "Check, Clean, Dry".

Craig Davey
President
Craig.Davey@horizons.govt.nz

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NZBI news

News from the branches

Auckland/Northland Branch

Our most recent meeting was held at the Northern Wairoa Memorial Park in Dargaville on November 25, 2009. After the formalities we had a presentation and workshop on the NZBI: where we want to go as a branch and what members would like to get out of our regular meetings. We also had talks on the benefits of pest control to the restoration of ecosystem processes and Manchurian wild rice control in Northland. This was followed by lunch and then some field site visits to Manchurian wild rice control areas.

Branch members get familiar with a Manchurian wild rice infestation.

Peter King talked on the benefits of pest control to the restoration of ecosystem processes. This is based on 10 years of pest control in the La Trobe mainland island at Karekare on about 200ha of native bush which is part of the Waitakere Ranges. Bird life has improved due to pest control of possums and rats especially and he has noted native gloxinia and fuchsia flowering and being pollinated by hihi and tui. Kereru important for spreading taraire, kohekohe and karaka are also doing well. Possums especially like to brouse kohekohe and eat taraire seed and rats like eating karaka seed. Insects like carib beetle, cave weta, ground weta and prowling spider have also increased with pest control. With a recent masting event of kahikatea, Peter noticed an increase in mice and rat numbers followed by an increase in stoats. Stoats also eat prowling spiders and cave weta. There are also good populations of Hochstetter frogs in the Waitakere Ranges with numbers ranging from 30 (no pest control) to 37 (pest control) per 100 metres of stream. Pest control is not as important as good quality habitat. The frogs like pristine forest with overhead shade and good quality water with no sediment.

Peter Joynt from the Northland Regional Council spoke on Manchurian wild rice control, a tall rhizome producing perennial grass that grows up to 3m tall. It has spread along about 60km of the Wairoa River and many of its tributaries since its introduction about 140 years ago. Manchurian wild rice is a plant of National Importance and MAF Biosecurity is funding its control throughout the country with about 90 per cent of the species growing in Northland.

Greg Hoskins
Executive member
Auckland/Northland Branch

The Wairoa River near Dargaville with Manchurian wild rice growing along river bank.

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NZBI news from the branches

Canterbury Branch restoration project

Supporters of the Taylors Mistake/Godley Head walkway project have conducted two release sprays and the project is now well up to date with weed control.

A few plants have died and a few are looking a bit sick but overall most plants are looking good. Several manuka have actually flowered and are setting seed!

The project has been fortunate to date with good rain watering the plants well. With the start of December being wet, they should do well right through to Christmas.

There may be a need for more manpower from branch members if and when Canterbury's nor-west winds get going and turn on a drought this summer, necessitating watering them once a week. If you will be able to help with some watering, please let Keith Briden know.

The branch held a Weedbusting day on Friday, November 27. It was planned as a Canterbury Branch Biosecurity Institute event/Christmas party but anyone who has been involved in the planting or weedbusting was also invited to come along. The five people who took part cut down lots of broom and did some weeding before adjourning to Keith Briden's house for barbecued venison.

Another Weedbusting session and Christmas barbecue is to be held on Sunday, December 13, for those who were unable to make the weekday event or those who just want to work hard and party up large!

Gemma Bradfield
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NZBI news

Lynley Hayes reflects on receiving NZBI Life Membership

There I was, quietly minding my own business at the AGM in Queenstown, and the next thing I know I'm being asked to come up to the front to receive from Craig Davey a lovely framed certificate and greenstone koru necklace because, to my surprise I was being made a life member! I was completely gobsmacked, and would sincerely like to thank the NZBI very much for bestowing this honour upon me.

After the AGM Lynne baled me up to write a piece explaining how I came to be made a life member. I agreed to do this so I can say thanks to all those who played a role helping the NZBI through some very difficult times and because I believe it is important to remember the past so we don't repeat our mistakes. However, I am also mindful that this is very much my take on what has happened over the past two decades and others may have a different view, in which case please feel free to share it in the next issue! It would be really great to hear from some of our older members about the glory days, which pre-dated my first exposure with what was to become the NZBI.

My story begins with the 1992 conference of the Institute of Noxious Plants Officers which was held in Rotorua. If my memory serves me correctly this event was held jointly with the Institute of Vertebrate Pest Management's annual meeting, which did not happen again until 2003. I was fresh out of university and the Noxious Plants Officers Institute was a male-dominated group which spent a lot of time talking about which herbicides were the best to kill various weeds, but I met some wonderful people who have become great friends and allies since. Since I was not a "noxious plants officer", I was allowed to join the Institute but only as an associate member. By all accounts the Institute had been a powerful and strong force for many years, but it ran into some major turbulence soon after Rotorua with the 1993 conference not held due to political interference. The launching of the Biosecurity Act that year also brought about many changes as councils grappled with this new legislation and there was a fair bit of restructuring going on too. The Institute started to lose its way during this time as the world changed irrevocably around it.

In 1997 I got roped in to help organise the annual conference at Lincoln. I was shocked to find that we had to run the programme past regional council CEOs

Lynley Hayes holds the NZBI Life Membership certificate she was awarded at the Institute's AGM in Queenstown in October.

and that they would tell us what we were and were not allowed to cover: for example any policy matters were not allowed, but hands-on was okay. I also learned that we could not refer to this event as a "conference" because this conjured up connotations of a wasteful big junket, and we had to refer to our event as a National Education and Training Seminar, and it remains NETS to this day. At the Lincoln NETS we voted to change the name of the New Zealand Institute of Noxious Plants Officers to the New Zealand Biosecurity Institute, and in keeping with the name change we acknowledged the need to try and diversify our membership and mandate. Unfortunately, this was not enough to stop the growing disillusionment felt by the members, and we did not have our house in order sufficiently at this time to be

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NZBI news

able to attract new members, so our ranks continued to dwindle.

Then a phone call came from life member Murray Turner, asking me to consider standing as Vice-President. Obviously these were desperate times requiring radical measures! My initial thought was why on earth would I want to get caught up in the misery of an organisation that seems to be in a death spiral? However, I believed that an organisation such as the NZBI was still really important and I figured I had nothing to lose. As fate would have it about that time I was roped in to deliver a training programme at work called "The Seven Habits of Highly Effective People". It all sounded like really good stuff and here was a chance to try it out for real. Enter Habit 1 – Be Proactive, realise you can be an agent of change and make a difference. The NZBI needed to moult and grow a new shell and that was going to be a bit painful, but also offered many new opportunities.

In 2000 at NETS in Auckland I took over as President. At the executive meeting the night before there was nearly a punch-up as the frustration and disappointment finally boiled over. "Oh boy what have I let myself into," I thought. How do we stop the members from tearing themselves apart and start pulling together? Let's try Habit 2 – Begin with the End in Mind; what is our collective vision for the NZBI? Clearly we did not have one so as a priority we developed a mission statement and agreed on a new logo, and what a difference that made.

