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Protect



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Protect

Autumn2005Magazine of the New Zealand Biosecurity Institute

Contents

Editor's Note		4
NZBI Contacts		4
News from the Executive		5
Nominations open for Awards		6
Membership Officer wanted		6
Study and Travel Awards		7
Roads as weed pathways		7
News from the Branches		9
Member Profile: Christine Reed		12
Weedbusters Update		13
Aquatic pest awareness boosted by US visitor	Anne Brow	14
Stop Aquatic Hitchhikers. Regional plan launched	Johlene Kelly	15
Dune dumps provide a haven for garden escapes		16
Exotic pests a conservation concern	Sonya Bissmire	17
Components of a successful biosecurity/biodiversity pr NETS work	ojects shop outcomes	19
Turning the tide: Marine biosecurity at the Secon Summit	d Biosecurity Dr Graeme Inglis	21
Exotic ants in NZ: A ticking timebomb Margaret Stanley, Darren War	d & Richard Toff	25
Border Bits		28
Biosecurity bits		29
Appendices		
1) Letter on the Export of Live Pest Species		i
2) Annual Plans 2005		i

Editor's Note

It seems it takes a biosecurity breach by an Oscar-winning Hollywood actress to get front page media coverage of biosecurity issues at the moment. Those in the background, though, know all the hard work that goes into keeping New Zealand safe from biosecurity threats, and this issue of *Protect* highlights some of the research being done behind the scenes to assist this effort.

Sonya Bissmire of DOC looks at exotic pets (or is that pests?) such as turtles, frogs and lizards that are being assessed for their threat to New Zealand's environment. Margaret Stanley of Landcare Research and colleagues have been checking out the different invasive ant species causing concern, and Graeme Inglis provides us with a critique of the marine sessions at the Biosecurity Summit held late last year.

Changes for Weedbusters are detailed, and there is a report on an overseas visitor who provided a welcome boost to the efforts of the interagency Aquatic Pest Awareness Group in February. We also look at what's happening in Waikato with aquatic pest awareness, and what has happened with the dumping of greenwaste on dunes in Patea.

There is also lots of news from the branches, various notices about awards and research, and a plea for someone to come forward to help out the exec with membership duties. Finally, there is a flyer for NETS2005 being held in Christchurch in July; check out the draft programme on <u>www.biosecurity.org.nz</u> and get ready to register when the forms come out — it's going to be another great conference.

Happy reading!

New Zealand

Biosecurity Institute

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News from the Executive

Circulation of email messages

Since I have been in charge of sending out email messages (while our secretary is on maternity leave) there has been a big increase in the number of messages that members are requesting to have sent around. Protect just doesn't come out often enough to keep members informed about everything that's going on these days. However, I am mindful about filling up people's inboxes with lots of messages, as I know we all get far too much spurious email these days. We have a chat room facility on our website which has never been used and I can't see that changing just at the moment. Email works better because most people already check it regularly whereas with a chat room you have to make a conscious decision to log on. I have asked some members how they find these email messages and they have told me that they are useful. So I will continue to pass on relevant messages on request but I will prefix them all with "NZBI Notice" to allow those of you who don't want them to set up a rule to automatically delete them.

NETS2005 – In Your Neighbourhood

It won't be long now until "NETS2005 — In Your Neighbourhood" registration packs will be sent out, and there will again be a discounted rate for early birds. We have got some exciting international speakers lined up as well as plenty of home-grown talent. We have had a good response from members so there will be plenty of coalface-type presentations. There will be even more choice than usual with up to four concurrent sessions being held as well as plenary sessions. There will be plenty of "shuffle time" allowed in the programme to ensure that people can easily move between sessions. Programme updates will be regularly posted on our website as details are confirmed.

We hope that as many of you as possible will choose to stay at the venue. We have negotiated a heavily discounted room rate at Rydges (\$130+GST) for the conference. Two people can share a room for the same price. If we can book out a good number of rooms then we will be given some rooms free of charge that we can use for international guest speakers, which in turn helps us to to keep the cost of registration down. We have also managed to secure a "tea and toast" type deal for breakfast for \$5 for those of you who aren't big breakfast eaters and resent paying \$20 plus for a hotel breakfast. Thanks to the generosity of the Christchurch City Council we have also managed to secure car parks free of charge next door to the venue which will help keep costs down for those of you who are driving to the conference. We are also investigating the possibility of a discount taxi service for conference delegates.

Subs – reasons to pay early

Don't forget that if you pay your sub by the end of March it will only cost you \$30 instead of \$40. Also we are trialling a new system this year with regard to NETS registrations. For the past few years we have offered a cheaper registration for members at this event. However, this has caused a lot of trouble for conference organisers as quite a few people seem to be confused about whether they are or aren't members or are actually financial at the time! So they send in the wrong amount of money which then creates a lot of extra work all round. To make things easier this time around, only members who are financial as of March 31 will gualify for the cheaper member's registration for NETS2005. A list of financial members will be supplied to our conference organiser at that time and they will stick to that - to avoid disappointment make sure you get your sub in promptly!

Branch AGMS

This is a reminder that branch AGM's need to be held no later than six weeks prior to the national AGM, which this year means no later than June 16. Following branch AGMs the national secretary also needs to be notified of any changes in personnel. The executive has agreed that if there are multiple nominations for any of the national positions then they will endeavour to circulate information about the nominees beforehand, so members can make more informed decisions when voting, and people can lodge more meaningful proxy votes.

Submissions

MAF has recently completed a review of the manner in which biosecurity services and functions in New Zealand are funded. A discussion document was released in December along with a call for submissions. In the end we decided not to make a submission as the system proposed seemed fair and sensible. Thanks to the two people who offered to help with future submissions. However, we would still like a much large pool of people to draw on. If you think you might be able to help, please let me know (email: hayesl@landcareresearch.co.nz). We will also hold a workshop at NETS2005 to talk about how we formulate submissions, and also position statements which the NZBI should perhaps be preparing.

New member

We would like to warmly welcome the following new member:

Gordon McKie – Baytrap Ltd

News from the Executive Continued

Travel and Study Awards

Last year we had a good response to our offer of study awards (see p7) but did not get a single application from our members for a travel award. However, some interest in travel awards has since been expressed so we are opening up the deadline again until the end of March. Information about how to apply can be found on our website.

NZBI/Vertebrate Pest Management Institute of New Zealand Merger

As far as we know this merger is still on and is likely to occur during or soon after NETS2005.

Annual Plans

See Appendix 2 for a copy of our Annual Plans for 2005.



information about membership gets where it needs to go. They will need to be methodical, good at keeping in touch with people, and have regular access to the internet and email.

If you think you'd like to take this on, contact Carolyn on <u>stevebluett@wave.co.nz</u> for more information.

Study and Travel awards

Each year NZBI offers the opportunity to members to apply for financial assistance for travel or study to further their biosecurity knowledge. Generally, the total money available each year for these awards is \$3000.

The selection panel has considered applications for the 2004 financial year and is happy to announce the following study award recipients:

Olivia Johnston: The effects of exotic bivalve (*Theora lubrica*) on marine communities in New Zealand.

Melissa Hutchison: The effects of fragmentation and landscape structure on weed invasion into native West Coast forest fragments.

Liza Koshy: Developing an integrated methodology for assessing the combined effects of climate change and land use change on *Tradescantia fluminensis* and *Ageratina riparia* in New Zealand.

We had received no applications for travel awards by the cut off date of October 31, 2004 so this deadline is extended to March 31, 2005. More information on application criteria is available on the NZBI website <u>www.biosecurity.org.nz</u>.

Congratulations to Olivia, Melissa and Liza on their successful applications. We look forward to learning the results of your research.

Jenny Williams Judging Panel Chairperson

ROADS AS WEED PATHWAYS

DOC, in conjunction with Landcare Research, is investigating the role roadsides play as pathways for weed invasions into protected areas.

Besides carrying out field work, we are keen to hear any information weed observers may have on the role of roads in carrying new weeds to "protected areas" such as parks, reserves and conservation land.

We are particularly interested in the importance of roadsides as sites that harbour possible "conservation" weeds and allow their spread into the vicinity of reserves so that they can then "jump the fence".

Among the questions we are asking are:

- Do weeds spread along roadsides from towns or homesteads?
- What factors encourage such spread?
- Do roadside weeds jump the fence into reserves?

Any observations that anybody has on roads and roadsides as a means of spread of weeds into protected areas would be welcome.

Please send any such information by email to me at ipopay@doc.govt.nz

lan Popay, Department of Conservation





The New Zealand Biosecurity Institute Inc. in association with The Vertebrate Pest Management Institute of New Zealand invites you to a National Education and Training Seminar at Rydges Hotel, Oxford Terrace, Christchurch.

27 – 29 July 2005

With the Southern Alps as a snowy backdrop, Christchurch is a fantastic place for a national training seminar on biosecurity and what we can do about it in our neighbourhood, be it urban, rural, local, regional, national, or in our Pacific neighbourhood.

Come along and join us for three days of lively discussion, workshops, oral presentations, field trips and numerous opportunities to interact with other like-minded people.

