

Autumn — 2003

# Protect



New Zealand  
**Biosecurity** Institute

*Our mission: "To preserve and protect New Zealand's natural resources from the adverse impacts of invasive pests."*

# ATTACK GORSE WITH SPEED AND FORCE



**NEW ZEALAND'S ULTIMATE BRUSHKILLER**

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# Protect

Summer 2003

Magazine of the New Zealand Biosecurity Institute

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## Editor's Note

Bioterrorism came a step closer recently with an Auckland man's alleged threat to release painted apple moth south of Taupo to create an infestation too big for the Ministry of Agriculture and Forestry to control.

He believed such an action would force the ministry to halt its west Auckland aerial spray programme which he claimed was harming the public's health.

MAF is reported to have countered by threatening legal action under the Biosecurity Act 1993 which makes it an offence to spread any pest or unwanted organism.

The episode highlights the conflict between the protection of New Zealand from unwanted pests and the risk, or at least inconvenience such protection can place on the population at large and the need to act quickly to minimise the area requiring treatment.

Also worrying is that such a threat, if carried out, would negate the spray programme that has been undertaken so far, effectively making it a waste of time, effort and money, and meaning that any threat to the health of those living in the areas sprayed would have been for nought.

New Zealand's dependence on primary production and unique ecology and environment makes us particularly vulnerable to biosecurity risks, a situation that is perhaps not understood by a large portion of the population. The *Listener* article cited in the NZBI's letter to that magazine's editor (See Appendix 3 in this issue) is further evidence that for some biosecurity is just a nuisance, a hindrance. That is until a pest arrives that no amount of action can control and which has the potential to devastate some valued sector of the country.

That same media would likely be asking why something wasn't done sooner!

There is plenty of work to do to move the wider public towards greater understanding of the issues involved in keeping pests out of this country.

All strength to the "weed police", especially to their educational arm.

**This issue** contains, along with the executive and branch news, updates on Protect NZ and Weedbusters, and an international take on invasive species from Lynley Hayes' time in South Africa as well as Carolyn Lewis on South Africa's tailored fight against plant pests that are choking and sucking water out of that country's waterways.

The NZBI's submission on the Draft Biosecurity Strategy is included in the appendices, along with a submission in support of DOC's application to import rotenone for use as a freshwater piscicide, and the above mentioned letter to the *Listener* which was not published by that magazine.

Thanks to Dow Agrosiences for its continued support with printing and distribution of the hardcopy issues of *Protect*.

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Editor

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# News from the Executive

## NETS2003

Don't forget to get your registrations away promptly for "Biosecurity at the Centre of New Zealand" (aka NETS2003), as there are discounted rates for early birds. NETS2003 is going to be held at The Rutherford Hotel, Nelson, from the 9–11th of July. Some of you may also choose to stay on and visit local attractions over the weekend. This year's seminar focuses on national initiatives and local themes concerning biosecurity, including selling the message, exploring how to get the best for everyone out of biosecurity and hearing the views of a wide range of participants. There will be many opportunities to learn about new pests and techniques for improving the control of those we are already familiar with. Hope to see as many of you there as possible!

## Travel/Study Awards

The executive has decided that nominations for the next round of Travel and Study Awards will close on the 30th of September 2003. A panel will consider any applications received and make their decisions before the end of the year. Funding will be made available to successful applicants early in 2004. So get your thinking caps on and come up with some good ideas. Refer to our website for further details about the awards and the relevant paperwork.



## New Members

We would like to warmly welcome the following new members:

**Rodger Cawte** – DOC (Kaitaia)

**Andrea Booth** – DOC (Whangarei)

**Kirsten Crawford** – Environment Waikato

**Ray Brown** – horizons.mw

**Adrienne Tollemache** – Protect NZ

## Making Noises

Thanks to our policy and strategy subcommittee (Paul Champion, Andrew Wilke, Mike White, and in particular Ian Popay) for preparing on our behalf a submission on the draft biosecurity strategy for New Zealand (See Appendix 1). I get a sense that most people were not very impressed with the draft and feel that we are still some way off a useful strategy. A summary of the submissions is now available on [www.biostrategy.org.nz](http://www.biostrategy.org.nz). Thanks also to Paul for preparing a submission on behalf of the NZBI regarding the use of Rotenone to

control pest fish (See Appendix 2). Let's hope that permission will be granted soon that will enable people to use this vital tool. Finally thanks to Carolyn Lewis for drafting a letter to the *Listener* in response to some recent articles that have undermined the National Plant Pest Accord and poked fun at the "weed police" (See Appendix 3). Unfortunately the *Listener* did not bother to print it. You can find copies of all three documents later in this issue. If you think at any time that the NZBI should be commenting on a particular issue then please let us know.

## Keeping in Touch

Some members don't seem to be aware that we have a section in the restricted area of our website where all our members contact details are listed. So if need a member's email, address or phone number, or you want to know who else is in your branch etc then you should be able to find what you need to know there. We are trying to keep the list as current as possible so please let us know if your details change or if you notice any typos.

## Branch AGMs

It's coming up to that time when branches will be organising AGMs (they are supposed to held at least 6 weeks before the national AGM so this year that means before the 28th of May). I would like to encourage some of our newer members, in particular, to consider putting themselves forward as a branch chairs, secretaries, or executive members where people currently filling these roles are standing down. None of the jobs are particularly difficult and if we share them round then many hands make light work. Don't be daunted if you haven't done anything like this before as we can help you to get up to speed. Feel free to call me for a chat if you would like to talk over what these positions involve or if you have in queries.

## Room at the top?

In a similar vein, we will be looking for some new national office holders at our AGM in Nelson. I am prepared to stand as National President for another year, however, Paul Champion has indicated that he will be standing down as Vice-President. Paul has a very busy job at NIWA and realises that he is unlikely to find time in the near future to take on the additional role and responsibilities of National President. He also believes that he can perhaps best make a difference doing what he is currently doing. So we all need to give some thought as to who might make a good successor well in advance of the AGM. Please don't be backward in

## News from the Executive Continued

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coming forward if you think this sounds like your calling! Our secretary, Dave Galloway, and our treasurer, Ken Massey, will also be stepping down in July. However, we are fortunate that several capable people have already expressed interest in taking over these jobs so it should not prove difficult to effectively fill these important roles.

### **Finally I'd like you to consider the following:**

- Walt Disney was fired by a newspaper editor for lack of ideas. He also went bankrupt several times before he built Disneyland.
- Louis Pasteur was a mediocre student in undergraduate studies and ranked 15 out of 22 in chemistry.
- Leo Tolstoy flunked out of college and was described

as unable and unwilling to learn.

- Albert Einstein did not speak until he was 4 or read until he was 7. His teachers described him as slow, unsociable, and adrift forever in foolish dreams.
- Beethoven played the violin awkwardly and he teacher called him a hopeless composer.

Isn't it amazing what we can achieve when we put our minds to it and don't give up? I think it was Henry Ford who said "Whether you think you can or think you can't you will prove yourself right." How right he was.

**So get out of your comfort zone and volunteer for something even if it scares you a little!**

Bye for now  
**Lynley** 

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# News from the Branches

## Lower NI Branch meeting

Members of the regional councils of Hawke's Bay (HBRC), Greater Wellington and horizons.mw met at Napier on the February 20 for the Lower North Island Branch AGM.

After the initial welcome lunch organised by Robin Packe of HBRC, and an outline of the programme over the next 24 hours, we launched into the meeting. Having missed our meeting last year we had plenty to catch up on the round robin reports from each region.