Habit 3 – Put First Things First, was next on the list to tackle. That promises had been made and not delivered on for years was a considerable source of anger and frustration for some members. The Executive had to be more accountable. So we set annual plans and targets and made sure we achieved them. Also while there had been considerable reluctance to spend the NZBI's accumulated funds, our greatest financial risk at that time was that the Institute would fold, so we agreed to dip into the precious nest egg in order to provide better benefits to the members and promote the NZBI (e.g. website, regular newsletters, travel and study awards). Almost immediately our finances started to grow – you really do have to spend money to make money!

Suddenly the membership also started to grow and people started paying their subs on time. I learnt that when the members are happy you don't need to run incredibly formal meetings where the constitution is quoted ad nauseam, and that people pay their subs on time. Mercifully by this time we no longer needed to worry about what the regional council CEOs thought of our NETS programme as the Institute had grown into a really credible cross-sector group. We were on a roll! We were approached by the Institute of Vertebrate Pest Management, which had been through the same sorts of difficulties, and in 2005 we officially joined forces to become one institute.

In 2005, after five years in the hot seat I was able to stand down and watch from the sidelines again. Today I marvel at the happy feeling at NETS and the informality with which we can run the AGM when people are in a good space.

Habit 7 – Sharpen the Saw, is what NETS is all about. We all get dull and ground down by the daily demands of life and need to renew ourselves from time to time if we are to go on fighting the good fight. This is exactly what NETS helps us to do, and what the NZBI is all about.

You may be wondering what happened to Habits 4-6 in between? They were important all the way through. Habit 4 – Think Win-win, long-term relationships require mutual benefit, you can't have winners and losers. Habit 5 – Seek First to Understand and then to Be Understood, listen to what people have to say and try to walk a mile in their shoes before you speak your truth. Habit 6 – Synergise, basically bring people's unique skills together to create something really special, which requires that you do the other habits really well.

I would like to acknowledge all the people who assisted me during my years at the helm of the NZBI and believed in me and encouraged me when the going was tough, the growing pains were painful, and also applaud those who stepped up subsequently. Thanks to all those who have taken up positions on the Executive, especially the secretary and treasurer positions and those who keep the branches going. We have something really special in the NZBI and we must strive hard to keep it going when we are challenged again in the future as inevitably we will be. We have something worth fighting for.

I will wear with pride my koru necklace at every NETS dinner. If you get a chance to assist the NZBI in some way or go on a 7 Habits programme, I can highly recommend them both!

Lynley Hayes
November 2009

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NETS2009 Field trip report

The natives & the naturalised in Sawpit Gully, Arrowtown

NZBI members enjoy the sunshine on the saddle above Sawpit Gully. Photo: Wendy Mead

A group of about 25 energetic NETS2009 delegates were fortunate enough to go on the field trip to Sawpit Gully. Leaving Queenstown by bus at lunchtime, we took the Arthurs Point route and saw numerous mobs of semi-wild goats, followed by several large stands of planted pines and douglas fir with the tell-tale signs of wildings spreading from them across the southern slopes of Coronet Peak.

We soon arrived at Arrowtown, with its rich history of gold fever. It was a perfect warm spring day and we enjoyed our packed lunch under the dappled shade of the lush new growth of the crack willows that line the Arrow River. There was no time for an afternoon siesta, so with an estimated two-hour walk ahead of us we trudged off up the Sawpit Gully track, following the route the area's early gold diggers must have taken to their workings.

It soon became apparent why this was such an appropriate field trip location for a bunch of weed folk… naturalised plants abounded and it was some time before we saw the first native plant! The group quickly spread out along the track, with those keen for a brisk walk up ahead and those more interested in investigating the botany of the area coming behind.

Wilding pines spreading from plantings on the southern slopes of Coronet Peak.

Many of the naturalised species were edible plants, clear evidence of the long history of settlement in the area. Gooseberry, raspberry, currants, blackberry, wild strawberry, oregano, elder, mint, wild parsnip, apple and

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NETS2009 Field trip report

plum trees were all evidence of past human habitation. Many others were the "to be expected" category of weeds in the Central Otago landscape, including broom, sweet briar, St John's wort, hieracium, douglas fir, hawthorn, buddleia and several willow species.

The gentle grade of the track soon became steeper and with the warm day it would be fair to say most of the group had rosy cheeks by the time we reached the saddle and began our decent into Sawpit Gully. By then our dawdling and botanising was beginning to make our 4pm rendezvous with the bus driver look unlikely, so we attempted a steadier pace but struggled with the distractions of trackside plants, scenery and trout in the river.

We eventually made it back just a little later than planned, but we learnt a lot from our guides and others in our group, and ended the day with a plant list of 124 species, 89 of which were naturalised compared with a paltry 35 native species.

Looking down the Arrow River and out to Arrowtown.

Tom Belton

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NETS2009 Field trip report

Glorious Glenorchy: beech forest, New Zealand falcon… and weeds

The view from the vantage point above Lake Wakatipu

The Biosecurity Institute's field trip to Glenorchy gave delegates an opportunity to get outside, breathe the fresh southern air and experience the varied beauty of the area. Throughout the afternoon, Department of Conservation guides Barry Lawrence and Mark Mawhinney related some of the area's history as well as detailing some of the conservation concerns that are managed in one of the best known scenic environments in New Zealand.

Glenorchy is a small township situated between Lake Wakatipu and the Dart and Rees rivers, with Mount Aspiring National Park providing the backdrop to the town. Glenorchy however, was not our destination – we headed further north towards the Routeburn Track and the beech forests.

The first stop the bus made enabled us to stand at the vantage point at the head of Lake Wakatipu, providing a panoramic view from Tooth Peak around to the Big Geordie, encompassing the Routeburn and Dart valleys, huge glaciers and the two rodent-free islands, Pigeon (160ha) and Pig (105ha). Protected on those islands are the endemic weka (*Gallirallus australis*) and mōhua (*Mohoua ochrocephala*).

The risks to the environment are not always obvious but are ongoing. We learnt that fire spread by campers had impacted on the kahikatea (*Dacrycarpus dacrydioides*) remnant on Pigeon Island, while thar that had ventured into the Thompson Mountains require an annual winter cull to prevent them spreading into Fiordland National Park.

The land has had many historical uses. Pounamu and gold were sourced in the area, and mining for tungsten scheelite took place during the Second World War. More recently, three high country stations were bought by the government for use in the settlement with Ngai Tahu (Routeburn, Eltham Bay, and Birchward).

The New Zealand falcon (*Falco novaeseelandiae*) is present in the area in greater numbers than anywhere else in the South Island, living on the steep slopes and open areas, with outcrops that have a clear view of potential passerine meals.

Each pair of falcons has a 15km^2 territory, providing the estimated 700 kills per year for each pair of birds if the falcons only feed on passerines. The good news is that falcons will also prey on stoats and mice, particularly when mice numbers swell as result of a beech mast seed year.