Christchurch is close to:

- One of New Zealand's busiest international airports and sea ports
- Banks Peninsula a special area for our native biodiversity
- · Arthurs Pass National Park
- Intensive farming activities on the Canterbury plains
- · Some major areas of native and exotic forests
- $\cdot \;\;$ A growing number of vineyards and olive groves

For further information, please contact:

Ali Howard

- email ali@nzdirect.co.nz phone 03 546 6338
- or Hugh Gourlay

email gourlayh@landcareresearch.co.nz



News from the Branches

Lower North Island Branch AGM Report

orizons Regional Council (HRC) hosted the Lower North Island Branch AGM and a two-day field trip from February 17-18, 2005.

Joe Martin and Craig Davey organized an excellent tour through the Whanganui River valley taking in various sites of interest featuring many pest plants that thrive in the temperate climate. There was a good turnout of branch members, making for a good forum in which to discuss various biosecurity and biodiversity issues.

On the first day, we briefly gathered at the Wanganui HRC office before climbing aboard various four-wheel-drive vehicles and a minibus and heading off to Gentle Annie. There, HRC

Wanganui Soil Conservator Allan Kirk gave us an insight into the Whanganui River Catchment Strategy which identifies problem areas for silt runoff into the river and is designed to assist landowners in identifying what is best for their landforms, often letting their steep Class 7 and 8 land run to native species through succession and putting their resources into easier land that they can profitably farm.

From there, we were off to Omaka for a look at tutsan (Hypericum androsaemum) which is not yet well established in the area but is ringing warning bells. Craig Davey has been spraying every plant he finds to try and keep the valley clear. At Atene, Craig showed us field horsetail (Equisetum arvense) a plant now out of control due to its method of spread. Operiki was our lunch stop among macadamia and avocado orchards which gives some idea of how temperate the climate of the area is. Joe took us onto a farm there that used to have a major problem with Chinese pennisetum (Pennisetum alopecuroides). Through walking the entire area with a knapsack, Jim the worker was able to control it and now has it down to individual plants scattered over the area. Horizons contributed lots of Roundup but Jim did all the work himself — quite an achievement considering the near-vertical terrain.

From here, we went to see the Kiwana Flour Mill which has been restored by the local tramping club and others to preserve some history of the area. Further up the gravel road, we got to our evening destination



Members of the Lower North Island Branch discuss heather control in Tongariro National Park during the branch's two-day combined field trip and AGM.

at the Morikau shearers' quarters. Joe took us up the farm to give us an idea of the gorse programme he has put into place there. He discussed the highs and lows, costs and benefits of taking on a large, steep area with minimal water supply and difficult terrain.

Back at our home-away-from-home, we held the AGM. Mike Urlich was pressured into another term as branch chairperson (good on ya, mate). After the formalities, we had a wine-tasting competition of Joe's homemade brews, which really got us all talking and smiling. We all did very poorly but it tasted great.

Next day, we headed for Pipiriki where Chris and Eddie from DOC gave us a run down of the predator work they are doing in the area. We got a demonstration of the stoat trap tunnel system and were amazed that seemingly large animals can squeeze themselves through such small holes to get to the bait.

Raetihi was next where we met Erin from DOC and looked at a Chilean flame creeper (*Tropaeolum speciosum*) site that just won't die — a typical attribute of the plant. Joe has sprayed it with all sorts of chemical and tried physical control, all to no avail. We're finding more and more sites throughout our region also. At Horopito we discussed Darwin's barberry (*Berberis darwinii*) and heather (*Calluna* sp.) while taking in the scenery of the car cemetery featured in the movie *Smash Palace*.

Our last destination was Ohakune for lunch, then a visit to the DOC office to learn about plant and animal

Branch news Continued

control in the Tongariro National Park. This included hearing about the blue duck and kiwi releases they are working on and a look at a *Dactylanthus taylori* specimen.

After a final roundup with everyone, we all went our separate ways to continue our pest wars back home. As always, it was a great opportunity to see what fellow biosecurity officers are working on and what methods are best. Perhaps more importantly, we had a good look at the biodiversity we are working to protect, rather than just concentrating on the seemingly endless stream of threats. We had a wide range of experience level from a few months to 30 years in the game so everyone had a valuable insight to contribute. Thanks to Joe and Craig for all their efforts.

Ruth Fleeson



Northland/Auckland Branch

Northland/Auckland Branch members check out an infestation of yellow flag.

The lastest Northland/Auckland Branch meeting was hosted by Northland and held in the Northland Regional Council chambers in Whangarei. Preparations began for Northland to host the 2006 NETS Conference, with members volunteering for inclusion on an organising committee. The aim is to have representatives on the committee from all participating agencies.

A presentation on Argentine ant control and monitoring at Urquhart's Bay and Ocean Beach, Whangarei, was given by Pete Davis, a Department of Conservation ranger. DOC is working to protect Bream Head Scenic Reserve from Argentine ants (*Linepithema humile*) which can eliminate other species of ants, compete with kiwi for food such as insects and worms, compete with native birds and lizards for nectar, and displace and kill native invertebrates.

Liz Sherwood, Weed Surveillance, DOC, presented the background and preliminary results of Northland Conservancy's yellow flag iris (*Iris pseudacorus*) eradication programme.

This was followed by a field trip to the main infestation site of yellow flag at Waipu, where members observed the extent and impact of this plant, and the successful initial knockdown of the bulk of the infestation. Experts discussed further management options.

Liz Sherwood

Branch news Continued

Canterbury Branch trip to Rapaki

On February 25, eight NZBI Canterbury Branch members visited a proposed restoration site on Rapaki iwi land on Banks Peninsula. Yvette Couch-Lewis showed the group around the valley which contains a large area of unique Peninsula bush.

Rapaki iwi is looking at developing a management plan for the site, with the intention of fencing off the native bush, obtaining an income for shareholding landowners from





NZBI Canterbury Branch members on the road, left, look up to the Rapaki site and the Summit Road, above.

grazing parts of the site, and removing the significant weed problems.

While the branch members who attended the afternoon enjoyed a meal at the Volcano Café in Lyttleton a strategy was discussed. The first step will be to survey the area and develop a weed map of the valley in consultation with Yvette, Di Carter and Paul Devlin of Christchurch City Council. Terry Charles from ECan has volunteered to help with the survey.

The branch will meet again in late March to discuss what role it can play in the restoration of the site. Yvette will be invited to attend the meeting. This will be an opportunity to gauge the local branch's enthusiasm for this worthwhile project.

It is envisaged that 10 to 15 people committed to this project would be required to meet once every six to eight weeks to help spray the existing weeds and maintain the weed free areas inside the bush-line. If we get this commitment, we will be able to proceed with what is a fantastic opportunity for the Canterbury branch to set an iconic example of our philosophy, environmental and public role as an institute committed to the protection of the environment.

Hugh Gourlay

Member Profile: Christine Reed



Christine Reed

hristine Reed was appointed as Manager, Risk Analysis Group in MAF Biosecurity New Zealand in November 2004, having previously been manager of the Indigenous Flora and Fauna team in the Biosecurity Authority.

She was formerly the advisory scientist for the Department of Conservation's (DOC) Wellington Conservancy.

She advised on, and organised, field research programmes for threatened animals and plants, wild animal control, historic resources, recreation, and freshwater and marine ecosystems. This included a number of recovery programmes for endangered species of the Chatham Islands.

Prior to that position, she was part of DOC's Threatened Species Unit where she provided national advice to threatened species recovery programmes and led the development of wildlife health operating procedures for translocation and captive breeding programmes.

As an MSc(Hons) student, and then for nine years in the Wildlife Service and DOC, Christine had worked to save the critically endangered black stilt from extinction. She studied the stilts' behaviour in captivity before establishing a captive rearing and release programme in Twizel, South Canterbury. Isolated from avian veterinary expertise, she had also acquired informal training from Massey University.

Christine is currently seconded onto the NZBI executive as a representative of MAF.

Weedbusters update

Two part-time caretakers have stepped up to the mark to co-ordinate Weedbusters nationally.

wo part-time caretakers have been appointed to co-ordinate Weedbusters nationally following the resignation of the national coordinator, Amber Bill. Amber hasn't left DOC too far behind her, though; she's in the Wellington City Council building right next door, in her new role as a senior park ranger.

Working together to protect New Zealand www.weedbusters.org.nz

Melanie Newfield from DOC Wellington and Carolyn Lewis from Hamilton have stepped into Amber's shoes to keep the national side of Weedbusters up and running for the next few months.

Carolyn Lewis has been the New Zealand Biosecurity Institute representative on the national Weedbusters Management Committee since its inception, and has

recently been helping to get Weedbusters up and going in the Waikato region. Carolyn already produces the quarterly colour *Weedbusters* newsletter that goes out to all stakeholders and supporting organisations.

Melanie, a weed ecologist, has worked with DOC since 1998 following three years with Landcare Research in Christchurch. Melanie has worked on a wide range of weed-related activities, surveillance, control and monitoring, and public awareness work.

n the regions, though, it's been business as usual getting communities involved in weeds issues in their areas. There are now more than 70 groups, individuals and schools registered with Weedbusters, and new weedbusting events are added to the website, www.weedbusters.org.nz, every week.