What emerged from this regional sum-up was that each council had had many difficulties with their strategies, although all three lower North Island councils concurred on the eradication of species approach, i.e. getting reputable nasties before they establish in each region. One council had problems from creating an over-ambitious strategy, where just too many species had been put on control lists. This was partially due to planners executing the document without taking into account pest plant officers' local knowledge and it meant that many of the objectives set by council were unachievable as officers became spread too thinly on the ground.

There was a consensus amongst the three councils that strategies often constrain work on the ground, so much so that one council had put out an operational plan to counter the inadequacies of their strategy.

Having service delivery for pest plants can also catch councils out where the extent of infestation was not known at the time of writing the strategy.

A third problem within strategies is that there may be inter-regional inconsistency of pest plant designation, where infestations of individual weed species are continuous across boundaries.

It was discussed that writing a pest plant strategy is very difficult process. This is due a high number of variables: the number of pest plants and their differing weed ecologies (dispersal methods, amount of seed produced, seed viability, ease of control etc) and the extent and distribution of these pest plant infestations within regions. To develop a good strategy the region and knowledge of the extent and distribution of infestations must be well utilised, co-ordination between adjoining regional councils is imperative, and if possible contingency/flexibility legislation is required to step outside of the strategy where required.

It was also summarised that the site-led approach is becoming a stronger trend. In Wellington City GWRC has let go of the weed led programme that has been running for the last 12 years and will concentrate more on their Key Native Ecosystems (KNEs), where a higher degree of pest plant control will occur in order to preserve these areas of ecological integrity.

The meeting also discussed the garden dumping initiative in Wellington and this was met with good response from the other councils. Currently a cross-agency leaflet on this issue is in the final design phase and will be distributed by each territorial authority as they see fit. DOC and the QEII Trust have also been involved.

After the AGM HBRC gave us the run down on some of their programmes and highlighted their approach to privet control. Initiated last year on the basis of privet causing respiratory illness, the HBRC has offered incentives to ratepayers (replacement trees, tip vouchers and up to \$500 on contractor removal works). The council has made great progress to date on their eradication efforts of this potentially toxic plant.

The pest plant officers then embarked on pest plant tours of Hawke's Bay. First up was the impressively staunch phragmites growing on the side of a drainage creek just out of Napier City. This aquatic and water margin plant is known from only three sites in New Zealand and has the potential to be one of our worst aquatic weeds. With little



**Dave Bayly, of GWRC, gets to grip with formidable phragmites.**

## Lower NI Branch meeting Continued

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effective chemical control available for this wetland pest. The HBRC imported the chemical Arsenal (active chemical Imazapyr). Initial results look good with an estimated 90% kill above ground. Unfortunately up to 40% of the plants mass is below ground.

We looked at other problem plants in the Hawke's Bay area such as the poisonous apple of sodom (a thorny Solanum), the aggressive pasture weed Chilean needle grass, a huge site of spindleberry/ old man's beard and the nemesis of livestock, spiny emex. This latter plant has a four-pronged seed — no matter which way it lands a spike points up. From Australia, spiny emex is known to make stock lame. Mike Perry of HBRC showed a novel approach to locating the seed however we think gloves would be useful in this point and jab technique.

Our last visit was to the Wapukarau Airfield to look at the innovative Through Valve Boom (TVB), courtesy of Hamish Shield of Heliteam, Waipukurau. Unlike

other spray devices the TVB claims to produce droplet particles free of aerosol at speeds of 150 to 200km/hour. In addition optimum swath heights are obtained at 25 to 30m above ground or vegetation, eliminating flight at brush hugging heights. A demonstration of this in 30-knot winds at differing heights to 30m produced remarkably clean and full swathes across the tarmac. Initial impressions of this technology are very good especially in its application to non-target damage.

Finally I would like to thank Robin and other members of HBRC for putting on a great trip. Due to an oversight non-Regional Council workers in the NZBI were not invited to the meeting and we would like to apologise for this error. In 2004, Greater Wellington will be putting on a meeting and would like to invite all NZBI members from the lower North Island to attend.

**Mike Ulrich**

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## Central North Island Branch

The branch is going from strength to strength, with some very good ideas coming out of branch meetings. Our last meeting was at the Pukeiti Rhododendron Trust, about half an hour south of New Plymouth, under the shoulder of Mt Taranaki. That some members drove more than six hours to attend tells you something about the commitment to branch activities. The weather smiled and the mountain looked stunning.

The Taranaki Regional Council staff had done a great job of organising the day and the venue, and Du Pont NZ Ltd provided a very good lunch and the guest speaker. Thank you to everyone who made the day so enjoyable.

We discussed the biosecurity implications of upgrading a Bay of Plenty airport to international status, which is a hot topic for local politicians at the moment. Toni Withers from the Forest Research Institute discussed the significant correlation between new pest insects establishing and the proximity to international airports. To site an airport close to an area with a lot of forestry and horticulture could limit our ability to respond to future introductions before a lot of damage or disruption occurred.

We need to find new office holders for the branch at the AGM, with Wendy Baker and I both resigning from secretary/treasurer and chairperson roles respectively. Wendy has been secretary for the whole time I have been chairperson and I want to use this medium to thank her for her help over the last four years. Well done Wendy Weed.

### Weed identification training

At our meeting in October 2002 we decided to do something about helping people to identify weeds on the National Accord list. Many of our weeds people were concerned that the list was long and that their knowledge of the plants was short. Instead of waiting for "someone" to organise a training course we decided



*Members of the Central North Island Branch during the recent meeting in Taranaki.*

to do it ourselves.

I am pleased to report that it looks like a training course will be available, perhaps as early as the end of the year. We sought the opinions of weed people throughout the country, and we have listened to them. The comments had two main themes. Firstly to keep it simple, and secondly to use live plants as the training aids where possible. To help with the second point we will shortly begin scouring the country for potted plants to use for the course. If you have a weed collection and can spare some plants we would love to hear from you. You could contact Paul Champion at [p.champion@niwa.co.nz](mailto:p.champion@niwa.co.nz) initially, and then after some collation we will know which plants we will need to source elsewhere.

We are finalising the shape of the course and who should run it. How it should be funded is another challenge. Perhaps a combination of sponsorship and course fees will see it up and running. No doubt more news will follow soon.

**Pete McLaren**  
CNI Branch Chairman

## Canterbury Branch



*Participants in the Big Banks Peninsula Biosecurity Adventure with Hinewai and the Pacific Ocean behind.*

## The big Banks Peninsula biosecurity adventure

The Canterbury Branch joined with delegates from the 8th International Congress of Plant Pathology for an excursion on February 2. Some of the congress delegates arrived a couple of days early to attend a workshop on biological control of weeds using pathogens and had some time to kill before the actual congress started. The opportunity for NZBI members to meet with these overseas weed specialists seemed too good to miss, so a joint field trip was duly arranged. Although the weather forecast was a bit dodgy, we managed to pull off a stunning sunny day to show off Banks Peninsula in all its splendour.

First stop for the 32 participants (and one tiny baby) was a field trial at Lincoln where Melanie Haines explained about her PhD study on the broom seed beetle (*Bruchidius villosus*) and why researchers had failed to predict that it would attack tree lucerne. Melanie's study is not quite finished yet but she thinks that a small percentage of the beetles may have a wider host-range than the rest and that the amount of replication used in safety testing was insufficient to show this, a finding that is likely to have significant ramifications for how biological control agents are tested in future.

Then it was off to Little River for morning tea and fantastic gourmet scones.

Hunger satiated, it was back on the bus for a climb up to the Hill Top and the first views of Akaroa Harbour. At the Hill Top, Jock Bulman of Environment Canterbury explained about what his job as biosecurity officer for the Banks Peninsula area entailed and showed people some Darwin's barberry (*Berberis darwinii*).