Less impressive and far less endangered is the notorious weed Spanish heath (*Erica lusitanica*).

A perfect place for a road…

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Field trip report

The fine seed is thought to have been spread by contaminated fertiliser, and it has been found 1000m up Mount Crichton, in the Eyre Mountains and on both Pigeon and Pig islands. DOC staff have declared war on the weedy plant and are attempting to control it everywhere. Other weed control work involves DOC targeting weeds that are not on DOC managed land but which pose a risk of spreading onto Conservation land. The usual suspects are involved: Chilean flame creeper (*Tropaeolum speciosum*, hawthorn (*Crataegus monogyna*), buddleia (*Buddleja davidii*) and willow (*Salix* spp).

By now we had travelled to the Dart Bridge, where the stunning hillocks are located. These hillocks took 15,000 years to accumulate and are protected by both covenant and district plan. The hillocks formed as a result of glacial activity and are in stark contrast to the rock outcrops also present and resulting from glacial recession.

Driving through the Routeburn beech forest showed a different slice of the landscape – the lush beech forest, with its mosaic of understorey mosses and lichens. There is a proposal to cut a new road through 400 metres of the forest in order to reduce the road trip to Milford from Queenstown by a third.

While walking through the buttressed trees we listened for birdsong (kindly interpreted by Barry). While we did not see any mōhua , we did see a rifleman, and heard other birds, including kākāriki, brown creeper, and the shining cuckoo.

South Island robin.

Rat control is a major requirement to protect this habitat, and tracking and monitoring their numbers is essential to achieve timely and adequate control.

We drove back to the tourist Mecca of Queenstown through the road-threatened beech forest at the end of an inspiring afternoon. It seems that the remarkable changes are not over yet.

Anne Thompson

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NETS2009 Field trip report

Skippers Canyon: threatened landscape

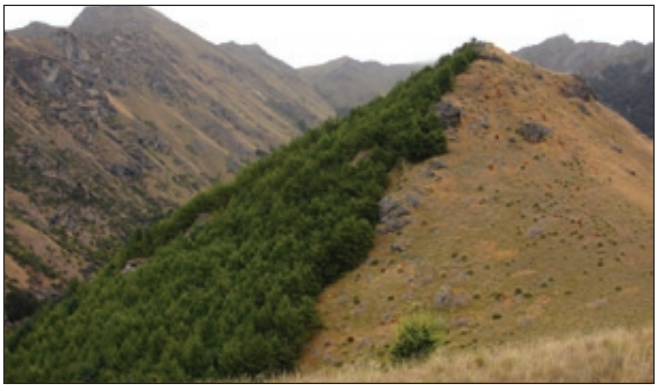
As part of NETS2009 several field trips ran showcasing biosecurity in action around the Queenstown lakes region. These trips typified issues relating to both Southland and Otago, and took conference delegates on an afternoon of their choosing to have a first-hand look at issues and solutions to pest management.

One of these trips took a group through to Skippers Canyon to get a close look at the wilding pine problem facing vast areas of land throughout Otago and Southland. We had heard some fantastic seminars on the issue of wilding pines in the lead-up to the field trips and it was a great opportunity for everyone to see programmes run by DOC staff as they were happening on the ground. Jamie Cowan and Pete Raal led a convoy of Land Rovers through Skippers Canyon, where the group was able to view work done to control wilding pines using a number of different methods and techniques and over a vast range of environments and challenging topography.

Our first stop was at an impressive lookout point from which we could see a broad overview of the issue on a massive scale through the Coronet Peak area and surrounding ranges. We next wound our way into Skippers with breathtaking scenery a backdrop which suitably highlighted the impact this problem could have on such iconic landscapes.

As we worked our way towards Mt Aurum we were able to see first-hand examples of work done by ground crews, both volunteer and DOC staff, over a period of time. This included the impressive and dramatic results of aerial spraying operations to ring-fence clusters of pine trees, spot spraying of targeted trees, and the enormous task undertaken where individual tree felling in less dense populations had been conducted. The work done to date was highly impressive, particularly when considered against the enormity of the wilding pine issue throughout the area. However, it was clear to all on the field trip that this was a problem which would unfortunately not be solved overnight.

Our final stop of the trip took us to the refurbished schoolhouse, where it was possible to look at photos showing the area's original settlers and the landscape in which the communities had developed. This was not only a fascinating window into how the landscape had once looked prior to human settlement, but also served as a poignant reminder for all on the field trip of how it does not take long for a biosecurity pest, such as wilding pines, to irreversibly alter a landscape. A vast amount of proof was on display which highlighted the way in which the hillsides and mountains we had driven through and seen only a matter of minutes before had completely changed due to the dominance of pine tree growth in recent years.



Before, top, and after, bottom, photos showing die back of larch after spraying at Jennings Creek, Mount Aurum reserve.

The refurbished schoolhouse at Mt Aurum.

A huge thanks to Jamie, Pete and the team at Nomad Safaris for an amazing trip, and for providing the opportunity to visit such a spectacular part of Otago and to showcase what is an issue at the forefront of pest management and what it entails in the context of the New Zealand landscape.

Rosie Dennison

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Post-NETS2009 southern tour

Beyond NETS: a dozen mission south

Twelve intrepid NETS'ers carried on beyond Queenstown to see more of the southern South Island. We hightailed our way out of the Queenstown bustle to experience more of the real south, and view some of the biosecurity issues it holds.

First stop was the Kiwi Burn swing bridge on the Mararoa River, where didymo was seen in 2004. Bill Jarvie from Fish and Game has a wealth of knowledge regarding the impacts of didymo since its arrival, and the resulting investigations that have led to New Zealand being at the forefront of research into didymo.

Post NETS2009 trippers in old Cromwell town (minus Wendy Mead taking the are, from left: Peter Russell, Lyn Bowcock, Randall Milne, Steven Henry, Gary Bowcock, Dave Paine, Richard Bowman, Kelly Dustow.

Onwards to Te Anau where we were just in time to catch *Shadowlands* – the locally produced film featuring aerial footage of remote and spectacular areas of Fiordland. The next day we stopped off along the upper Waiau River which runs between lakes Te Anau and Manapouri to view didymo knocking on the door of Fiordland National Park. Thankfully, the waterways within the park remain free of didymo, and another multi-agency awareness campaign over this summer is aiming to keep it that way.

Next stop was the riverbed restoration project on the Mararoa River. Large areas of crack willow, gorse and broom have been cleared from the area to alleviate gravel build-up at The Key Bridge, and to help protect adjacent land from flooding. The project has improved recreational opportunities for this area of the Mararoa. Jesse Bythell from Biosis was also on hand to give an overview of broom biocontrol agents and the impacts they are having at this site.