The Department of Conservation's local initiative funding for Weedbusters work will result in 24



Carolyn Lewis and Melanie Newfield have picked up the national Weedbusters co-ordination work from Amber Bill.

community initiative projects around the country being launched in the 2005/06 year. This funding was initiated in 2003.

Some great feedback and articles are coming out focusing on weed issues, and we are starting to see more mainstream media picking up on these stories also. Weeds will always be a "hard sell" to media but the coverage we are getting indicates that our efforts to publicise activities and events is paying off. Therese Sayers, the Weedbusters Media Officer, is always looking for more stories that can be knocked into shape for media releases, either nationally or locally.

It's also the middle of the show season, and Woody Weed is having an exhausting time with all his public appearances — he's been seen at so many places that one could be forgiven for thinking that he has reproduced himself vegetatively so he can keep up with demand! Let's hope that's just a nasty rumour.

Stop press

Melanie Newfield is leaving DOC at Easter to start with Biosecurity New Zealand as a Senior Risk Analyst (Plants) with the pre-clearance group, with particular focus on threats to native species. Our best wishes go with Melanie in her new job.

Aquatic pest awareness boosted by US visitor

By Anne Brow

Department of Conservation Wellington abrow@doc.govt.nz

he efforts of New Zealand agencies working to stop the spread of aquatic pests were boosted by a visiting US expert in the field in the USA.

Joe Starinchak, Outreach Co-ordinator for the Fisheries and Habitat Conservation Program Branch of Invasive Species of the US Fish and Wildlife Service, addressed the Aquatic Pest Awareness Group at its second meeting, in Wellington in February.

The group includes representatives from national and regional government agencies, industry groups and interest groups which are concerned about the impact on aquatic pests on our waterways and which wish to increase awareness about the transfer methods leading to aquatic pest movement.

aquatic pest movement. Joe outlined the progammes that have been used in the US to encourage ownership of aquatic pest issues among recreational users, garden pond owners and aquarium hobbyists. The US experience reinforces how lucky we are in New Zealand compared to the US — we have a small population base, efficient government systems and a willingness among government agencies, industry groups and interest groups to work together to protect our waterways. With the establishment of the National Aquatic Pest Awareness group, we are well placed to deliver programmes and materials that raise awareness about the simple steps everyone can take to



US aquatics pest awareness advocate Joe Starinchak helped raise this issue in the media during his visit to New Zealand. Photo: Daily Post

stop the spread of aquatic pests.

This meeting also provided a great opportunity to share experiences about the effectiveness of the summer aquatic pest awareness programmes and the new nationally adopted boat ramp symbol. It also generated useful discussion on how to activate the symbols targeting aquarium hobbyists and garden pond owners.

While in New Zealand, Joe Starinchak also visited the Bay of Plenty and Rotorua to look at the aquatic pest awareness programmes. He was impressed by the education and teaching efforts in the region and interest in his visit generated some good media coverage of the issue.

For more information about the National Aquatic Pest Awareness Group contact Anne Brow at the Department of Conservation on (03) 546 3171 or abrow@doc.govt.nz



By Johlene Kelly

Environment Waikato Johlene.kelly@ew.govt.nz

ur lakes and waterways are highly valued for a variety of reasons, including fishing, boating, enjoying native plants, animals and scenery Increasingly, these (to name but a few). values are under threat from introduced aquatic pests.

Koi carp, Gambusia, rudd, catfish, alligator weed, Lagarosiphon, Egeria and hornwort are just some of the unwanted pests we need to ensure are not being transferred between our water ways.

The Department of Conservation (Taupo/Tongariro) and Environment Waikato are working together to promote awareness of these threats area.

This summer saw a number of measu put in place to remind visiting boat owners and anglers to help protect the resource we enjoy. "Stop Aquatic Hitchhikers" was the central theme. Unwanted fish and aquatic weed are th hitchhikers, and water users can provide them with a free lift on their boat, traile or fishing gear!

A range of public awareness materia was released in the Taupo area over the summer months to promote the messag and included the following:

· A waterproof "ID guide" that was available to all people using watercraft or fishing in the Taupo area. It provided information to help users identify several unwanted species and showed them how to prevent The guide was available from most their spread. agencies which distribute the Taupo Fishing Licence or Taupo Boat Ramp Permits.

· A stencil was used to spray the "Stop Aquatic Hitchhikers" message on boat ramps around Lake Taupo reminding water users to check trailers and boats for hitchhikers before they launched and after they landed.

 Banners were erected at three key entry sites into the Taupo area further reinforcing messages and providing a reminder before launching.

 Floating key rings were also used in conjunction with a recognition survey during January and February to gauge how effective the public awareness campaign had been.

The awareness programme was further reinforced by measures undertaken in the King Country and Waikato with similar banners erected. Once again, this was a joint project between the Department of Conservation (Waikato Conservancy, Maniapoto and Waikato area offices), and Environment Waikato.

Furthermore, the regional programme worked

itional initiatives undertaken by Anne at the Department of Conservation on/Marlborough Conservancy. nough messages were aimed at a gional audience and issues, they incorporated and built on the national initiatives.

In addition to the work on public areness, a Central North Island eragency group has been formed teragency Aquatic Pest Co-ordination oup — Central North Island) which first et last September. The meeting was tended by those agencies responsible r the management of unwanted aquatic

species in the geographical area.

Representatives from the Department of Conservation in Waikato, Bay of Plenty, Taupo and Northern Regional office were present along with Environment Bay of Plenty, Auckland Regional Council and Fish and Game (Waikato/Auckland) staff. Links have also been established with relevant national level organisations and Australian agencies to promote research and information sharing on pest fish and aquatic weed issues.

It is hoped that by working together regionally and nationally, progress can be made on the management and control of pest fish and aquatic weed species with the ultimate aim of limiting spread throughout waterways and lakes.

Remember the key message — "STOP AQUATIC HITCHHIKERS"



Dune dumps provide a haven for garden escapes

here are always reports of weeds establishing from illegally dumped garden waste, but these dumps are seldom in mobile coastal dune systems.

In Wanganui Conservancy we are unfortunate enough to have a legal garden waste dump site on the dunes at the mouth of the Patea River. Although DOC does not approve of stabilising mobile dune systems with garden waste, it has given us the opportunity to determine what can establish from ordinary garden waste in such an area.

So what does establish? Anything that's dumped, really! Over a period of four years, we have recorded 249 species of exotic weeds. There are also six indigenous species that have established from garden refuse. Virtually every common vegetable has

A total of 249 exoti Patea dunes site, inc	c weeds were found at the luding the following species:
Buddleia	(Buddleia davidii)
Boxthorn	(Lycium ferocissimum)
Brush wattle	(Paraserianthes lophantha)
Phoenix palm	(Phoenix canariensis)
Crack willow	(Salix fragilis)
Grev willow	(Salix cinerea)
Elderberry	(Sambucus nigra)
Gorse	(Ulex europaeus)
Mignonette vine	
Wonga vine	(Pandorea pandorana)
Blackberry	(Rubus fruticosus aga.)
Climbing dock	(Rumex sagittatus)
Periwinkle	(Vinca major)
Paterson's curse	(Echium plantagineum)
Pampas grass	(Cortaderia selloana)
Bamboo	(Pseudosasa japonica)
Palm grass	(Setaria palmifolia)
Agapanthus	(Agapanthus orientalis)
Elephant's ear	(Alocasia brisbanensis)
Italian arum	(Arum italicum)
Montbretia(Crocosmia x crocosmiiflora)
Tradescantia	(Tradescantia fluminensis)
Watsonia	(Watsonia meriana)
Arum lily	(Zantedeschia aethiopica)
Tuber ladder fern .	(Nephrolepsis cordifolia)

established, with pumpkins and potatoes flourishing. Bulbs love the sand, and vines such as blackberry, convolvulus and climbing dock flourish. Tree mallow seems to persist as the canopy.

The most disturbing aspect is the number of weeds present that are considered problems or are included in the Taranaki Regional Council plant pest management strategy. Madeira vine is rampant,

established from garden waste, and

GREEN WASTE ONLY! IT IS AN OFFENCE TO DEPOSIT OTHER SORMES OF RUBBISH IN THIS AREA. BY ORDER STDC

pampas is present. I wonder if strategy rules about distributing weed species applies to garden refuse that has a good chance of establishing?

There are also weeds that are of concern in other areas of the country, for example tamarisk, boxthorn and three willow species have established from cuttings, and agapanthus, arums and cannas have taken hold.

Several weeds that are new to the country have been found at the Patea dunes dump, for example, pineapple flower (*Eucomis comosa*).

Obviously not all weed species persist at the site as the garden waste is covered by a layer of clay periodically. But several species do survive this clay topping and continue to flourish. The ease with which most groups of plants establish in nutrient-poor dune sand remains a major concern. The number of potential weeds at the site is probably governed by the number of plants in gardens around Patea. The main message is that if you do have mobile dunes, do not think that they are safe from a variety of weeds.