We then cruised down the hill to Wainui and looked at a banana passionfruit (*Passiflora* spp.) infestation. Jane Barton, a contractor to Landcare Research, and Hugh Gourlay of Landcare Research, talked about potential agents for this up-and-coming weed.

Louise Morin of the CSIRO in Canberra, brought us up to date on exciting early success of a biocontrol programme against bridal creeper (*Asparagus asparagoides*) in Australia, and Nick Waipara, Landcare Research, spoke of the trials and tribulations of developing biocontrol for Californian thistle (*Cirsium arvense*).

After a packed lunch under a shady tree Ray Maw and Laurence Smith, both of Environment Canterbury, spoke about the legislation and rationale behind weed control in New Zealand and how regional pest management strategies are developed and operated on a day-by-day basis.

Following lunch we drove around the harbour to Akaroa where people could either have a quick look around at this popular tourist venue or enjoy a drink on the waterfront. Our bus then took us up behind Akaroa for views of Hinewai Reserve (and more gorse than most people had ever seen before) and the Pacific Ocean. Jock Bulman explained the philosophy behind Hinewai of shutting the land up and allowing it to regenerate back to native bush. Three farmers had apparently gone broke trying to farm the land previously. Richard Hill spoke about field trials he had been involved with at Hinewai back in his Landcare Research days, and Amber Bill, of the Department

## Banks Peninsula biosecurity adventure continued

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of Conservation, explained her new role as National Weeds Public Awareness Co-ordinator.

The bus then wound its way along the Summit Road to Otepatotu Reserve where Wayne Beggs (Department of Conservation) spoke about DOC's role in weed and pest control. We took a quick stroll through the reserve up to a crag offering stunning 360° views and numerous photo opportunities before continuing on

to Christchurch again.

The day was thoroughly enjoyed by all who took part and many new friendships were forged. Thanks to Hugh Gourlay, Jan Crooks, Laurence Smith, Jock Bulman, Ray Maw, and Wayne Beggs for making it possible.

**Lynley Hayes**

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## Member Profiles: Gail Cole & Carolyn Lewis

After 11 years working together on weeds in the Waikato, we believe we make a pretty formidable team. Neither of us ever planned to work in this field, but ended up here very much by chance.

After leaving school, Gail completed her Bachelor of Science at Waikato, and had been working with Cancer Research in Auckland.

Carolyn had moved from Christchurch to Massey University to complete her Bachelor of Science, and from there, went to work first with Lower Hutt City Council and then Hamilton City Council as an environmental health officer, completing her Masters in Social Science (Resources and Environmental Planning) part-time.

When Environment Waikato contracted out its noxious plants work, both of us got jobs with one of the contractors. At that time, the emphasis in the Waikato was on economic weeds, brush weeds and enforcement, and we spent most of our time on farms. Any work in urban areas was considered secondary.

We faced a steep learning curve in 1994 when we were offered the contracts ourselves. Running a business in our early 20s with no previous track record was an eye-opener, and so was forging a successful working partnership between two very different personalities.

We have been extremely fortunate in that we tend to balance each other's strengths and weaknesses, and can also talk through any differences of opinion. In the

time we have been working together, we have never had an argument.

From 1994 on, the emphasis in our work gradually changed to dealing primarily with environmentally damaging plants, which involved a lot of awareness and education work, especially in urban areas. It meant adapting our work practices, and we found that we were getting much better results with the co-operation of our communities.

The NZ Biosecurity Institute is another thing that has really changed over the years, too. Our first conference, when it was the Noxious Plants Institute, was a bit of a shock to the system — only a handful of women, and we were also among the youngest participants! There was a lot of suspicion

about the fact that we were contractors, not employees — there seemed to be this idea that we were the thin end of the wedge and that soon everyone's jobs would go to contract, a fear that has proved to be unfounded.

It's good to see the membership of the Institute is now so varied, and it makes

the conferences more interesting too. Contacts made through the Institute have really helped us over the years, especially as we work in relative isolation from a close regional council network.

Working under a contract system means that every few years we have to prove that we are the best people for the job, which can be nerve-wracking, but hey, we're still here, so we must be doing something right!



**Carolyn Lewis, above, and Gail Cole, right: "Getting better results with co-operation of our communities."**

Photos: Waikato Times



**Carolyn Lewis and Gail Cole**

Plant Pest Officers, Waikato

## Practical Control Tips

# Agapanthus trials

**By Greg Hoskins**  
Biosecurity Officer  
Auckland Regional Council

*Agapanthus praecox* is an African species popular as a landscape plant for coastal gardens, traffic islands, motorway barriers and road sides.

It is tough, wind and drought resistant and survives salt spray, petrol fumes, lead, rubber poisoning and motor vehicle accidents, while providing a pretty display of blue and white flowers during summer.

It also has a strong resistance to herbicides, posing a problem controlling adventive plants.

In the Auckland region, agapanthus is spreading locally by seed to coastal cliffs, sand dunes, and regenerating native forest margins.

Muriwai coastal margins were selected as suitable control sites. Some plots were sprayed during flowering and others post-flowering.

Various dates were used for comparison and several specialist herbicides were supplied by manufacturers for experimental purposes.



**Agapanthus praecox**

### Agapanthus control trial No 1.

	Treatment	Rate/100L	Control (0=no control 10=dead)			
			4mths	8mths	10mths	13mths
1	Glyphosphate 360 + Pulse	2000ml 100ml	4	4	4	3
2	Glyphosphate 360 + Escort + Pulse	2000ml 50g 100ml	4	5	6	5
3	Escort + Pulse	50g 100ml	4	6	6	5
4	Amitrole 4L + Pulse	4000ml 100ml	5	9	8	9
5	Starane 200 + Pulse	200ml 100ml	5	5	5	4
6	Starane 200 + Pulse	400ml 100ml	7	7	7	6
7	Tordon Brushkiller + Pulse	600ml 100ml	8	7	7	6
8	Untreated Control		0	0	0	0

**Date applied** — January 14 1998 (Agapanthus flowering)  
**Equipment used** — Solo knapsack sprayer with disc and core nozzle  
**Water rate** — 2000l/ha  
**Site** — Muriwai Regional Park  
**Experimenter** — Greg Hoskins, Biosecurity Officer, ARC, Westgate

## Practical Control Tips

### Agapanthus control trial No 1.

	Treatment	Rate/100L	1mths	2mths	3mths	6mths	10mths	12mths
1	Glyphosphate 360 + Pulse	200ml 100ml	4	5	6	5	4	2
2	Versatill + Pulse	500ml 100ml	3	4	5	4	4	2
3	Grazon + Pulse	600ml 100ml	5	6	7	7	8	8
4	Tordon Brushkiller + Pulse	600ml 100ml	6	7	9	9.5	10	10
5	Amitrole 4l + Pulse	2000ml 100ml	3	5	7	8	6	2
6	Tordon 2G + Pulse	450g/15m	3	4	5	4	3	1
7	Untreated Control		0	0	0	0	0	0

**Date applied** — 19 March 1999 (Agapanthus post-flower)  
**Equipment used** — Solo knapsack sprayer with 5500 adjustable conejet tip  
**Water rate** — 2000l/ha  
**Site** — Muriwai Regional Park  
**Experimenter** — Greg Hoskins, Biosecurity Officer, ARC Westgate

### Summary

Amitole at 4L/100l + Pulse — excellent control at higher rate during flowering.  
 Tordon Brushkiller at 600 ml/100 + Pulse — post-flowering application gives total control after 12 months.  
 Grazon 600 ml/100l + Pulse — good results but slow.  
 Glyphosphate and Escort — variable long-term results.