Then up and on into the Nevis Valley with a quick lunch stop at the old Garston ski club hut. The hut has seen better days, but the walls tell quite a history. However some of the more recent additions are not suitable to print! The Nevis Valley is a remote valley steeped in gold mining history. The signs of old workings and habitation are very evident, as are current activities. There's obviously still gold in "them thar hills". The vegetation and landscape through the Nevis are quite spectacular. The proposed hydro dam seems like a poor decision given the historic, ecological, recreational and landscape values that will be lost. For those who have the opportunity, I'd recommend a 4WD trip through the Nevis Valley to experience them first hand.

Sunday morning we stopped off briefly in old Cromwell before heading through Earnscleugh Station over the

Biocontrol is fascinating!! Gary Bowcock, Peter Simmons and others investigate broom biocontrol agents up close.

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Post-NETS2009 southern tour

Predator-proof fence enclosure providing safe haven for the local skink in the Aldinga Conservation Area.

Hawkesburn Range. Our destination was the Aldinga Conservation Area. Within Aldinga, a predator-proof fence has been constructed by the Central Otago Ecological Trust to provide a safe haven for local skink species. James Smith from Landcare Research gave up his Sunday to provide an excellent overview of this project, and other ongoing research within the Aldinga Conservation Area. The venture is a great example of community interest and research working together for the benefit of local fauna.

Penultimate stop was a coffee and debrief at Clyde – a picturesque pit stop if you're ever down that way. The consensus was the trip was a great success and well worth staying on from NETS2009. Thanks to all who came along, and to Steven Henry and Richard Bowman for organising the weekend.

Randall Milne

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NZBI news

Biosecurity personnel profile: Lyn Nicholls

Role: Sales and Marketing Manager
Connovation Ltd
Waikanae Beach

Lyn Nicholls background in vertebrate and invertebrate pests spans some years. Starting in pest control in 1980, she was one of the first women accepted into the Agricultural Pests Destruction Council two-year trainee scheme. Lyn spent the first year on the Hawkes Bay Pest Destruction Board and the work mainly involved the control of rabbits and rooks, but she also gained experience in all other aspects of animal pest control. The second year was spent in a number of locations throughout Central Otago – Wanaka, Cromwell, and Patearoa in the Maniototo Basin where, due to high rabbit numbers, the sole focus was on controlling of rabbits, both aerial and ground poisoning, shooting, trapping, fumigation, and dogging.

In 1983 Lyn became a Field Officer for the Agricultural Pests Destruction Council (a quango of the Ministry of Agriculture and Fisheries). Based in Alexandra she undertook trial work prior to major rabbit poisoning operations, developing new tools and methodologies for the pest industry, became involved in running some of the early tuberculosis possum control operations on Banks Peninsula, near Owaka in South Otago, and the Mackenzie Basin. After a short stint at Lincoln doing predominantly pest bird trial work there and in the vineyards around

Lyn Nicholls, centre, taking part in the clay bird shooting at NETS2009, with from left, to right Gary Bowcock, Dean Roughton, Peter McIntosh, Davor Bejakovich and Ewan Kelsall.

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Marlborough, Lyn moved to Wellington in the late 1980s to become National Training Officer.

Faced with being made redundant when the Agricultural Pests Destruction Council was disestablished, in late 1989 she secured a position with the Manawatu-Wanganui Regional Council and worked for four years as Land Resources Support Officer and for a short time was a Noxious Plants Officer. This was followed with work for the Canterbury Regional Council as Southern Area Manager managing 20 staff and the pest control for over 1.5 million hectares.

For the past 15 years Lyn has been involved in vertebrate and invertebrate pest control product sales/technical matters. Currently she in the role of Sales and Marketing Manager with Connovation Ltd, which is an Auckland-based company specialising in pest control. Its focus is on developing new, fast-acting and humane products to monitor and control invasive animals. The company's solutions are innovative, humane, environmentally responsible and practical (see www.connovation.co.nz).

Lyn is based at Waikanae Beach on the Kapiti Coast. Her excellent product knowledge and extensive pest knowledge enables her to competently disseminate information, provide information and guidance on the best product for any given situation.

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NETS2009 Paper: Changing approaches

From rabbit boards to fully integrated biosecurity

John Hellstrom presented this paper as a keynote address at NETS2009

Prologue

The view looking into East Bay, above, Arapawa Island, illustrates the history of our biosecurity. James Cook climbed conical Bald Peak in the distance to view his Strait – he didn't know the hill was bare following frequent burnings by local Maori with loss of many species – it has since been seriously degraded by goats and pigs and is now being planted in pine trees. Pickersgill Island, in deep cloud shadow in the centre, is infested with rodents and mustelids. It has little birdlife: that "melodious wild musik" reported by Banks is no longer heard. The huia, kokako, kaka, kakariki, kakapo and many other species he recorded are either absent or extinct. However, Blumine Island on the right, symbolically in bright sunlight, has a new future. As a result of generous corporate sponsorship by Snowy Peak[1], pest control by DOC and a huge community effort to clear wilding pines and other weeds, it is free of possums, rodents and mustelids and is well on the way to becoming the Tiri Tiri Matangi of the Sounds. Read about this good news story on their website and come and visit at NETS2010.

Thirty years ago – 1979

Neither the concept of biosecurity nor the word itself existed. Although most activities that we now include in our biosecurity system had been carried out for many years they were still unconnected, incomplete, unco-ordinated, poorly documented and inconsistently resourced. There was no overall governance: accountabilities under seven Acts and more than 120 pieces of dependent legislation were fragmented among several dozen departments, agencies and boards.

Major decisions were made in "smoke-filled rooms" with little or no public discussion and no formal consultation. There are numerous examples of poor biosecurity decisions from that period including:

- Pressure from Prime Minister Muldoon to support the establishment of mink farming, in spite of the extensive evidence of likely serious harm;
- Political pressure to import sheep with a known high risk of carrying scrapie from the UK over the advice of the veterinary authorities;
- Cutting of funding for Tb-related possum control; and
- Little or no account being taken in importation decisions of the potential impacts on indigenous species.

Many decisions were seriously flawed, often based on advocacy rather than science, and some caused considerable economic or environmental harm. Fortunately mink were never imported but there is a very expensive mass grave of scrapie-infected sheep on the north end of Mana Island, the Tb scheme went backwards for 15 years at a cost of hundreds of millions of dollars and a small Argentine ant incursion was left untreated because it was not considered an agricultural pest.

[1] See www.snowypeak.co.nz/en/uw/downloads/uw-foundation.pdf

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Changing approaches

It would another 14 years before the word "biosecurity" would arrive in New Zealand and be enshrined in legislation as a concept embracing the full set of activities that would protect our valued biodiversity, both exotic and indigenous.