And if you are wondering how we got so many weed species identified it was because we managed to get our retired botanist interested in the site.

If anybody is interested in a full plant list, or would like to know more about the site, contact Graeme La Cock at DOC's Wanganui Conservancy, glacock@doc.govt.nz

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Exotic pets a conservation concern

By Sonya Bissmire Biosecurity Techical Officer (Response) Department of Conservation sbissmire@doc.govt.nz



he Department of Conservation is concerned about the risks that exotic pet reptiles and amphibians may pose to our unique native flora and fauna.

Reptiles such as blue tongued lizards and amphibians like fire bellied newts are present in the pet trade in New Zealand and held in private ownership throughout the country.

The exotic pet trade appears to be flourishing, with available species ranging from red-eared slider turtles that can be bought for under \$10, to blue tongued lizards, eastern water dragons and bearded dragons that can sell for several hundreds to thousands of dollars.

Until recently the risks that exotic reptiles and amphibians present in the pet trade may pose to our native biota has not been assessed. The potential for these species to be accidentally or deliberately released and to subsequently establish in the wild also remains largely unanalysed. However, research on the impacts of exotic reptiles and amphibians overseas indicates that many species could have significant adverse impacts if they were to establish here. Many exotic reptiles, if released, could feed on native birds and their eggs (particularly ground feeding and nesting species), invertebrates and native lizards. In addition, exotic reptiles may compete with our native reptiles for resources, directly overlapping their habitat niches. Pet reptiles are also known to carry a wide variety of diseases and parasites that are not present in native reptilian populations, but could have impacts if they were to be spread. Exotic amphibians also pose a threat to New Zealand's freshwater environments and associated fauna.

The Department of Conservation's Biosecurity Unit has initiated a risk assessment process to determine whether the exotic reptile and amphibian species known to be present in New Zealand could establish in the wild,



Red-eared slider turtle captured in Auckland stream, 2004.

Photo: ARC

and to assess their potential impacts on indigenous biodiversity if they were to do so. The first step has been to identify which exotic reptiles and amphibians are present in New Zealand. DOC has been working with Biosecurity New Zealand and breeders to develop a comprehensive list of species found in this country, in both zoos and the pet trade.

Those species that could potentially establish in the wild and have significant impacts on indigenous flora and fauna will be considered for declaration as "unwanted organisms" under the Biosecurity Act 1993. A range of potential management options can be considered as part of the declaration process, ranging from permitting continued holding and sale but prohibiting release of a species (as with rainbow lorikeets), to more stringent controls such as banning breeding, sale and communication. While the future arrangements for managing emerging biosecurity threats to indigenous biodiversity are unclear, DOC continues to work closely with Biosecurity New Zealand. The Regional Council Biosecurity Managers Group will be consulted on the risk assessments and proposed management options to ensure a consistent, system-wide approach to managing these species.

Exotic pets a conservation concern Continued

Red-eared slider turtles are among the first species to be assessed. This species has featured in the media recently, following the discovery of several wild populations around the country. It is thought that these populations comprise dumped individuals rather than viable breeding populations, due to temperature dependent breeding and sex determination. To help answer questions about whether red-eared sliders and other exotic reptiles and amphibians could successfully live and breed in all or parts of New Zealand, the National Institute of Water and Atmosphere (NIWA) is currently undertaking climate modelling for the Department. This modelling will help to determine where a species might be able to establish, whether they can breed, and if they can, whether viable populations could be produced. In addition, DOC Biosecurity staff have completed an extensive literature search to enable the risk assessment to be completed. When all of this information is collated, the Chief Technical Officer — Conservation will make an assessment of whether it is appropriate to declare the species to be an unwanted organism under the Biosecurity Act 1993.

While uncertainty exists around the potential impacts of exotic reptiles and amphibians on indigenous biota, DOC would like to encourage agencies to promote the message of responsible pet ownership. Until full risk assessments have been completed, it is unhelpful to send out negative messages about owning exotic pets, as this may lead to increased numbers of dumped animals. Any management options chosen will need to ensure that mechanisms are in place to prevent such outcomes.

DOC's Biosecurity Unit would appreciate any reports of wild exotic reptile or amphibian populations or offers of information or expertise from NZBI members. The contact for further information or reports is Sonya Bissmire (04) 495 8602.

Hawaii's frog wars

They're noisy, they're voracious, and they're sparking a battle between those who think they are pests and those who think they are "interesting, cute, exotic animals".

The coqui frog (*Eleutherdactylus coqui*) at the centre of this battle arrived in Hawaii from Puerto Rico in 1988. In its new home, with no natural predators and a plentiful supply of insects, the coqui frog started multiplying at an alarming rate, breaking all its previous breeding records and density counts. The coqui

frogs pose a threat to Hawaii's biodiversity directly, by eating native insects and spiders, and indirectly, by competing with native fauna for the same food resources. There is also the fear that coqui frogs will provide a readily available food source for the dreaded brown tree snake should it make it into Hawaii.

And to add insult to injury, its distinctive "ko-KEE" call drives many residents to distraction as the volume reached by these little critters can keep all but the most dedicated sleepers from their slumbers.

Coqui frog. Photo: University of Hawaii at Manoa

Authorities have responded by declaring war on the coqui frogs before they spread so widely that eradication is impossible. Residents have been urged to clear out coqui frog habitats from around houses, use citric acid sprays, manual collection and freezing, or hot water treatments to kill the frogs. Caffeine spray has also been investigated as a possible control method.

Opposed to all this is the Coqui Hawaiian Integration and Reeducation Programme (CHIRP) which accuses the authorities of misleading the public simply to increase existing budgets for invasive species, and of using control methods that are inhumane, environmentally unsound, and unnecessary. Coqui frogs, they argue, are "interesting, cute, exotic animals" that should be treasured, not treated as pests.

CHIRP suggests that rather than kill the coquis, repatriation to Puerto Rico would be a preferred option. They also suggest that other islands with declining tree frog populations might be grateful to receive the coqui frogs as a replacement species. They have called their solution the Frog Repatriation and Overseas Gifting (FROG) Programme.

Sounds like it could only happen in America? Think again. We have seen the same sort of response in New Zealand when there has been a conflict of values between different groups involved with invasive species. All that can be done to counter this is good preparation and education to win the "hearts and minds" of the general public before any bans are imposed, so that they won't be as easily swayed by those who would seek to maintain free movement of harmful species for their own interests.

NETS2004 Workshop outcomes

Components of successful biosecurity/biodiversity projects

A workshop at NETS2004 on identifying components of successful biosecurity/biodiversity projects was facilitated by Chrys Horn, Landcare Research, and Kirsten Crawford, Coastline Consultants.

Biodiversity management, and its component, biosecurity, cannot be undertaken by one agency or group alone. Funding bases are changing, there is an increasing focus on managing "bioregions", and a need to include "on-the-ground" groups in efforts to tackle biosecurity/biodiversity issues. partnerships, and grassroots partnerships which are community-group led.

Regardless of the type of partnership formed, there are issues that must be addressed if the resulting efforts are to be successful.

To this end, this workshop concentrated on a timeframe approach to establishing and maintaining partnerships involving community efforts.

There are several types of partnerships that can arise: interventionist (single-agency led), joint or true

Year 1: The bios	ecurity/biodiversity	issue is identified, the project is con	ceived and partnerships sought.
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Key components/ success factors:	Strategies:	Monitoring:
 Good leadership and planning Community buy-in Feasibility of project Achievable appropriate goals Commitment from the group Money Identify the benefits A "cunning" plan A vision Build partnerships with stakeholders 	 Management plan Using the legislation Invoking passions Obtain expert advice et scientists, lawyers, business managers, local knowledge, people who've done this before Identify and gather resources Develop a communication plan Create a vision Build a management team Identify and issue of focus Develop a monitoring strategy Develop leadership & vision Identify key people in the area Designate roles Fundraising Determine baseline of weeds/ pests Identify stakeholders 	 Establish baselines Build a database Achieve some short term goals Positive bank balance Monitor growth of group Count website hits

Components of successful projects Continued

Years 3 to 5: The project is bedding in and ongoing maintenance is now required to ensure long-term success

Key components/ success factors:	Strategies:	Monitoring:
 Celebrate achievements Sustainable resourcing Recruiting new volunteers Maintaining momentum Keeping people interested Public awareness Future planning Dynamic future momentum 	 Good training Reviewing plans & resources Public relations Contingency planning Review systems & processes Systems for accountability Sharing knowledge/ building networks Having events for volunteers Rewarding successes 	 Ongoing monitoring system Linking contingencies to monitoring thresholds Have a way to record/ communicate successes Measures of community involvement, eg hours of work Measure conservation outcomes Measure pests Operational monitoring Taking opportunities to reflect on progress and process Reporting and thinking about who to report to.