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# Spreading the message

Protect New Zealand is MAF's biosecurity awareness programme. It aims to develop and implement strategies encouraging New Zealanders and visitors to New Zealand to help protect our country from pests and diseases.

The programme came into being in September 2001 in recognition of the need to take public understanding of biosecurity's many aspects to a new level. New Zealanders' appreciation of the risk of a "biosecurity disaster" had been heightened by news of the outbreak of foot and mouth disease in the United Kingdom, a traditional trading partner.

In its initial phase, the Protect New Zealand programme made an impact on the New Zealand scene through television advertising, a popular Max the Beagle mascot, a national promotional week in July 2002 and rolling out a growing nucleus of public campaigns to inform and educate target audiences. Market research undertaken at the beginning and end of this phase showed an encouraging shift of 9% in the number of people who had gained an understanding of the word, biosecurity.

In its current phase — based on a lower level of funding — the programme continues to generate a range of awareness tools and to build its networks of contacts in order to achieve its longer-term objectives. These include building a population of young New Zealanders who understand biosecurity and encouraging the public to play their part in protecting New Zealand from pests and diseases.

Protect New Zealand retains a close alignment to MAF's Quarantine Service and is having real success in reaching communities through the Pacific "Declare It!" campaign and a Chinese travellers' campaign — both of which are aimed at reducing the incidence of undeclared high-risk items being brought to New Zealand.

Techniques to date have included visiting Pacific nations to promote the Declare It! campaign, taking exhibition space at cultural festivals, radio and print advertising in non-mainstream media and developing

multilingual resources backed by staff fluent in each language. A marked rise in biosecurity awareness amongst the Pacific community shown by market research, also appears to have carried over into a marked decrease in instant fines at New Zealand airports for Pacific Island travellers. The fines of \$200 are issued when a declaration of a biosecurity risk good is not made.

When it comes to raising vigilance for unusual and unwanted animals and plants, an obvious audience identified by Protect New Zealand is people who work in industries likely to come into contact with recently imported goods through moving and handling of cargo — importers, port workers and transporters.

This has resulted in a successful campaign being run under the catchline of "See — Contain — Report", with a key tool being pocket-sized brochures with photos of what to look for under different categories of exotic pest and simple advice on what to do if a suspected find is made. All such material points people towards MAF's emergency 0800 reporting freephone.

Along with these initiatives, Protect New Zealand developed information to educate the gardening industry and the general

public about pest plants. A pest plant manual has been developed and is available in selected garden centres.

Protect New Zealand also co-ordinates the Biosecurity Awareness Framework which brings together central government agencies and regional councils with an interest in raising awareness of biosecurity. At a recent workshop held in March, agencies shared information on their previous activities. The framework meets again this month.

Adrienne Tollemache has recently taken on the role of programme co-ordinator for Protect New Zealand and is scheduled to speak at the next Biosecurity Institute Conference in July 2003. In the meantime, Adrienne encourages people to contact her with questions about the programme on [tollemachea@maf.govt.nz](mailto:tollemachea@maf.govt.nz) Alternatively, visit the programme's website at [www.protectnz.org.nz](http://www.protectnz.org.nz)



**Adrienne Tollemache, Protect New Zealand Programme Co-ordinator who will address NETS 2003.**



# Weedbusters update

The Department of Conservation is committed to the national co-ordination of weeds awareness over the next two years. The department has seed-money to develop a national programme based on the successful Australian model, Weedbusters. In New Zealand, DOC's vision is that Weedbusters will unite government, NGOs and community groups in the war against weeds.

Throughout the country, agencies and groups are battling against one of the most serious threats to New Zealand's biodiversity and biosecurity – weeds. Weedbusters aims to synergise weed control and weed awareness work, as groups and agencies combine their efforts and expertise, and present a united front against weeds.

Weeds are one of the biggest threats to New Zealand's environment and are unique in that they are a biodiversity issue that the majority of New Zealanders positively or negatively affect. New Zealand now has more naturalised plant species than native ones, and around 13% of these naturalised species are problem weeds.

Weedbusters is taking a proactive approach and addressing the fact that nearly three quarters of our environmental weeds have escaped from gardens, and that the dumping of garden waste and the spreading of aquatic weeds are major problems throughout the country. Weedbusters is also a positive step towards strengthening our surveillance systems that help detect

new weed threats.

Weedbusters in New Zealand will aim to:

1. Unite the multiple agencies involved in weed management so that a clear and consistent message can be given across New Zealand about the threat weeds pose to indigenous biodiversity and to biosecurity.
2. Increase awareness among New Zealanders that weeds are a serious threat to the environment, and seek increased public support for weed management.
3. Help people understand that their gardening, farming and agricultural practices affect the broader New Zealand environment, particularly in terms of indigenous biodiversity.
4. Provide support to enable individuals, communities and iwi to participate in and take ownership of weed management activities.

Weedbusters will act as a platform for multiple agency partnerships and the success of Weedbusters will rely on agencies and groups willingly joining the programme and becoming signatories to actions that will raise awareness about weeds, increase understanding, and provide support for individuals and communities to tackle the weed problem. DOC has signed an agreement with Weedbusters Australia over the use of the name and logo, and is in the process of registering the trade mark in New Zealand.

For more information, please contact DOC's National Weeds Awareness Co-ordinator, Amber Bill, by email to [abill@doc.govt.nz](mailto:abill@doc.govt.nz) or phone (03) 371-3720 (Chch).

## STOP PRESS:

# Weedbusters establishment group

- Are you interested in Weedbusters?
- Would you like to represent the New Zealand Biosecurity Institute, working as part of the Weedbusters Establishment Group?

To ensure Weedbusters is established as a multi-agency programme, the Department of Conservation is inviting lead agencies to be part of the Weedbusters Establishment Group.

The task of this group is to agree on a National Strategy for Weedbusters.

It is anticipated that the group will come together in a one-day workshop in June/July and will agree on the strategic direction, key targets, and operational



details of the programme.

As much as we would like everyone to be involved, to keep this group workable we need to keep it small (a maximum of 10). Once the National Strategy has been agreed on, other interest groups and agencies will be invited to join in and, with everyone's help and input Weedbusters will become a living, happening programme!

If you want to be the NZ Biosecurity Institute representative on the Weedbusters Establishment Group, contact Amber Bill [abill@doc.govt.nz](mailto:abill@doc.govt.nz) or (03) 371 3720 and cc. to Lynley Hayes [HayesL@landcareresearch.co.nz](mailto:HayesL@landcareresearch.co.nz)



# From maths teacher to Weedbuster

The path from teaching NCEA Maths and Bursary Calculus to scaling gorse-covered slopes is not an obvious one.

Gill Robinson is usually Head of Maths at Wellington Girls' College, but this year is enjoying the benefits of being one of the 57 teachers on a Science, Mathematics and Technology Teacher Fellowship.

The fellowships are administered by the Royal Society of New Zealand and aim to encourage teachers to participate in research or industry and go back to schools inspired and enthused about the career possibilities science has to offer their students.

Susan Timmins and the Weeds Team at The Department of Conservation (DOC) Science and Research kindly offered to host Gill, and yes, they've been very kind indeed! The odd moment out in the field in among blackberry and gorse has made her wonder, but mostly she wonders at the selflessness of weed ecologists who would actually choose such research projects!

The Weedbusters campaign project being spearheaded by DOC has given Gill the opportunity to produce presentations for use with the public. Gardening groups are a likely target to reach with the message that all New Zealanders can, and need to be, involved in preventing weeds threatening our precious natural areas.