Some biosecurity issues of 30 years ago:

- Sea containers were virtually unknown – imported goods of plant or animal origin were largely unprocessed and unpackaged bulk commodities;
- Most non-living imports were subjected to little or no pre-export testing or treatment and, unless obviously contaminated by pests, no point of entry treatment either;
- Most manufactured items arrived with untreated packaging derived from timber or natural fibres;
- There was little tourism – mainly from Australia, Europe and North America and largely to a handful of iconic destinations with almost no "eco-tourism";
- Air traffic was just starting to grow– there were few flights per day and little air freight of fresh produce;
- Black robins and kakapo had just been found on the verge of extinction;
- The in-shore marine environment was still relatively undisturbed and not widely visited;
- No one had ever eradicated a vertebrate pest from any off-shore island; and
- Rabbits, TB and some noxious weeds were being managed with substantial subsidies from central government.

Biosecurity in 2009

We now understand our biosecurity system consists of a set of inter-related activities to exclude, detect, eradicate, control and manage biological threats to the economy, environment and society, as well as the agencies that set biosecurity policy, plan for and contract its delivery and provide actual biosecurity services.

So what have been some of the major changes in the last 30 years?

Threats have changed:

- Threats from trade have changed dramatically with both plusses and minuses – more trade, but cleaner trade but faster trade;
- More tourism further into the bush, tourists arrive sooner from previous destination and a new class of widely travelled, specialist ecotourists;
- Every part of the marine environment is now exploited for commercial and recreational uses;
- Huge growth in numbers of pleasure craft on fresh and saltwater;
- New occupations and leisure pursuits have opened up new pathways such as vineyard workers moving around the world with successive vintages or abalone divers working off-season in other countries.

Governance has improved greatly:

- A major shift from fragmented to unified governance;
- Consolidated and unifying legislation;
- An emphasis on transparent and substantial consultation;
- Risks are assessed and managed in a formal science-based framework;
- There is strong societal and political support for the current system – no deals behind closed doors; and
- There is strong overall support for the biosecurity concept and vision.

There have been some amazing world-leading achievements:

- Rodent-free islands are now in the hundreds;
- Possum TB control is almost complete;
- Mainland islands are springing up everywhere;
- Eradications of "impossible species" such as Lymantrid moths, southern salt marsh mosquitoes and red imported fire ants have been achieved.

Some current trends affecting biosecurity:

- Societal values and expectations have changed – now value indigenous species and there is a growing conservation ethic;
- The landcare movement is involving tens of thousands of citizens in biodiversity restoration;
- Stronger border defences (too strong?) import health standards are far more rigorous than 30 years ago and take account of all our biodiversity not just those with economic value;
- The tools, information and science that is available were largely unknown 30 years ago;
- We now have a far better understanding of ecology and epidemiology, the sciences that demonstrate the interconnectedness of our biological systems.

But there are still problems:

- Risk management is starting to create a culture of risk aversion diverting effort from higher unknown risks to dealing with much smaller known ones;
- Border measures are becoming inefficient – for example 100% X-ray screening creates an illusion of protection;
- I have some questions about state of our response capability – are we really up to managing fast-moving epidemics?
- Our surveillance effort is still lacking focus;
- Pest management governance and funding still have a way to go;
- We are still using inappropriate tools to value the costs and benefits of biosecurity such as

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Changing approaches

commercial discount rates and a lack of ecosystem valuation; and
- There is a lack of agreement about who should pay.

Biosecurity in 2039

"The future is hard to predict" – Nihls Bohr

Making predictions about what will happen in the future by extrapolating from what has happened in the past is almost invariably a waste of time. We can however, make some predictions about the likely future environment for biosecurity with a little more confidence.

In 2039 it is likely that:
- The biggest biosecurity threat will be something most of us have never heard of;
- It will have arrived by a pathway we hadn't thought of or hadn't thought was important;
- We will be using technology that currently doesn't exist to deal with it;
- The core biodiversity of our production systems will continue to be relatively well protected;
- But our indigenous biodiversity will only be well-protected if society values it highly; and
- We'll still be arguing about who should pay for it all.

Some possible future biosecurity issues:
- Modified genes as biosecurity threats, maybe produced in a backyard lab;
- Climate change effects but note that just because climate change may increase the chances of new species establishing it doesn't mean they will;
- There will be some powerful biosecurity tools based on GMO technology but will we be able to use them?
- Will our current chemophobia have resulted in the loss of critical tools like 1080?
- Will society finally have come to grips with the need for sustainable practices?
- Will the next generation have taken over from the volunteering oldies currently carrying out landcare work?
- Darwin saw little value in our indigenous species – David Bellamy regards them as priceless treasures – where will NZ society stand in 2039? Will we become like the British who value their highly degraded ecosystems populated almost entirely by exotic species.

My personal view is that this issue of values will be the single most important determinant of what our biosecurity will look like in 2039. As a society we value things differently. For example this view of the entrance to Tory Channel shows three values placed on *pinus radiata* as a valued silviculture crop in the background and as an uncontrolled weed in the foreground – to the right in the middle distance is an example of a major investment in wilding pine control. All three values co-exist – all are in conflict. If there is no strong societal consensus that our indigenous species and their ecosystems are worth protecting then our biosecurity system will not be strong.

But I'm an optimist so I predict that in 30 years:
- Our grand-children will be restoring ecosystems that we now consider lost;
- Corporations will be funding sustainable biodiversity activities;
- Ecosystem services will be valued and paid for and economic analysis to support biosecurity investments will have moved beyond simple cost-benefit analysis;
- Biosecurity science will be alive and well;
- Exacerbators will be paying for the harm they cause; and
- Once again there will be kakapo on Blumine Island.

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NETS2009 Paper: Vertebrate pesticides

Trends in vertebrate pesticide use and development of alternatives to 1080

Charles Eason and Shaun Ogilvie
Faculty of Agriculture and Life Sciences
Department of Ecology
Lincoln University

Summary

As a result of recent research and development:

i) Feratox® cyanide pellets are now being registered for wallabies control as well as possums.

ii) Registration documents are currently being assessed by the Environmental Risk Management Authority (ERMA) for zinc phosphide as an alternative to 1080 for the control of possums.

iii) Registration documents are also being prepared for a combination of cholecalciferol and coumatetralyl to provide an anticoagulant alternative for effective possum control.

iv) Anticipated timelines for product availability are 2010 (zinc phosphide) and 2011-13 (cholecalciferol and coumatetralyl) subject to ERMA and New Zealand Food Safety Authority (NZFSA) approvals and continued focused research and development effort.

v) In parallel we are pursuing the registration of para-aminopropiophenone (PAPP), a red blood cell toxicant, for 2010 – a novel poison for humane control of stoats and cats.

vi) On the platform of PAPP, alternative red blood cell (RBC) toxicants are being advanced for larger pests, possums and rodents. These RBC toxins are safer toxins, designed to minimise the impact of invasive animals, exhibiting humane performance and having a simple antidote.