Year 5+: The project is sustainable and lessons learned can be disseminated to other groups just starting out

Key components not listed above:	Strategies not mentioned above:	New monitoring:
 Expansion Self sustaining and helping fund or support others 	 Mentoring system, succession plan Vary control methods Champion benefits of where you started Develop educational material Leadership continuing development, dissemination of leadership 	 Questioning what you are doing Reassess goals and targets and the need for your project

Evaluation at all stages is vital: we are not always doing as well as we think, but sometimes we are doing better than we think. Evaluation gives us the chance to learn from our experience (even the bad stuff!) can help over time to improve communications, information systems, and in learning exactly what you need and why. Evaluation also gives valuable insights and data in the competitive funding environment that groups now face for biosecurity/biodiversity work.

Turning the tide: Marine biosecurity at the Second Biosecurity Summit

By Dr Graeme Inglis

Principal Scientist with the National Institute of Water and Atmospheric Research (NIWA) and Science Leader for NIWA's Marine Biosecurity research programmes.

he Second New Zealand Biosecurity Summit in November 2004 heralded the beginning of a new era in biosecurity within New Zealand, marking as it did the launch of Biosecurity New Zealand (BNZ), the new MAF agency charged with the responsibility for managing risks from unwanted pests and diseases.

An outcome of the Government's Biosecurity Strategy, Tiakina Aotearoa, is that BNZ takes on a much broader ambit than its predecessor, MAF Biosecurity, in being charged with safeguarding the full range of New Zealand's economic, social, and environmental values from the effects of unwanted organisms.

Over the past 12 months many of us listened nervously at the keyhole as MAF drew up plans for this new agency. The Biosecurity Summit was a chance for us to hear the vision and operational plan for BNZ and to be welcomed under its umbrella. It was also a chance for MAF to get a feeling for the challenges it will face as it moves to implement the Biosecurity Strategy, not the least of which will be taking a leadership role in areas in which it has had little previous experience. One of these areas — marine biosecurity — was also one of two main themes of the Biosecurity Summit. A variety of speakers presented on problems faced in protecting our wettest and biggest border from potentially harmful species.

Chad Hewitt (Senior Science Advisor (Marine), BNZ) gave an assessment of the current status of marine biosecurity in New Zealand and the challenges in developing an effective system of protection for our marine environments. International trends indicate that the rate at which non-native marine species are being transported around the world is increasing dramatically, in association with rapidly changing global markets and faster and more efficient shipping.

As most marine species arrive in New Zealand accidentally, as stowaways in ballast water or as fouling on the submerged surfaces of ships, they are not amenable to conventional border-based biosecurity and quarantine. New



Photo: Aroha Miller, NIWA

Human Impacts in the Marine Environment

The 2005 Conference of the New Zealand Marine Sciences Society and the Fourth International Marine Bioinvasions Conference will be held concurrently, during August 23-26, 2005, at Victoria University, Wellington, New Zealand.

The conferences will bring together the diverse interests of New Zealand's marine science community, and the international marine bioinvasions community with its particular interest in the science and management of introduced species in estuarine and marine ecosystems.

The conference will also include a meeting of the Margins group of scientists involved in the international Source-to-Sink programme studying processes that shape terrestrial and marine ecosystems from the mountains to the deep ocean. Margins will present the first results from two study areas, which should change the way we view the Earth's surface.

More details are available at www.vuw.ac.nz/ marineconference2005/

The swimming crab, Charybdis japonica, is native to Korea, China and Japan. It was discovered in Waitemata Harbour in 2000 and has since established a sizeable population there. Charybdis is an aggressive predator, but its impacts on shellfish and other native New Zealand species are unknown.

Turning the tide Continued

Zealand's reliance on international shipping for trade make it particularly vulnerable to ship-borne transport of harmful marine species, but its geographic isolation from other nations and relatively simple structure of governance also provide unique opportunities for

preventing harmful organisms reaching our shores, advantages that many other nations do not have.

In 1998. New Zealand was among the first nations in the world to implement preventative requiring measures bv open-ocean exchange and reporting of ballast water management. Just last year, these measures were adopted by the world's major shipping nations with the signing of the International Convention for the Control and Management of Ships Ballast Water and Presentations Sediments. by Chad Hewitt and Paula Warren (Conservation Policy Manager, Department of Conservation) at the Summit highlighted the need for New Zealand to continue to make contributions on international and regional scales to reduce the global transport of marine species, but also pointed to the development of more specific, co-operative initiatives with our major trading partners to prevent potentially harmful species reaching our shores. International studies show that

French, Italian, Spanish, Croatian, Californian and Australian coastal waters.' Photo: Australian Institute of Marine Science

ballast water exchange is only partially effective as a treatment measure and that there is a continued risk of incursion by harmful species. In the foreseeable future. New Zealand's marine borders will continue to be leaky and our attempts to reduce risk will need to be backed up with efficient national programmes of surveillance and incursion response to any unwanted arrivals.

There is little doubt that our current state of knowledge about marine invaders, and the range of management options available to deal with them, lags far behind the state-of-play for significant agricultural and horticultural pests such as the painted apple moth. As Don Robertson (General Manager Biodiversity and Biosecurity, NIWA) pointed out in his talk (joint with

Graeme Inglis), this reflects the historically low priority and funding that marine biosecurity has been accorded in New Zealand and overseas.

Until recently, less than 3% of the annual biosecurity research budget in New Zealand and less than 1% of

> the funds devoted to biosecurity research in natural ecosystems directed at marine was environments. A consequence is that, in comparison to unwanted terrestrial organisms, there are significant knowledge gaps across the management spectrum in marine biosecurity, from risk identification and assessment, through vector control and surveillance, to incursion response. Basic underpinning science, including description of New Zealand's endemic marine biota and understanding the impacts caused by invaders already present in New Zealand, is at an early stage.

> In the short term, incursion response will continue to be challenged by species that appear suddenly, have no known record of harm overseas, and whose identity and geographical oriains are uncertain ("cryptogenic" species). Tools for surveillance and incursion response remain rudimentary, even for species with a known history of invasion. Some of the worst of these are already present in Australia and

there is a need for New Zealand to develop capability rapidly if we are to prevent them establishing in our coastal waters.

Nevertheless, despite its relative novelty as an area of scientific focus, significant gains in understanding have already been made in the short time that funds have been targeted in this area. As part of its Biodiversity and Biosecurity Strategy in 2000 the Government allocated \$1.9 million per annum over five years to biosecurity management in marine environments. In that time, the rate of detection of new marine incursions increased four-fold as a result of port baseline and surveillance surveys funded by the Ministry of Fisheries under the package. More than 130 new species





Turning the tide Continued

(native, non-native and cryptogenic) have so far been described as a result of these efforts. In addition, several overseas governments and the International Maritime Organisation have since sought New Zealand expertise in the design of surveillance and baseline surveys for marine pests.

Scientific outputs in marine biosecurity have shown a corresponding increase since 2000 and initiatives in species risk profiling, vector risk assessment and management, and the development of tools for incursion response have been undertaken. In a short space of time (five years) and with comparatively limited funds, New Zealand has, with Australia, become recognised as a world leader in marine biosecurity. It is contingent upon BNZ and the Foundation for Science Research and Technology that this momentum is maintained and given impetus so that the capabilities that have already been built are not eroded. The 2004 budget allocated an additional \$1 million per annum for marine biosecurity research and \$3.9 million for biosecurity management in marine environments. How these funds are spent is yet to be determined.

The other major theme at the Biosecurity Summit pest management — is one that regional councils and unitary authorities have much experience with in the terrestrial realm. However, as Lindsay Vaughan (Policy Planner, Tasman District Council) outlined in his talk, most regional authorities are uncertain about how to proceed when it comes to dealing with marine Heading the difficulties that they face are: pests. continuing uncertainty about the responsibilities that regional councils have for marine biosecurity under the Biosecurity Act and Resource Management Act; the lack of expertise within regional government in dealing with unwanted marine organisms; and limited awareness among ratepayers of the need for marine biosecurity. The latter means that regional authorities are not confident of a mandate (nor of obtaining the resources) to allow them to act against marine pests. To date, only one marine (Undaria pinnatifida) and one estuarine plant (the introduced cord grasses Spartina alterniflora and S. anglica and S. x townsendii) have been included in Regional Pest Management Strategies.

Both Lindsay and Rebecca Clarkson (Executive Officer, NZ Mussel Industry Council) discussed the difficulties that Marlborough District Council and the Marine Farmers' Association had in dealing with *Didemnum vexillum*, a fouling ascidian that threatened the lucrative Greenshell[™] mussel industry.

Unknown before 2001, when it suddenly became abundant in Whangamata Harbour, experts later identified *Didemnum* as an endemic New Zealand species that appeared to be undergoing an unusual bloom. Its appearance and rapid spread in Picton, following the transport of a heavily fouled barge from the Bay of Plenty, raised concerns about impacts it may have on mussel production in the Marlborough Sounds. An attempted eradication programme proved unsuccessful and active management of the problem has since been curtailed because of the limited prospects of success.

Both Lindsay and Rebecca highlighted the need for more effective engagement with central government over marine biosecurity issues and pointed to the value of more flexible, non-regulatory approaches that allow stakeholders to develop better tools for protecting local industries and environments. Rebecca described the steps the Greenshell[™] mussel industry had taken to develop monitoring programmes, treatments systems and voluntary codes of practice to limit the spread and impacts of a range of other unwanted marine species that have proven harmful to the industry, including the toxic dinoflagellate, Gymnodinium catenatum, the Asian kelp, Undaria pinnatifida, and the introduced sea squirt, Ciona intestinalis. While directly benefiting industry, these programmes also contribute to reducing risks for native biodiversity by restricting the spread of problem species.