"No, dumped garden rubbish won't always compost down to nothing", and "Yes, plants sitting in your garden can escape to the bush via wind and berry-eating birds

even if you are a really responsible gardener", are two messages gardeners will be hearing soon.

Gill studied at Massey University and spent several months growing vegetables on Great Barrier Island for a break before starting work as a food technologist. From there she was lured into teaching science, chemistry and maths to teenagers. She has worked in Auckland, in a variety of schools in England and in the Waikato, and made the move to Wellington five years ago.

The fellowship offers a wonderful chance to step outside the school system for a while and learn about a whole new field of work. "It's great learning such interesting stuff without the thought that you have to be an expert and teach it tomorrow!", Gill said.



***On the job: Gill Robinson could be forgiven for wondering what she has got herself in for?***

# Drawing the global threads together in South Africa

**By Lynley Hayes**

Landcare Research  
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Lincoln

## Let the shocks begin

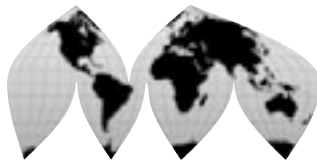
I nearly fell off my chair when I turned on my computer one Tuesday morning and found among my email an invitation to attend an expenses-paid meeting of the Global Invasive Species Programme (GISP) in Cape Town in March. It sounded too good an opportunity to miss, so three weeks later I was on a plane.

The next shock was the scale of the shanty towns beside Cape Town airport — my chooks have better accommodation than many people living in black “townships”. There is no social welfare in South Africa so there are millions of people in rather dire straits.

The third shock came when I unpacked my suitcase and discovered to my horror that I was harbouring a large white tailed spider which, to add insult to injury, had laid an egg mass on my clothes in transit. I quickly instigated a rapid response programme (i.e. squashed both) but it reminded me just how easily unwanted pests get around, even if you are highly biosecurity conscious! That white tail would have loved the conditions in Cape Town and I could have been responsible for a serious new invasion. Border control at Cape Town, apart from the immigration side of things, was virtually non-existent, and I got the feeling that I could have got away with bringing in just about anything. The only thing they were really worried about was that I had a return ticket and would be leaving in due course and not in any danger of becoming another burden on the country.

## All about GISP

So what is GISP? I have to admit to not having heard of it before and I suspect I’m not alone here. In 1996, concern that globalisation was having negative impacts on the environment led the United Nations and the Government of Norway to convene an international meeting on invasive alien species (IAS) in Norway. Participants concluded that IAS had become one of the most significant threats to biodiversity worldwide and recommended that a global strategy and mechanism to address the problem be created immediately. As a



consequence GISP was established in 1997 “to assist governments and international organisations in their efforts to conserve biodiversity and sustain human livelihoods by minimising the spread and impact of invasive alien species.”

For the first three years of its existence, GISP pulled together an international team of scientists, environmentalists, lawyers, natural resource managers, policy makers, and other IAS experts to execute a programme of work on a voluntary basis. The Scientific Committee on Problems of the Environment (SCOPE), the World Conservation Union (IUCN), and the Centre for Agriculture and Biosciences International (CABI) co-administered the effort. This collaboration resulted in a series of global assessments of the problem, as well as a global strategy, a toolkit of best prevention and management practices, and a pilot database.

In 2000 a meeting was held to establish the next set of priorities and an implementation plan was created in 2001. Six working groups were set up as follows.

### 1. National and Regional Facilitation and Co-operation.

To improve national and regional capacity (scientific, technical, and technological) to prevent and manage IAS problems worldwide by:

- a. Facilitating the establishment of effective national and regional capacities on IAS to promote the sharing of knowledge and skills.
- b. Contributing to training programmes on IAS for managers and technical staff from different sectors, including pilot projects for testing and adapting the GISP Toolkit of Best Management Practices.
- c. Promoting taxonomy of the world’s biota as a key component of national capacity for IAS prevention and management.
- d. Exploring a potential role for a devolved “Centre for IAS” that would facilitate regional efforts in the diagnosis of new IAS problems and support rapid

# GISP

## Tackling weeds globally continued



*The author standing in front of a water hyacinth-choked waterway in Cape Town which has been partially cleared.*

response mechanisms for eradication and control.

- e. Stimulating the development of new tools in science, policy, information and education, and make available best practices for the prevention and management of IAS.

Efforts have largely focused on securing money for capacity building projects e.g. on alien invasive weed management in Africa, but there has also been a global islands initiative led by New Zealand (see ISSG, pg19).

### 2. Education, Communication, and Outreach

To carry out and support communication, education, and outreach initiatives in order to motivate and empower key stakeholder groups, including natural resource managers, policy makers, and the general public, to minimise the spread and impact of IAS by:

- a. Summarising scientific and technical information on IAS for decision-makers and natural resource managers.
- b. Contributing material and expertise to the development of educational curricula, press packages, and programmes for community education and empowerment of issues relevant to IAS.
- c. Assisting countries in developing and carrying out awareness-raising and educational projects on IAS, including national and regional workshops, training courses and surveys.
- d. Raising the capacity of IAS experts to communicate their findings to policy makers, journalists, and other stakeholders.
- e. Developing and implementing projects to raise awareness of the GISP mission and programmes.

Five regional workshops have recently been organised (Nordic-Baltic, South American, South African, South and Southeast Asia, and Austral Pacific) involving more

than 50 countries with one still to be held in West Africa. The workshops were designed to raise regional awareness, share GISP outputs to date, and generate dialogue and planning at the country and regional level. Regional declarations have been generated and the following themes cropped up time and again:

- Lack of information on economic impacts of IAS
- Lack of capacity to undertake economic assessments
- Lack of effective communication and information exchange between scientific experts and policy makers
- Difficulties in easily accessing information on IAS

I have agreed to be an advisor to this working group with the understanding that once I give up some other roles e.g. President of the New Zealand Biosecurity Institute that I will take on a more active role e.g. co-chair.

### 3. Global Information Management

To provide accessible information on scientific, technical and other aspects of IAS and facilitate access to relevant expertise on topics such as IAS identification, prevention, eradication, and control by:

- a. Developing and co-ordinating a distributed network of databases on IAS, incorporating predictive and early warning functions.
- b. Exploring opportunities for GISP to serve as thematic focal point on IAS for the UN Convention on Biological Diversity's clearing-house mechanism, and act as a dynamic source of information exchange on IAS issues worldwide.
- c. Developing and disseminating information tools and technologies for IAS management.

A decision has been made not to create a new GISP database but instead to foster co-operation and access to existing databases through improved database integration and establishment of regional hubs. It is hoped that a workshop can be organised in the near future to establish a shared vision and protocol.

### 4. Pathways Management

To prevent and minimise the impact of IAS, focusing on key sectoral pathways of introduction or redistribution by:

- a. Conducting and encouraging scientific assessments to evaluate key pathways (e.g. shipping, food aid, horticulture, and pet trade) for the introduction of IAS and identify opportunities to minimise invasions via these pathways (with

## Tackling weeds globally continued

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Evaluation and Assessment Working Group).

- b. Assisting key sectors involved in potential introduction of IAS with development of voluntary codes of conduct and other mechanisms to minimise IAS spread and impacts (with Law and Policy Working Group).
- c. Providing government representatives to relevant trade organisations (e.g. WTO, CITES) with information on threats posed by IAS and their relevance to trade, with particular emphasis on developing country needs (with Law and Policy Working Group).
- d. Contributing relevant information and expertise on pathways management to training programmes and outreach projects (with Education, Communication, and Outreach Working Group).

This subject emerged from Phase I as a priority and the plan was to organise international conferences and produce books on the topic. Little progress has been made so far but this topic is still considered to be a top priority and funding is currently being sought to enable the ball to get rolling.