The 1080 debate has become more polarised since the ERMA reassessment in 2007 and expenditure to meet increased compliance and consultation requirements continues to increase. Research on biocontrol of vertebrate pests has been an important and major focus for investment for more than 20 years in both New Zealand and Australia. Despite considerable commitment, effort and initiatives there is a gap between conventional poisons and the requirements of modern biocontrol that needs to be filled. More effective, safer alternatives to 1080 for the control of possums, predators, rodents and rabbits are required now to reduce over-reliance on 1080 and provide greater flexibility. With continued focused research effort, the next one to six years will see changes as improved, increasingly "ecofriendly", toxin products become available and additional products with novel active ingredients targeting possums and other major pests will be delivered.

Current vertebrate pesticides

Animal poisons, or Vertebrate Toxic Agents (VTAs) fall into two classes: non-anticoagulant and anticoagulant agents.

Non-anticoagulant compounds

Sodium fluoroacetate (1080) is effective for controlling pests in a variety of bait formulations and is the only poison commonly used for aerial control of pests in New Zealand. Carcasses of animals poisoned with 1080 are hazardous to dogs for many months and there is some debate about the humaneness of 1080.

Feratox® cyanide pellets were developed to increase the effectiveness of cyanide for possum control and reduce the risk of exposure of operators. Cyanide is potent, it does not cause secondary poisoning of dogs, it is favoured by some who oppose the use of 1080 and it is humane. While Feratox® cyanide pellets are very effective for possums and now wallabies, they have not yet been formulated for predator control.

Phosphorus is used by only a few licensed operators and is usually added to paste bait for possum control. It is generally considered inhumane, and its use has been associated with the secondary poisoning of dogs.

Cholecalciferol (vitamin D3) was developed in NZ for controlling possums (Eason 1991) and is now registered in Feracol® paste bait, Pestoff DECAL Possum Bait® and No possum gel®, with Feracol® paste bait also now used for rodent control. There is low risk of secondary poisoning of dogs, and birds are much less susceptible to cholecalciferol than to 1080, but current baits are deemed too expensive.

Anticoagulant compounds

First-generation anticoagulant rodenticides were developed in the 1950s and 60s, and second-generation

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anticoagulants in the 1970s and 80s.

Pindone, has proved most effective for rabbit control, and is also registered for possum control but is not so effective in this species. Diphacinone is more toxic than pindone and is registered for field control of rodents. They do not bioaccumulate like the second-generation anticoagulants. Coumatetralyl is registered for rodent control and more persistent than diphacinone and pindone.

Brodifacoum is the best known second-generation anticoagulant and has been used successfully in recent rodent eradication programmes on offshore islands to protect populations of endangered indigenous birds. Although brodifacoum is effective for possum and rodent control, repeat field use of brodifacoum can result in transfer of residues through the food chain.

Registration process and trends

In NZ the requirements of the Hazardous Substances and New Organism (HSNO) Act (1996) must be met, along with the requirements of the Agricultural Chemistry and Veterinary Medicines (ACVM) Act (1997). The registration process requires approval from both ERMA and NZFSA; consultation with Maori is a prerequisite, and welfare considerations are a key component of the registration assessment process for vertebrate pesticides as well as the need to demonstrate effective control of pests with minimum non-target impacts.

The pipeline

New NZ registration of established vertebrate pesticides

Part 1: Products that contain vertebrate pesticides already in use in NZ

The use and registration of existing products and active ingredients that are already approved by ERMA and the NZFSA and viewed as "ecofriendly" are being extended. Since its registration in 1997 Feratox® has become an accepted method for cyanide baiting with more than six million pellets sold annually for possum control. As its use has strong community support and it is used by hunters and trappers as well as professionals, extending this registration to include dama and Bennett's wallabies is a logical step.

Cholecalciferol has the advantage of low secondary poisoning risk and low toxicity to birds. Currently available commercial baits contain cholecalciferol at a concentration of 0.8%. The active ingredient cholecalciferol is expensive and if efficacy and humaneness can be achieved with lower concentrations of toxin in existing baits their price could be reduced. Field trials are planned in both paste and solid baits in 2009 to support product registration of affordable effective bait containing 0.4% cholecalciferol.

Part 2: Products that contain vertebrate pesticides not already in use in NZ.

Zinc phosphide has been in use for more than 50 years with very few non-target hazards. It is still used in the USA, as well as in Australia, China and the Asia-Pacific region for field control of rodents and larger pests. It found favour because of the comparatively low risk of secondary poisoning of dogs compared with 1080. Zinc phosphide is a quick-acting compound with clinical signs first appearing from 15 minutes to 4 hours after ingestion, and death after a lethal dose occurs generally in 3 to 12 hours. It is inexpensive and it has not been registered in NZ before now.

Cholecalciferol + coumatetralyl (C+C) as a combination also has a track record overseas. For example, Racumin plus® has been used to overcome anticoagulant resistance in rats and mice. The Animal Health Board (AHB) has funded the development of C+C for controlling possums, and it is currently being developed in multispecies baits for controlling rats and mice as part of the Lincoln University FRST programme. Bait containing 0.015% cholecalciferol and 0.03% coumatetralyl (C+C) has been developed, and dossiers are being prepared for registration. C+C is effective at killing possums, rodents and rabbits even though the amount of cholecalciferol is a fraction of that used in current cholecalciferol baits.

While zinc phosphide is more akin to 1080, in that it kills more quickly than anticoagulants, C+C by contrast is slower acting and offers the advantages of brodifacoum without persistent residues. For both zinc phosphide and C+C there is a common development strategy which is to first register a product for control of possums and then extend this registration to include rodents and rabbits. Zinc phosphide is initially being registered in a paste bait. Ultimately it is intended that there will be solid bait and paste formulations of both zinc phosphide and C+C.

NZ registrations of a new generation of vertebrate pesticides

There have been no developments in this field since the development of brodifacoum and cholecalciferol in the 1970/80s. There is an opportunity, and a challenge, to develop new replacements which are ahead in terms of humaneness and safety. A new class of compounds is now emerging. At the core of the research is the discovery that targeting red blood cells (RBCs) induces a humane death. PAPP (para-aminopropiophenone) represents the first compound in this class and is a potent and selective toxin for stoat and feral cat control.

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Vertebrate pesticides

Recent progress, following field trials in 2008 (stoats) and June 2009 (cats), has been rapid. PAPP dossiers for chemistry and manufacturing, toxicology, efficacy, ecotoxicology and non-target impacts, and welfare were filed with the NZFSA in 2008 and ERMA in 2009. In field trials its potential has already been proven in kiwi protection programmes.

Among this class of compounds, PAPP represents a partially selective toxin. PAPP is toxic to carnivores, with birds and humans being less sensitive. The onset of symptoms is rapid, and stoats and feral cats usually become unconscious quickly. Methylene blue is an effective antidote to PAPP toxicity and is available from veterinarians.

Sodium nitrite is a common salt that is currently at an early stage of research and investigation for larger pests. The toxicology of sodium nitrite is well understood because of its use as a preservative agent in meat. The toxic effects of sodium nitrite, like PAPP, are related to its ability to reduce the oxygen carrying capacity of the red blood cell and methylene blue is the antidote.