The *Didemnum* case study highlighted the problem of implementing domestic controls on activities that might spread unwanted marine species from one region of New Zealand to another ("internal borders"). This was also the topic of one of the three breakout workshop sessions at the Summit in which participants had an opportunity to engage in smaller, more interactive discussions about the key issues: domestic containment (i.e. "internal borders"), incursion response, and the contribution of science to marine biosecurity.

Domestic movement of marine pests by humans, intentionally or unintentionally, can allow them to overcome ocean currents and other geographic barriers that prevent or restrict their natural dispersal. Discussion in the workshop centred on how these barriers could be identified in the marine environment. since there are often not obvious physical boundaries to dispersal and effective borders may vary according to the natural dispersal ability of the species in question. Also, while the Biosecurity Act allows for Regional Pest Management Strategies to be developed, these are often concerned with reducing impacts in an infested region and do not effectively address measures to prevent spread to other regions that are free of the pest. Delegates discussed the range of regulatory and non-regulatory instruments that could potentially be called upon to limit domestic spread of unwanted marine species.

Turning the tide Continued

The Australian Federal Government has already taken some steps toward establishing internal borders for the control of marine pests, since some of its most problematic introduced species, including the Northern Pacific seastar, Asterias amurensis, the aquarium weed, Caulerpa taxifolia, and Asian kelp, Undaria pinnatifida, have already been transported domestically between Australian states. Naomi Parker (Invasive Marine Program, Australian Department of Agriculture, Fisheries and Forestry) gave the Summit an outline of the developing Australian National System for the Prevention and Management of Marine Pest Incursions. A collaboration between the Australian federal, state and territory governments, industry representatives, researchers and other stakeholders, the Australian National System includes arrangements to contain and control pests of concern that are already within Australian waters and a plan for active surveillance in ports at high risk from incursion. The large amount of trade that New Zealand does with Australia's southern shipping ports means that co-ordination with developments across the Tasman is essential, particularly as many of these ports contain species of concern for New Zealand.

The glossy brochures that delegates took away from the Biosecurity Summit promoted a "whole of system" approach as the modus operandi for biosecurity management under the new era of BNZ. This will be a difficult balancing act where not all the pieces of the system are equally weighted. As discussion during the Summit emphasised, the challenge for the new agency will be to identify where a common approach provides synergies for management across sectors, but also to recognise where underlying differences in invasion processes, basic knowledge, resourcing and management capability necessitate a different emphasis or approach. Marine biosecurity is a new endeavour and it has a long way to go before it competes with possums, plum pox and painted apple moths for public attention. This doesn't mean that it is any less important, only that awareness of the problem has only just begun.

Exotic ants in NZ: A ticking timebomb?

Margaret Stanley¹, Darren Ward² & Richard Toft¹

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verseas, invasive ants can have major impacts on native communities, but despite the large number of exotic ant species in New Zealand, little is known about their effects on New Zealand ecosystems. In this article we highlight a number of research projects that are currently being carried out on exotic ants by Landcare Research, collaborators and University students.

Where are pest ants coming from?

There are at least 25 introduced ant species established in New Zealand, compared with just 11 native species. Historically, Australia has been the most likely source of foreign ants, with 15 (60%) of the introduced species thought to have come from there. Six exotic species (24%) are well known as worldwide tramp species, having established in a number of other countries. Tramp species include: the white-footed house ant (*Technomyrmex albipes*) the big-headed ant, (*Pheidole megacephala*), and the Argentine ant, (*Linepithema humile*). The remaining four species are of African origin, or their origin is unknown.

The oldest records of exotic ant species in New Zealand date from before the 1870s, and are thought to have been associated with soil ballast of ships during the early days of European settlement. Recent interceptions of ants at the border by MAF show a very high proportion originating from the Pacific (64%), with more than 80% of these Pacific records originating from Fiji, Tonga and Samoa (Figure 1).

Predicting the pest risk of incoming species

New Zealand imports weird and wonderful goods from many places throughout the world. Unfortunately, invertebrates such as ants often hitch a free ride on these goods and the containers they are packed in, so there is a steady influx of invertebrate stowaways knocking at New Zealand's borders. But which ant species are most likely to "stowaway"? Which will be able to survive when they get here? And which will have the greatest impact if they do establish?

Biosecurity New Zealand is funding Landcare Research to undertake an assessment of ant pests and their risks to New Zealand.

The assessment will identify those ant species of highest risk to New Zealand and tackle issues such as the likelihood of entry and of establishment. Climate modelling is being used to predict the likelihood of establishment should particular ant species arrive in New Zealand.

Freight pathways are also being scrutinised to understand the likelihood of new pest ant species gaining entry to New Zealand. Using GIS, we are overlaying the current distribution of each pest ant species with freight pathways to highlight the extent of overlap in the distribution of the ant and pathways to New Zealand. This will help Biosecurity New Zealand plan surveillance strategies to maximise chances of detection.



Figure 1. Origins of ants intercepted by MAF (1955-2004) at the New Zealand border. Left: global records. Right: Pacific records.

Exotic ants in NZ: A ticking timebomb? Continued

On the move — travelling within NZ

Ant populations are complex and dynamic, and they don't stay in just one place. Ants are good dispersers, even to far-flung places. Natural dispersal usually occurs when new queens are produced and these disperse from the existing colony to establish new colonies. In some ant species, such as Argentine ants, there is a process of "colony budding", where a small number of workers and queens leave, fragment the existing colony, walk to a nearby location, and establish a new colony.

However, the rapid range expansion and disjunct distribution of some species cannot be explained by natural spread. Accidental transportation by humans is quickly and quietly spreading exotic species within New Zealand.

The Argentine ant (*Linepithema humile*) was first found in New Zealand in 1990. It is often found closely associated with humans and human activities, e.g., in houses, gardens, plant nurseries and industrial areas. A recent study has found human-mediated dispersal is primarily responsible for the range expansion of Argentine ants in New Zealand. This species is commonly spread by humans over short distances, for example, across and within suburbs in Auckland, and between neighbouring towns.

Several other species of exotic ants also have quite disjunct distributions. For example, Darwin's ant is present in Christchurch, Nelson, Blenheim, Napier, Gisborne, Mt Maunganui, Auckland, Warkworth, and Whangarei. Human-mediated dispersal is essentially creating a large number of small pest populations throughout the country, and these are likely to act as foci for further expansion. This only increases the difficulty of future control and management efforts of these species.

Xstinguish those pesky ants!

Xstinguish[™] bait was developed by the Western Australia Dept of Agriculture and modified by Landcare Research for New Zealand conditions. It has now been registered in New Zealand by Landcare Research and is available from Bait Technology Ltd (for information contact info@baittechnology.co.nz). This new bait is highly attractive to Argentine ants, and testing has shown there is a dramatic reduction in ant numbers

Xstinguish[™] bait is available under licence to Landcare Research from: Bait Technology Ltd PO Box 303-439 North Harbour, Auckland Ph 09 444 0350 or 027 444 4005 Email: info@baittechnology.co.nz after just one application of Xstinguish Argentine Ant Bait. The bait also appears to be attractive to several other urban pest ant species. Xstinguish[™] has been used to control Argentine ants on Tiritiri Matangi Island, and is currently being used by DOC in Whangarei to control Argentine ants near a kiwi sanctuary, and by residents in Nelson in a co-ordinated effort to control an infestation in a city suburb.

Come out, come out, wherever you are...

Eradicating a pest from an area, even a small infestation, is not an easy task. It seems to start out easily — with modern control techniques it is relatively easy to kill off most of the population. However, the tricky bit is always killing the last 1% of the population, and that is where most of the budget and effort goes.

Ants are no exception to this rule. The difficulty is not how to kill these last few phantom individuals, it's just that they are so difficult to locate! How do we find any survivors so we can kill them?

This is the question vexing those trying to mop-up the last few Argentine ant survivors of an eradication trial on Tiritiri Matangi Island, using Xstinguish[™] bait. Imagine trying to find a few 2.5 mm ants in about 10ha (20 rugby fields!) of dense, steep coastal scrubland.

One of our research projects is focused on ensuring Argentine ants can be detected at low densities. This will lead to early detection and allow small infestations to be targeted before population numbers build up again. Preliminary trials have been under way in Auckland to compare baiting with different trapping techniques. Early results indicate the non-toxic monitoring version of Xstinguish[™] bait is better than pitfall traps at detecting ants at low densities.

The next step in the research will be to improve the baiting strategy to optimise the probability of detecting any remaining ants and to reduce the labourintensiveness (and hence costs) of laying the bait. This will involve working out the optimal bait spacing to achieve both of these objectives.

Darwin's ant — an emerging pest?