### 5. Evaluation and Assessment

To support the development and applications of research and research capacity on IAS. By:

- a. Promoting research aimed at taxonomic needs, risk assessment and risk management, prediction of invasions, impact assessment, IAS and global change, early detection and monitoring, control methods (especially biocontrol), sociological (human) dimensions, and economic assessment.
- b. Co-ordinating workshops to address priority issues and foster collaboration among researchers in environment, agriculture, and other applied areas of IAS science.
- c. Summarising scientific and technical information on the biological and socio-economic aspects of the IAS problem.
- d. Assessing and promoting best practices for integrating and applying research across biological, social, and economic fields.

The plan was to publish a number of books on the above, but again funding has been a stumbling block. Some funding has been found to make a start on ecosystem assessments on islands and inland waters.

### 6. Law and Policy

To develop and strengthen policy and legal instruments at all levels by:

- a. Providing technical advice and assistance on IAS to international organisations and regional

bodies that are developing or revising guidelines, standards, legal instruments or codes of conduct.

- b. Co-ordinating technical and legal input to promote clarification and greater consistency in IAS related definitions, terminology, and concepts.
- c. Promoting more effective bilateral and regional co-operation through analysis of the possible need for creation or adjustment of regional mechanisms and instruments.
- d. Supporting the review and strengthening of relevant national/sub-national legal and institutional frameworks and contribute to training for their improved application and enforcement (with Education, Communication, and Outreach Working Group).

This group had produced some guidelines. The people involved are self-employed and unable to volunteer much time so this working group is expected to go into recess for the time being.

Over all the second phase of GISP, which was intended to build on the successful first phase, has run into difficulties mostly due to funding problems and the fact that most contributors are volunteers with other commitments. The board agreed to run a small Washington-based office in 2002 for one year to help to meet existing commitments and raise funds. However, it had become obvious that a dedicated secretariat was needed to co-ordinate GISP, raise funds and service the various working groups. Just before the March meeting news came through that money had been found through the World Bank to cover the cost of a secretariat for at least one year, with good prospects of two further years of funding. The new chief executive of the secretariat was announced at our meeting and turned out to be our very own Greg Sherley of the Department of Conservation. Other staff are expected to be appointed shortly. The secretariat will be based at the National Botanical Institute at Kirstenbosch Botanical Gardens, Cape Town.

Basically the purpose of the meeting I attended was to make some decisions about where GISP should be focusing its attention in the near future given current resources. Some of the recommendations were to:

- Find funding for French and Spanish translations of existing and future resources
  - Find funding for desired activities and forge new partnerships to attract further funding
  - Provide a synthesis of the outcomes of the regional workshops mentioned earlier
  - Develop further guidelines/best management
-

## Tackling weeds globally continued

practices (e.g. pathways)

- Promote the collection of data on economic impacts of IAS and co-ordinate its distribution
- Upgrade the website
- Run a workshop to generate an inland waters toolkit
- Publish an islands toolkit (using existing information)

The Invasive Species Specialist Group (ISSG) in Auckland (which puts out the *Aliens* newsletter and runs the Aliens list server) have been quite involved with GISP. As part of the need to develop early warning systems, the ISSG has developed a database to readily provide information about a wide range of organisms that threaten biodiversity worldwide.

Another initiative this group has been involved in under the GISP umbrella is a co-operative initiative on invasive species on islands. Its goal is to conserve island biodiversity by building capacity to manage IAS on islands. Representatives from the ISSG also participated in the Austral-Pacific Regional Workshop mentioned earlier. See their website for more details [www.issg.org](http://www.issg.org)



**Climb every mountain: Lynley Hayes and Sandy Lloyd check out the view from the top of Table Mountain above Cape Town.**

### Botanical and other wonders

Our GISP meeting was also held at the stunning Kirstenbosch Botanical Gardens which feature local native flora and I was able to have a look round. I felt very much at home among a whole lot of plants that I'm very familiar with, many of which I grow in my own garden (e.g. arum lilies, proteas, diascia, red hot poker, agapanthus, lion's tail, nerines, naked ladies, ericas, felicia and other daisies, gazanias, cosmos etc) or have in my office at work (e.g. streptocarpus, clivia). Probably the best known South African plants

that have gone weedy in New Zealand are bone-seed (*Chrysanthemoides monilifera monilifera*) and lagarosiphon (*Lagarosiphon major*). However a couple of our native plants namely pohutukawa (*Metrosideros excelsa*) and manuka (*Leptospermum scoparium*) are causing some concern in South Africa. Both have naturalised and are considered to be level three invaders, with level one reserved for the worst offenders.

Fortunately the trip wasn't all work and there was time for a little play. Sandy Lloyd (Western Australia Department of Agriculture) was also in Cape Town for the meeting so I had great buddy to go exploring with.

The souvenir shops were full of interesting treasures. We tut-tutted over the obligatory packets of seeds encouraging people to plant a little piece of South Africa at home (in this case mainly proteas). We also mused over the response we would get from our various quarantine inspectors if we were silly enough to take home some of the items involving animal skins, wood and seeds. Actually I was most impressed that I received a handy little pamphlet, produced by MAF, with my plane tickets that clearly outlined what I could or couldn't bring home with me including endangered CITES species.

I was rather taken by some ornately painted ostrich eggs, but it stated on my pamphlet clearly in black and white, "no eggs or egg products". I may have got one in, provided it was fumigated, but it didn't seem worth the fuss and extra expense so I stuck to safe things like ornamental beadwork. However, there must be a lot of people who unwittingly buy things only to find out later that they have bought themselves a whole lot of trouble. I think the new pamphlet is an excellent initiative to help raise awareness.

We also managed a trip to Robben Island (the notorious jail where Nelson Mandela was incarcerated for 23 years), a jaunt up Table Mountain and an excursion out to the end of the Cape so we managed to get a look at the Cape Floral Kingdom. This is the smallest of the six worldwide floral kingdoms and it covers an area of 90,000m<sup>2</sup> in the Western and Eastern Cape provinces. It is home to 8600 species of plants, of which 5850 are endemic. This is nearly three times as many endemic plant species than we have in the whole of New Zealand! So the Cape Floral Kingdom is rightly recognised globally as a biodiversity hot spot that needs to be protected.

Sadly one third of the kingdom has already been lost to urbanisation, agriculture and forestry and 1406

## Tackling weeds globally continued

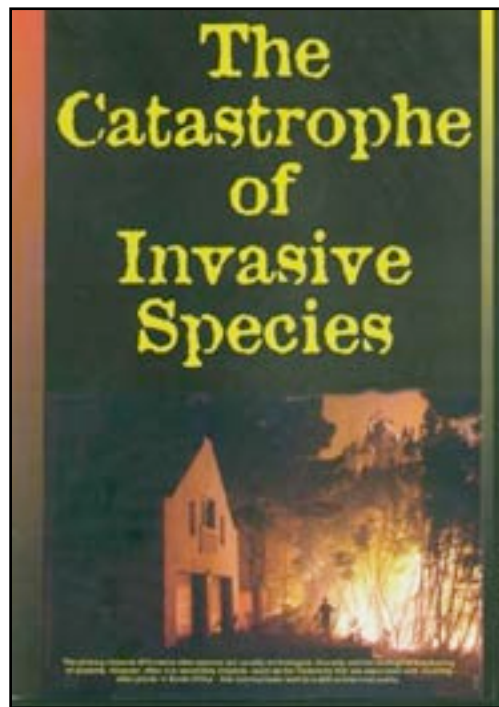
species are listed as threatened. The kingdom is under severe threat from invading alien plants, including quite a number of Australian species like hakeas (*Hakea* spp.), wattles (*Acacia* spp.), gums (*Eucalyptus* spp.) as well as good old wilding pines (*Pinus* spp.), and also insects like argentine ants, and larger creatures such as Himalayan thar — apparently some people are opposed to controlling thar on Table Mountain, just like we have groups opposed to controlling them in national parks in New Zealand.