In parallel screening of PAPP analogues has been initiated and compounds with a similar mode of action in rodents and possums. PAPP and sodium nitrite should be perceived as the prototypes, and we believe that we can improve on these compounds to produce more potent, broad spectrum and selective species specific toxins for a range of pest species, with low toxicity to birds, based on the PAPP platform which will facilitate more effective predator and multispecies control[1].

[1] Links to a new FRST's programme entitled "Pest Control for the 21st Century" involving Lincoln and Auckland University focused on novel vertebrate pesticides and delivery systems.

Other initiatives include the exploration of methylxanthines, components of chocolate, for their toxicity to possums, and research supported by Nga Pae o te Maramatanga to identify useful natural plant toxins. While these avenues of research may appear as long shots, the work on methylxanthines is linked with our colleagues at the USDA National Wildlife Research Center and a component of the toxic plant karaka, like PAPP, induces methaemagolbinaemia and has already been proven to be toxic to possums. (See table below)

Conclusions

Over the last three decades considerable effort has been put into improving and refining the use of 1080. By contrast the six months to June 2009 have seen a record period for new product registration advancement. Extensive registration dossiers were filed for microencapsulated zinc phosphide (MZP) for possums, Feratox® for wallabies, and para-aminopropiophenone (PAPP) for stoats with ERMA and NZFSA. However, there are no "silver bullet" replacements for 1080. A suite of more effective and acceptable tools is being developed to reduce over-reliance on 1080 and to provide greater flexibility. There is now an intense focus on delivery of alternatives within one to six years. A new consortium, linked with Lincoln University, is working to a timeline, to deliver a suite of improved ecofriendly toxin products available by 2012, and additional products with novel red blood cell toxins targeting rodents, possums and other major pests delivered by 2015.

These new red blood cell (RBC) user-safe toxins will be unique, exhibiting humane performance,

A forecast for the new registration pipeline subject to ERMA/NZFSA and continued focused research effort.*

Type	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Products that contain vertebrate pesticides already in use in NZ.	Feratox® for wallaby control. Less expensive cholecalciferol paste and solid bait	Cyanide for pigs/ ferrets				
Products that contain vertebrate pesticides NOT already in use in NZ.	Zinc phosphide 1.5% *paste* for possum	Zinc phosphide 1.5% *paste* for possums rodents	Zinc phosphide solid baits for possums and rodents C+C *solid bait* for multispecies control	C+C *paste bait* for multispecies control of possum, rats, mice and rabbits.		
NZ registrations of a new generation of vertebrate pesticides	PAPP paste for stoat and feral cat control	PAPP delivered in repeat dose tunnels	Sodium nitrite for larger pests	New red blood cell toxin for possums	More potent PAPP like rodenticide and/ or combined rodenticide and mustelid toxin	PAPP like possum selective toxin + other RBC toxins Natural toxins and methylxanthines

* These timelines are not only subject to regulatory approval but continued stakeholder support both in kind and also with contracted research.

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availability of an antidote, improved efficacy, cultural acceptability and species selectivity and will fill a gap between conventional poisons and the demands and expectations of modern biocontrol. Our short-medium term focus is on registering new compounds for ground control. This is a significant milestone in itself. If or when these registrations are achieved and experience has been gained over at least two to three years, the next logical step is to consider which compounds are suitable for aerial use. Research and development needs to be consolidated over the period 2010 to 2015 if any of these new options are to become available for aerial control in the future. In parallel, work to improve the cost-effective use of ground control over larger areas with advanced delivery systems that can sustain control for months or years, should enable larger areas of land to be treated, reducing the need for aerial baiting.

Acknowledgements

This short review was originally prepared for the NZ Regional Council Biosecurity Managers in July 2009 and funded by Envirolink. Regional councils, AHB, DOC and FRST are acknowledged for supporting a number of the initiatives cited above.

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New weed

New naturalised plant identified in NZ

Innes Schonberg
Herbarium
Landcare Research
Lincoln

Due to a diligent weed spotter in Auckland, a new invasive weed was found in Glenfield.

***Persicaria chinensis* (L.) H.Gross**

Family: Polygonaceae
Synonyms: *Polygonum chinense* L.
Vernacular names: Chinese knotweed, huo tan mu

Origin:

Native to China, Japan, Korea, Taiwan, the Indian Subcontinent, Indo-China and Malesia naturalised in Hawai'i (and North America?)

Habitat:

Wet valleys, grassy slopes, mixed forests, thickets in valleys, mountain slopes

Description:

Perennial herbs with stout underground rhizomes.

Stems ascending to erect, 70-100 cm tall, woody at base, much branched, glabrous or retrorsely hispid.

Leaves: Petiole 1-2.5 cm, usually auriculate (winged) at base, upper leaves subsessile; leaf blade ovate, elliptic, or lanceolate, 4-16 × 1.5-8 cm, both surfaces glabrous or hispid, abaxially sometimes pubescent only along veins, base truncate or broadly cordate, margin entire, apex shortly acuminate; Ocrea tubular, 1.5-2.5 cm, membranous, glabrous, much veined, apex oblique, not ciliate.

Inflorescence terminal or axillary, capitate, 3-6 mm, usually several capitula aggregated and panicle-like; peduncle 10-30 mm, densely glandular hairy; bracts broadly ovate, each 1-3-flowered; Perianth white or pink; tepals 5, ovate, 3-4 mm, accrescent in fruit, becoming blue-black, fleshy; Stamens 8, filaments distinct, free; Anthers red or purple, elliptic; Styles 3, connate to below middle; Achenes included in persistent perianth, black, opaque, broadly ovoid, trigonous, 3-4 mm.

Flowering: late summer until early winter

Fruiting: early winter until spring

Weed Potential:

There is no evidence yet that this is species is producing viable seeds in New Zealand. Further observations are necessary.

Persicaria chinensis can become a menace without setting viable seed (like Japanese knotweed {*Fallopia japonica*} in the UK). It could spread vegetatively (rhizomes in garden discards): it is capable of regenerating from small fragments of rhizome which are transported easily by modern development practices. It has a wide ecological amplitude and could take over stream banks, moist thickets, roadsides, nurseries, wood-piles, clearings, and ditches. The plant could pose a threat to natural and restored ecosystems because of its capacity to grow rapidly and overgrow other species. It is a threat to biodiversity out-competing native species and monopolising local environments. It is expected to cover large areas unless controlled. It can cause damage to urban infrastructure, growing through tarmac and breaking concrete.

Knotweed flower head.

Knotweed stem, note the root growth from stem.

Large infestation of knotweed.

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BIOSECURITY NEW ZEALAND

Open letter from MAF Biosecurity

Dear Biosecurity Stakeholder

The Minister for Biosecurity plans to introduce a Biosecurity Amendment Bill into the House during the second half of 2010. He has asked the Ministry of Agriculture and Forestry (MAF) to finalise policy proposals by mid 2010.