Darwin's ant (*Doleromyrma darwiniana*, see Figure 2) appears to be shaping up as a major pest for New Zealand. The first record of Darwin's ant in New Zealand was at Penrose, Auckland, in 1959. This population was promptly eradicated but the species was found again at various sites around Christchurch in the 1970s. Other populations are now found widely scattered through the northern and eastern parts of the North Island and in the northern South Island.

In its native Australia, Darwin's ant forms small colonies of a few hundred individuals and are regarded as occasional minor pests around houses. In New

Exotic ants in NZ: A ticking timebomb? Continued

Zealand, however, Darwin's ants form extremely large colonies and are a major pest for householders in areas where they are established.

But will Darwin's ants spread into native habitats? This is one of the questions the Landcare Research team is hoping to answer, as well as determining their potential impact on native species. One of the areas where Darwin's ants are abundant is at the base of the Port Hills in Christchurch. Already they appear at home amongst the gorse- and boneseed-covered slopes, suggesting some native shrubland environments may also be at risk. The fact they do so well around the Port Hills environment in Christchurch suggests they may have wider temperature tolerances than the Argentine ant, to which they are closely related.

While authorities work hard at keeping known environmental pest ant species out of the country, the unknown threat of Darwin's ant is spreading from within. We urgently need to understand that threat.

Impacts on biodiversity and ecosystems

The ecological impacts of another invasive social insect, wasps, is well known. But despite the concern over exotic ants, and the strong evidence of negative impacts from overseas, no research on the impacts of exotic ant species in native ecosystems has yet been carried out in New Zealand. Of most concern is the Argentine ant, whose impact on both native invertebrates and vertebrates has been well documented in Hawaii and California. In South Africa, Argentine ants disrupt the dispersal of seeds by other ants — placing the long-term conservation of many plants at risk.

We are just beginning to unravel the impacts of Argentine ants in New Zealand. A recent study around Auckland has shown that open canopy habitats are most at risk of invasion, while forests are probably less susceptible. Researchers measured the invasion "depth" of Argentine ants along 28 transects into native



Figure 2. Darwin's ant. A characteristic of this species is the foul smelling odour when squashed.

Photo: Richard Toft

forest, scrub and mangrove habitats. Argentine ants were present up to 20m into forest habitats, but in the more open canopy habitats of mangrove and scrub, they moved at least 30m and 60m in from the edge, respectively.

Based on this survey, we suggest open habitats and relatively open canopy scrub environments in northern New Zealand are likely to be vulnerable to invasion by Argentine ants and to experience significant impacts. Research data suggest Argentine ants will not invade the interior of intact indigenous forest in New Zealand, but will exist in forest boundaries and open habitats. The extent and ecological importance of these margins could be significant in highly fragmented landscapes, or where roads and tracks create open canopies in otherwise intact indigenous forest.

While research continues on Argentine ants, little is known of the other two dozen exotic ant species that are established in New Zealand? What are they up to?

Ant fact sheets coming soon...

Fact sheets have been produced by Landcare Research, Victoria University and Otago Museum which summarise all known information on the biology and control of all exotic ants currently established in New Zealand as well as high-risk ant species that have not established here yet. The fact sheets have been co-funded by Biosecurity New Zealand and FRST and will be available as downloadable PDFs on the Stowaways website <u>www.landcareresearch.co.nz/research/biosecurity/stowaways/index.asp</u> within the next few months.

Border bits

The staff at MAF's Quarantine Service have been busy over the holiday season with some weird and wonderful risk items intercepted, including:

- Asian tiger mosquito and eggs (*Aedes albopictus*) in water pooled in cement processing equipment
- Leather polo equipment that had not been properly tanned and still had hair attached to it
- A live **assassin bug** that is able to carry a nasty strain of protozoa in their gut that can be transmitted to other hosts, including humans, and can cause debilitation over a number of years, eventually resulting in death
- An **Asian scorpion** that stung a traveller from South Africa in the check-in at Auckland International Airport
- A 3.4kg bag of **Aussie soil** that was found to contain live ants, nematodes, a slug, a sapling, live moss, coral and shells, and leaves
- **20 packets of sausages** weighing in at 18kg in checked baggage of a passenger who, when questioned, conceded that she "might" be carrying some meat
- 80 pieces of **bark**, 14 different types of **Aussie seeds** (1.7kg in total), six reed plants, and 30 leaves, apples, tomatoes and a mango, all brought in by two keen gardeners in transit to the USA
- A home-cured **snake skin** and wooden carvings from Malawi
- Bulbs and cuttings wrapped in tin-foil and concealed in personal effects
- Two packets of dried walrus meat
- "Frozen mussel shell meat" with pictures of snails on the packaging and sundried mudfish"
- A large coral basket and two fresh giant clam shells
- Five geckos, two skinks and a frog, all found in air cargo
- A plastic bag of meat in a passenger's pocket
- One live snake in a container
- Fresh oranges in the mail
- Honey, whole wheat grains, mango bark, milled grains and ghee included in 600 "pooja" sets being imported for the Hindu Diwali (Festival of Lights)
- Maggot-infested halal beef sausages
- A dead cat in a container
- Pork salami from France and salami from Israel
- **Conifer twigs** and other plant material in Christmas parcels from Europe
- Black widow spiders, live ants, beetles, barking frogs and mosquitos

Gypsy moth pupa and egg mass

Dried liver snacks that the owner forgot to give her dog in Canada before getting on the plane

Meat hidden in a shoe.

And in the really bizarre category, a New Zealander who had been holidaying in Australia and had covered a "lump" on his neck with a sticking plaster must have had a nasty shock when the lump fell off and turned out to have legs. He duly handed it in to MAF Quarantine Services, the Health Department was notified, and the tick was identified as *lxodes holocyclus*, the paralysis tick. The paralysis tick injects its host with a neurotoxin which can cause neuromuscular paralysis and death in animals and humans. Thankfully, the passenger has suffered no illeffects from the incident.

A week at the Auckland Quarantive Service:

To give an idea of volumes dealt with by the Quarantine Services, during the week ending November 21, 2004, staff at Auckland International Airport alone recorded the following:

366 international flights cleared

60,811 travellers processed

2500 biosecurity risk items intercepted in the week, including:

783 miscellaneous items, such as freshwater fishing equipment from USA, veterinarian kits from Australia and soiled boots from Ecuador, Tanzania and Denmark

More than 500 items of fruit fly host material; included in the 221.6kg haul were mulberries from Tonga, limes from Malaysia and crab apples from China

65 items of animal product, including sheep placenta from Australia, animal jaws from Brazil, porcupine quills from South Africa and a skin shield from Malawi

194 meat products, including chicken legs and duck gizzard from China, beef jerky from Brazil, pork from Lithuania and beef from India.

Biosecurity bits

Camel curries, pickled kittens, and Oscar-winning biosecurity breaches — it's all here in *Protect's* round up of media coverage over the last three months

A boriginal communities in the Northern Territory are reviving the export of **wild camels** to the Middle East and Asia, where they will be slaughtered for meat. Camels were originally introduced into the outback in the 1800s for use by Afghan railway builders and pioneers, but their numbers have now exploded and in some areas they outnumber kangaroos. Environmentalists have given their blessing to the venture, as camels are seriously damaging outback ecosystems and water holes.

Amilton police got more than they bargained for when attending a suspected domestic incident and coming across three **preserved snakes**. MAF was called in to confiscate the specimens so that their origins could be ascertained; in the meantime, the angry owner vented her frustration by throwing a formaldehyde-filled bottle of pickled kittens at the police behind the counter of the local community station. She explained to the media that all the bottled specimens were used to provide "atmosphere" at Halloween gatherings.

Japan may soon relax its fumigation requirements on Otago cherries, put in place because of fears of **codling moth**. In the meantime, Mr Apple, New Zealand's biggest grower, is threatening to take Australia to the WTO because of continued bans on NZ apples due to the alleged **fireblight** threat to Australian markets.

While visitors to Auckland Museum's recent **Ouch!** exhibit had glass between them and the scorpions on show, a passenger at Auckland Airport's domestic terminal was not so lucky. A **scorpion** latched itself onto his foot as he waited at the check-in counter. As the passenger had been travelling from South Africa but the scorpion was of Asian descent it appears it may have hitched a ride with another unwitting courier before turning its attention on its unfortunate victim, who spent a night in hospital under observation but was

otherwise unaffected.

A recent ground search for Asian gypsy moth in Hamilton has come up empty-handed, increasing the likelihood that the suspected infestation can be considered eradicated. Not such good news, however, for Mount Wellington residents as another male fall web worm, pictured right, has been found in their area, two years after the first infestation was treated and was hoped to



have been eradicated.

alls by the Hamilton SPCA for a **night-time curfew** on cats to stop them killing native birds in the city have been discounted by the city council and challenged by Landcare Research. Apparently a decrease in moggies roaming gully areas in the city is likely to lead to an increase in number of rodents, which scientists believe are the real culprits when it comes to decimating bird populations.

The small US factory in Alabama that produces Compound 1080, eighty percent of which is sold to New Zealand for possum control, is in the cross hairs of Homeland Security for being a potential source of **poison for terrorist attacks** on water supplies. One senator is calling for production to be stopped completely, while the owner argues that his product is dyed black in accordance with laws that have been put in place to ensure such use of poisons can not occur. Less than one millilitre of Compound 1080 will kill an adult human, and there is no known antidote.