One of the consequences of the increasing number of alien plant species in the region has been an increased fire risk, as South African native plants tend to be relatively fire resistant. Devastating fires on the Cape Peninsula in January 2000 led to the formation of the Ukuvuka: Operation Firestop Campaign. Ukuvuka is a Xhosa word meaning to wake up. This four-year project is working to remove invasive alien plants, rehabilitate fire damaged areas, protect the most vulnerable (poor) communities from fire, and also provide them with employment and poverty relief.

The view from the Cape was stunning and it was amazing how the rain clouds parted just as we arrived and closed over again just as we were sitting down for a late lunch. Lunchtime at Cape Point was an interesting affair as despite tight security around the restaurant in the form of small electric outrigger fences, cheeky baboons kept finding ways to get in and disturb the peace. Unfortunately it's the same old story, as with kea here and bears in Yellowstone National Park, people have encouraged the baboons by feeding them and turned them into nuisance scavengers (baboons can be quite aggressive and have a nasty bite) with unfortunate consequences all round.

### Good works

A lot of effort is also going into developing sustainable biological control solutions for weeds in South Africa and I was lucky enough to catch up with a number of colleagues including John Hoffman (University of Cape Town), and Cheryl Lennox, Alana den Breyen,



Fiona Impson, and Judy Moore (Plant Protection Research Institute, Stellenbosch).

Cheryl's pathology group are tackling lantana (*Lantana camara*), and some new projects against pom pom weed (*Campuloclinium macrocephalum*), trifid weed (*Chromolaena odorata*), mesquite (*Prosopis* spp.), pereskia (*Pereskia aculeata*), and brambles (*Rubus* spp.).

Cheryl and John are working on a joint project to test whether the cone weevil (*Pissodes validirostris*) can vector pine pitch canker (*Fusarium circinatum*). Pine pitch canker occurs at low levels in South Africa but is thought to be just starting to take off. The cone weevil is currently in quarantine at Stellenbosch and they hope to be able to get permission to release it against cluster pine (*Pinus pinaster*). They hope to have results before our August workshop on prospects for biological control of

wilding conifers — the potential of biocontrol agents to vector serious tree diseases could be a major stumbling block for us.

John also showed me a list of new and emerging weeds that South Africans are beginning to get concerned about. A number of plants listed e.g. gorse (*Ulex europaeus*), broom (*Cytisus scoparius*), willows (*Salix* spp.), blue morning glory (*Ipomoea indica*), pampas (*Cortaderia jubata*), nassella tussock (*Nassella trichotoma*), moth plant (*Araujia sericifera*), banana passionfruit (*Passiflora* spp.), Japanese honeysuckle (*Lonicera japonica*) are things we are interested in here too, so more collaborations in future could be a distinct possibility.

John's group has just tendered for Working for Water funding to start projects for five new targets (none of which we have here). Unfortunately Terry Olcker's woolly nightshade (*Solanum mauritianum*) is apparently winding down due to a lack of suitable agents and promising results. Fiona and Judy are involved in rearing and releasing a number of species of seed-feeding weevils (*Melantarius* spp.) against Australian wattles. The results are encouraging as high levels of seed destruction have already been recorded on *Acacia longifolia*, *A. cyclops*, and *A. melanxylon*.

The other group of inspirational people that I met up with in Cape Town were those working with the Working for Water Programme. The national leader, Guy Preston, was instrumental in getting both this initiative and Ukuvuka up and running.

## Tackling weeds globally continued

Working for Water has won many awards since its inception in 1995 and employs about 20,000 people. Its mission is "to sustainably control invading alien species and optimise the potential of natural resources through a process of economic empowerment and transformation. In doing this the programme will leave a legacy of social equity and legislative, institutional and technical capacity."

Its main objectives are to:

- Enhance water security
- Restore the productive potential of the land
- Improve the ecological integrity of natural systems
- Develop economic benefits from wood, land, water and trained people
- Invest in the most marginalised sectors in South Africa and enhance their quality of life through job creation

So it's about way more than just chopping down invasive alien trees to allow rivers to flow again! It's about providing the poorest of the poor with jobs and hope for the future. It even promotes sexual and reproductive health e.g. they have managed to achieve an 85% drop in unplanned pregnancies amongst female staff.

Also sadly, AIDS is rampant in Africa and there is still a huge amount of misinformation about how the disease is caught and transmitted. Working for Water is trying to teach people how they can better protect themselves against such preventable diseases. The programme also funds biological control programmes and creates secondary industries and employment e.g. making and selling rustic crafts and furniture created from invasive plant species.

Sandy Lloyd, Western Australia's Weedbuster Week Co-ordinator, and myself met with Barbara Tapela, Simone Noemdoe, Anastelle Solomon, and Fran Hunziker, some of the Working for Water staff who are responsible for education, communication, and public awareness initiatives.

Barbara is organising their very own Weedbuster Week, based on the Australian model, so they were all delighted to finally meet Woody Weed (who Sandy just happened to have in her suitcase). Woody was also a hit with airport staff who wanted to know what was inside such a large bag, and who insisted in trying parts of his costume on.

### Post Script

It's not just spiders that get around by air travel. While I was in Cape Town, news about a new killer pneumonia (SARS) that was being spread by air travellers hit the headlines. I had a day in Singapore on the way home and kept away from the shops and a watchful eye out for anyone coughing or looking suspicious. Even so the morning after I arrived home I woke up feeling unwell with a temperature. I was promptly off to the doctor and diagnosed with a likely upper, rather than lower, respiratory infection. For the first time in my life I was grateful to develop a fully blown cold! Perhaps this was penance for the white tailed spider? There was some weird karma going on during this trip...

### Opportunities for NZBI to assist GISP

- Assisting with capacity building. We do have a wealth of talent and experience here in New Zealand when it comes dealing with IAS that others could learn from. NZBI members could perhaps get involved in helping people overseas (particularly in developing countries) gain the skills they need through secondments or reciprocal exchanges — either we go there or they come here. Perhaps some of our members might be in a position to supervise students, and some of our parent organisations could perhaps help people



**Staff at Working for Water in Cape Town meet Western Australia's Woody Weed. South Africa is about to instigate its own Weedbuster Week to raise awareness of invasive alien species.**

## Tackling weeds globally continued

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to gain postgraduate qualifications, and offer postdocs etc. Perhaps the NZBI could even offer to run training courses or workshops, again either here or there. It may be possible to tap into NZAID to assist with capacity-building initiatives.

- Encouraging members to volunteer their services as co-chairs or advisors to the various working groups.
- Continue to think globally through such things as inviting overseas speakers to attend NETS and

offering travel awards that allow members to go abroad.

- Helping to raise awareness about GISP through mentioning relevant activities in *Protect* and adding a hot link to its website [www.icsu-scope.org/projects/gisp](http://www.icsu-scope.org/projects/gisp) — its a bit old but earmarked for a revamp).
  - Building better linkages with the ISSG group in Auckland — get them to share with us and involve us in what they are doing and vice versa.
-



# South Africa's fight against invasive plants

**By Carolyn Lewis**

Plant Pest Services, Hamilton

Although they are our rivals at rugby, and our reluctant offsideers when we head overseas to do our Big OE, South Africans have more in common with us than perhaps we realise. Sitting at a similar latitude to Northland, with Cape Town having a climate not too different from the range experienced in New Zealand, South Africa also shares the same degree of invasive plant problems, and even some of the same plant pests.