Feedback from stakeholders and our own experience tell us that aspects of the biosecurity system need improvement. Many of these improvements will require changes to be made to the Biosecurity Act 1993.

MAF has prepared an information paper to identify those areas of the Act that might change, and to aid discussions on what form the specific changes might take. The paper can be found here:

http://www.biosecurity.govt.nz/biosec/pol/biosecurity-act-review

I welcome your feedback on this document. MAF will be holding workshops in late November in Wellington and Auckland to introduce the proposals and start discussions. I invite you to attend one of these workshops: details can be found on page 1 of the information paper. MAF will then convene a second round of workshops in February and March 2010 to work through the issues in more detail.

If you are unable to attend the November workshops, or wish to make written comment on the content of the paper, please feel free to do so, ideally to this email address. We particularly welcome comments received by the end of December 2009, as these will be able to be considered as we plan the 2010 workshops. However, we also welcome comments on this paper at any time up until the end of February 2010.

I look forward to hearing your thoughts on how the Biosecurity Act can be improved to meet the evolving needs of New Zealand's biosecurity system. If you are not the right person to receive this email, please forward it on to anyone in your organisation or networks who may be a more appropriate contact.

Yours sincerely

Barry O'Neil
Deputy Director-General
MAF Biosecurity New Zealand

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BIOSECURITY NEW ZEALAND **News**

Kauri dieback programme moves into long-term management

The Government announced in late October that it is to inject $4.7 million into a programme to help save kauri trees threatened by the new to science disease known as kauri dieback (*Phytophthora* taxon Agathis).

The five-year programme aims to contain the soil-borne disease which is attacking kauri trees in the upper North Island and on Great Barrier Island.

"This disease is a serious biosecurity threat to kauri, a species that we as New Zealanders are duty-bound to protect," says long-term management programme spokesperson Andrew Harrison.

"The Government's $4.7 million pledge brings total funding for the future management of kauri dieback to $9.8 million, including contributions from the regional councils. This demonstrates the importance placed on the protection of this treasured species."

"New Zealand's ancient kauri forests are a vital part of the ecosystem as well as being part of our heritage, and must be protected for future generations."

MAF Biosecurity New Zealand (MAFBNZ), the Department of Conservation (DOC) and four regional councils – Auckland, Northland, Environment Bay of Plenty and Environment Waikato – have been working together since late last year to manage the threat of kauri dieback and with Māori, are committed to working collaboratively on the future work programme.

The five-year programme will cover research into the detection and spread of kauri dieback and methods to control it. A public awareness campaign to arrest its spread will also be developed.

For more information about kauri dieback and the work of each agency involved, visit www.kauridieback.co.nz

Hornwort eradicated in Tasman District

Hornwort (*Ceratophyllum demersum*), a highly invasive aquatic weed, has been eradicated from the Moutere Stream and several ponds in and around Motueka and Mapua, near Nelson.

Eradication is the result of intensive treatment over several years and a five-year period of monitoring to ensure that this highly invasive weed had really gone.

Various methods of control were used to kill the hornwort including Diquat, saltwater inundation and at some sites, ornamental ponds were emptied and then later lined and restocked. In a more unusual twist, an irrigation pond was filled in and a replacement pond was dug close by.

Monitoring of all the hornwort sites began in 2004 and has continued for a period of five years. No hornwort has been found at any of the sites since 2004.

In 2005, responsibility for this hornwort programme was transferred from DOC to the newly established MAF Biosecurity New Zealand. In 2006, hornwort was identified as a National Interest Pest and a response established, which included the Nelson area hornwort sites.

Monitoring of the sites has continued, with the Tasman District Council carrying out the checks. The last check was completed earlier this year, with the results being reviewed by the National Interest Pest Response Technical Advisory Group in June. The Technical Advisory Group concluded that hornwort at the Nelson sites had been eradicated, a significant achievement by all those involved.

Lindsay Vaughan, Biosecurity Co-ordinator for Tasman District Council, said it was impressive to look back at the variety of approaches that were used to achieve eradication and a tribute to the hard work and commitment of the team members from LINZ, DOC and the council.

Hornwort remains a National Interest Pest Response, with the aim of keeping it out of the South Island. A population of hornwort was found in Centennial Park Lake, Timaru, in early 2006. Treatment of this site has seen all signs of hornwort disappear, but monitoring of the lake will continue for five years to ensure it is totally eradicated.

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BIOSECURITY NEW ZEALAND **News**

The true costs of pests

Effective pest management is necessary to protect our unique natural environment, way of life and primary industries. However, information is scarce on the economic impacts and true costs of pests to New Zealand.

To address this gap, MAFBNZ contracted Nimmo-Bell, in partnership with Landcare Research, to assess the current impacts of pests on New Zealand's economy, environment, human health and lifestyle.

The intention of the assessment was to develop indicative cost estimates for pests to New Zealand using currently available information and establish broad estimates of impacts to the economy, environment, human health and lifestyle. It also provided a methodology that could be repeated every 10 to 15 years to show how these impacts change over time.

The report estimates the costs of pests through assessing how much agencies and individuals spend on managing and preventing pest impacts (defensive expenditure), as well as the production losses they cause. It then uses a multiplier to estimate the total economic cost resulting from these losses.

Using defensive expenditure and production loss figures only, the study identified the current costs as in the accompanying table.

Total costs	**$ million**
Defensive expenditure	970
Production losses	1292
Total economic costs (excluding multiplier effects)	**2262**
Multiplier effects	1162
Total economic costs (including multiplier effects)	**3424**

This equates to 1.4% to 1.93% of gross domestic product (GDP) in management costs and losses. Estimates of impacts on indigenous biodiversity give an additional cost of $2,040 million.

Establishing these costs will mean effectiveness and efficiency of pest management across a range of sectors can be compared. It will also be a valuable resource for sector agencies involved in planning and developing pest management programmes.

The study notes a number of priorities for further investigation and analysis. MAF Biosecurity New Zealand will use this information in future research work aimed at increasing its understanding of the costs of pests and quantifying the benefits from pest management programmes.

The report is available on the MAFBNZ website www.biosecurity.govt.nz/pests/surv-mgmt/mgmt/economic-impact-of-pests

Pest management system for the future

The Future of Pest Management Project is on the fast track to putting proposals for reform into the public arena in the first half of next year. A draft pest management action plan, combining proposals from six working groups, will be released for public consultation in May 2010.

Interested parties will have three months to submit written responses, which will then be taken into consideration in the preparation of the final plan.

The Future of Pest Management Project was set up to address issues raised in two independent reports published last year on New Zealand's pest management system. The project aims to improve the pest management system so that it can deliver what New Zealand needs as a nation for the next 25 years.

The overall approach is to solve the critical issues that will make the biggest difference, build alignment in the sector and reflect this in an action plan for improvement.

For more information see the MAFBNZ website www.biosecurity.govt.nz/pests/surv-mgmt/mgmt/future-project

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