As opposition to traditional methods of possum control AgResearch are combining their efforts and including social scientists in the research mix to develop new **publicly and politically acceptable methods of possum control**. Options being considered include: making possums sterile with GE nematode worm infestations; using a protein that turns a female possum's immune system against its own reproductive system; and curtailing the possum's sex drive by a drug that kills specific brain cells that control the production of breeding hormones. AgResearch is also developing a "magic bullet" toxin that exploits the differences in cell structure between marsupials and placental mammals so that it only kills possums.

nvironment Southland's plan to bring a pure form of **rabbit calicivirus** into New Zealand to kill

wild rabbits in urban areas has rubbed rabbit fanciers up the wrong way. While the calicivirus is seen by some as an alternative to shooting, trapping and poisoning, all of which are unsuitable for urban areas. those with domestic rabbits fear that their pets are at risk from the virus. Inoculation against the calicivirus is available but owners say that it affects fertility and leaves scars, decreasing the value of the rabbits.

Biosecurity bits Continued

Add another example of the problems invasive plants archaeologist is finding that one of his main obstacles in his work excavating historic Little Acacia Bay is the **invasive trees** for which this area is named. The acacia trees send up suckers and shoots from any cut parent trees, and the root systems have created debris that is obstructing the dig. Indiana Jones never had problems like this!

ement processing equipment arriving at Ports of Auckland turned out to be the hiding place of an Asian tiger mosquito (Aedes albopictus), a vector of Ross River virus, dengue fever and yellow fever, amongst other diseases. And it's not just the mozzies we have to keep an eye on, it seems: fingers have also been pointed at possums as potential vectors. Possums are known to carry Ross River virus in Australia, and to be bitten by mosquitoes in New Zealand; put the two together and there is the potential for a mozzie to pass the virus onto a possum, which could then transmit it to any unfortunate human who happened to be bitten by that possum.

The in-flight crew of an Air New Zealand plane had an unexpected passenger — a **live green tree snake** which was curled up on one of the seats at the back of the plane in the economy section. The snake was bagged, chilled, and passed to MAF on its arrival at Auckland. It is thought to have been of a nonvenomous variety. t was a question of where the buck stops for recent attempts to eradicate **Argentine ants** from a suburb in Nelson, and residents decided that it was not with them. More than 20% of residents objected to paying for the baits and Nelson City Council was reluctant to cover costs for what they saw was a national problem that had resulted from a biosecurity failure at the border. Meanwhile, DOC got on with the job of baiting for a population of the ants near Whangarei as they feared that an infestation would threaten bird populations, including kiwi, in the area.

The use of irradiation to meet biosecurity import standards has been under the spotlight with the first shipment to New Zealand of **Australian mangoes treated with Cobalt 60**. The stickers the fruit bore saying that it was "irradiated to protect the New Zealand environment" may not have put some shoppers off, but the big black blemishes that reportedly developed once it arrived in shops would certainly have affected sales. The importer denied that these blemishes had anything to do with the irradiation process.

Two times Oscar winning actress Hilary Swank has instructed her lawyers to defend the \$200 instant fine she was issued for bringing an apple and an orange into New Zealand. Ms Swank earns several million dollars for each movie role she takes on; goodness knows how much her lawyers will charge her to defend her in what must surely be an open and shut case. 7 February 2005

Honorable Jim Sutton Minister for Biosecurity Parliament Buildings Wellington

Barry O'Neill Assistant Director-General Biosecurity New Zealand PO Box 2526 Wellington

Dear Sirs

EXPORT OF LIVE PEST SPECIES

Recently the Minister for the Environment, Marian Hobbs, announced that New Zealand would be ratifying the Cartegena Biosafety Protocol, with the comment that New Zealand "is a good international citizen and we are committed to comprehensive biosecurity." It is with great concern, then, that the New Zealand Biosecurity Institute views the on-going live export of well-known pests like possums and wallabies by New Zealand-based individuals and companies.

The pet trade is known to be an important pathway worldwide for invasive species. Currently the onus is on the importing country not the exporting country to regulate this activity. However, very few countries have biosecurity systems that are sophisticated and robust enough to adequately assess and prevent the entry of potentially invasive species. Even developed countries such as Japan are only just now realizing the devastating effects that the importation of species for the pet trade is having on their biodiversity. If New Zealand is indeed to be a good international citizen then at the very least it should be providing very clear warnings to all countries about the possible consequences of accepting such imports. The New Zealand Biosecurity Institute was pleased to see in the November issue of *Biosecurity* that this will be one of the new accountabilities of MAF. We would like to see this pet trade shut down. The Institute is comfortable with the export of pests under exceptional circumstances such as the repatriation of organisms that have become rare in their native range or for legitimate scientific purposes.

The live export of possums and wallabies appears to be in breach of Regional Pest Management Strategies, prepared by regional councils under the Biosecurity Act. These strategies clearly state that unless an exemption is granted known pests such as possums must not be sold or moved about. It is our understanding that no such exemptions have been authorised. Commercialisation of live pest species leads to conflicts between people wanting to use the pests as a resource for economic gain and those who wish to manage pests for the greater good. Given that MAF is now the lead agency for biosecurity in New Zealand, we believe that it inappropriate for MAF to continue to support this activity and undermine the efforts of other groups charged with managing pests by providing the necessary permits for New Zealanders to ship known pest species overseas.

In a similar vein we do not believe that it is good biosecurity practice to be selling seeds of native plants and "wild flowers" in airport and other gift shops encouraging overseas visitors to take a little piece of New Zealand home. Plants such as flax and pohutukawa have already become weeds in other countries. At the very least the packets should contain a clear warning that their contents could become invasive.

New Zealand is highly regarded as being a leader in biosecurity matters internationally, and this is acknowledged in Marion Hobbs' comments regarding the Cartegena Biosafety Protocol. The New Zealand Biosecurity Institute feels that in allowing live exports of known pest species New Zealand is backtracking on its commitment to being a "good international citizen" and should be showing greater leadership on this issue.

We look forward to your views on this matter.

Yours sincerely

Lynley Hayes and Carolyn Lewis President and Vice-President, New Zealand Biosecurity Institute

cc: Marian Hobbs, Richard Ivess, Debbie Pearson, Peter Thompson

Correspondence to:

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Annual Plans 2005

- 1 Seek to increase our membership by signing 5. up at least 20 new members, especially from groups that are poorly represented at present (e.g. MAF, health, people involved with vertebrate and invertebrate pests, industry representatives etc). We intend to continue to grow and diversify in a sustainable way. We will work towards 6. amalgamation with the Vertebrate Pest Management Institute of New Zealand if it is appropriate to do so. We will encourage all branches to invite prospective members to attend branch activities and NETS. We intend
- 2. Seek to raise awareness of the NZBI and biosecurity issues.

(see 2, 3 & 7 below).

to attract more members by raising our profile

Develop a communications plan and allocate specific responsibilities for communication to executive members. Continue to support Weedbusters in any way we can. Meet with senior managers at Biosecurity New Zealand to discuss ways the two organisations can support each other. Support the development and implementation of a national Biosecurity Awareness Framework and the ongoing work of the Aquatic Pest Awareness Group.

3. Seek to ensure that the NZBI becomes more involved in matters of policy, strategy and advocacy.

> We will comment on any matters or documents where it is appropriate for us to do so. We will send NZBI representatives to any relevant meetings. We will take the first steps to developing position statements on a variety of relevant issues.

4. Seek to make it easier for our members to access the knowledge and information they require to do their jobs effectively. We will get a skills register up and running on our website. We will endeavour to more effectively interact and network with other likeminded organisations both here and overseas.

Seek to improve biosecurity in New Zealand by offering a scholarship to allow one member to travel to learn new skills and another scholarship to assist a student to undertake some relevant research.

We will offer these awards again in 2005.

- Seek to improve biosecurity in New Zealand by holding a National Education and Training Seminar (NETS) in July. The organising committee and executive will consult widely about the topics and activities to be covered at NETS and prepare a questionnaire that will go in the registration packs to allow participants to provide feedback about NETS and any other matters relating to the NZBI. We will use this feedback to help us to continue run at least one highly successful NETS per year. We will continue to explore the possibility of running joint conferences/ activities with other like-minded organisations.
- 7. Seek to improve biosecurity in New Zealand by producing quarterly issues of Protect. We will make every effort to cover a broad spectrum of topics, as well as information about members, branch and nationwide activities.
- Seek to improve biosecurity in New Zealand 8. by developing and maintaining a website. We will continue to maintain and improve our website. We will seek to be included as a hot link on other relevant websites.
- Seek to ensure that the NZBI continues to 9. be an active organisation that gets things done and makes a difference.

The executive will meet on at least a quarterly basis and annual planning will be undertaken Reports on progress and every year. achievement will be provided in Protect and at the AGM. The executive will encourage branches to hold regular meetings and activities and to extend invitations to participate beyond just the members of that branch.