Close to 9000 plant species have been introduced into South Africa, and of those, at least 161 are classed as invasive by the Department of Agriculture. Overall, invasive plant species have been estimated to affect about 10 million hectares of South Africa, causing a variety of problems.

Like New Zealand, South Africa has a high percentage of endemic species, that is, ones that are found nowhere else in the world. Endemic species make up 70% of the plants found in the Cape Floral Kingdom (the area that encompasses South Africa, Lesotho, Swaziland, Namibia and Botswana), and that means that there are more species of native plants and unique habitats to protect than most other countries can lay claim to.

A quick check of some statistics about South Africa, published on their Department of Agriculture website, paints an interesting picture of the country: South Africa has more than 122.3 million hectares of land within its borders, and while 84% of that is used for agriculture, only 13% can be used for crop production. This is to feed a total of 37.9 million people.

South Africa has a wide range of climates within its boundaries, allowing it to grow most of the major crops that the country needs. But the bottom line for agricultural success is water — more than 50% of the water in South Africa is used for agriculture, with over 1.2 million hectares of land under irrigation. And the water supply is threatened by the most unlikely of foes — invasive plant species. It is estimated that 7% of the water in South Africa is lost to the thirsty introduced plant species that are invading the countryside.

So here we have two distinct problems — environmental damage through invasive plant species, and the loss of much-needed water through invasion of thirsty exotics. If you consider also that many of these invasive plant species were brought to South Africa as commercial crops, and are an integral part of the



**Tackling invasive alien plants South African style: Working for Water is part of South Africa's programme to reduce the impact plants have when they occur in the wrong environment.**

## Sth Africa's fight against invasive plants continued

economy, and you have a difficult situation to tackle.

### Thirsty aliens

South Africa is reliant on water for survival. With more than 12 million South Africans lacking access to potable water, and agriculture being dependant on this resource, the last thing needed is thirsty exotic plants adding to the problem.

Invasive alien plants are literally sucking South Africa's rivers dry. It is estimated that these thirsty intruders, such as wattle (*Acacia* sp.), silky oak (*Grevilea robusta*), and Indian bead tree (*Melia azedarach*), cause the loss of some 33 million cubic metres of water every year — about 7% of the annual river flows, resulting in dried up river beds, groundwater depletion, and hardship for communities reliant on these water sources.

To combat this, the Department of Water Affairs and Forestry started a programme in 1995 called Working for Water. This scheme uses local labour to eradicate these problem plants from sensitive areas by way of mainly mechanical methods such as felling and burning. Employees are trained in machinery use, first aid, supervision skills, and so on — skills that they can also use to improve their own communities. The scheme is also being run in conjunction with SANParks (South Africa's National Parks department) to safeguard these important areas and educate visitors.

Working for Water is great example of community empowerment and environmental protection in a country where unemployment is rife. Since 1995, Working for Water has contributed to the clearance of more than 60,000 ha of invasive alien plants, and by 1999 it employed more than 42,000 people, mostly working in and for their own communities.

### Ecosystems at threat

As well as drinking more than their fair share of the moisture around them, invasive plant species in South Africa present a threat to delicate ecosystems. A good example of this is what is happening in the "fynbos" regions near Cape Town.

Fynbos is an Afrikaans word that means "fine bush" and it is used to describe areas on sand plains made up of small shrubs and bushes (mainly from the *Ericaceae* and the *Proteaceae* family) that are often endemic to that area.

Two of the worst invaders in the fynbos are hakea (from Australia) and pines (from Europe), and the damage that they can do was demonstrated during devastating bushfires near Cape Town in 2000. The hakeas and the pines increased the amount of material available to feed the flames, increasing the intensity

of the fires and destroying native plant seeds, while allowing the invasive plant seeds to germinate.

Every fire means that the ultra-competitive invading species get a head start on the native species that are generally slower growing. This leads to progressively more infested areas and less native ecosystems.

Most New Zealanders would be surprised to hear that another invader of the fynbos is pohutukawa, a recent arrival that is becoming very unwelcome in South Africa due to its prolific seeding and spread.

Pohutukawa (*Metrosideros excelsa*) is a New Zealand icon. Known as the New Zealand Christmas tree because of its December flowering, it was lauded by early settlers for the cheer it brought them when they

had their Christmas celebrations in the middle of summer, far from home. Pohutukawa are still a welcome sight to New Zealanders along the coastlines of this country, often clinging precariously to cliffs and rock faces. Unfortunately, the proliferation of possums in New Zealand led to pohutukawa being threatened in its native range, to the point that, in 1990, Project Crimson was launched to help safeguard this national treasure. Since then, volunteers have planted more than 200,000 pohutukawa and rata trees.



***New Zealand's much cherished pohutukawa, introduced as a garden ornamental has shown its weedy nature in South Africa's "fynbos" ecosystems. Introduce possums to control it, one NZ wit has suggested!***

Pohutukawa was introduced into South Africa as a garden ornamental, for the same reason it is popular in New Zealand, namely the bright flowers in the hottest time of the year. It grows well in poor, sandy soils and can tolerate salty conditions and hot dry summers. But in stark contrast to the New Zealand situation, pohutukawa soon showed its weedy abilities and started causing a major headache for those charged with looking after the fynbos ecosystems.

Pohutukawa invasiveness in South Africa first became apparent in the 1990s in a place called

## Sth Africa's fight against invasive plants continued

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Betty's Bay, about 100km from Cape Town. This village is surrounded by fynbos, and lies at the edge of the Kogelberg Nature Reserve. The irony is that pohutukawa was originally promoted for use as a safe alternative to some of the species that were already showing invasive characteristics in this area, and was enthusiastically planted by the locals.

Research showed that in some areas around large pohutukawa trees, seedling density was up to 6000 seedlings per square metre, with densities still thick quite some way from the parent plants.

Part of the problem is that pohutukawa seed is very fine and wind-borne, so it can spread to disturbed areas of ground and establish well. So many seeds are produced that even a low germination rate will cause problems in future. Locals and rangers spend considerable time removing pohutukawa seedlings from the area, and the work will need to be ongoing.

So there you have it — threatened in its own native range by an introduced animal pest, pohutukawa's rampant spread in its introduced range of South Africa led one Project Crimson worker in New Zealand to wryly suggest to his South African counterparts that maybe they should import possums as a biological control method!

### Commercial conundrums

While many of the species that have become invasive in South Africa arrived as ornamental garden plants, a fair number were deliberately brought in as plantation species for forestry, and are causing more than a few headaches as they have jumped the fence and gone wild.

The lack of native species suitable for forestry led to the introduction of a variety of imported species such as pines, eucalypts and acacia in the late 19th century. Forestry now contributes about 2% of South Africa's GDP and employs about 100,000 people, as well as supporting downstream beneficiaries of the forestry industry. But the fact remains that forestry species account for about 38% of the total area infested by invasive plant species, making forestry a major contributor to the overall problem of ecosystem degradation in this country.

This is a problem that needed to be tackled with lateral thinking, and it seems that the parties involved have done just that. Rather than ignore the problem or go overboard banning important commercial species, partnerships have been entered into to allow the issues to be addressed. The South African Forest Industry is working with the Working For Water scheme to sponsor work within areas where commercial species are

causing the greatest threat. While Working for Water expands into areas it otherwise would not work in, the Forestry Industry sponsors the work by providing local employees with crèche and community facilities, training and sporting opportunities.

The other initiative is the use of biological control agents in ways that differ from those in other countries. A total of 103 biological control agents have been released in South Africa, against a total of 46 weed species, but now the emphasis is also on providing seed-eating agents that will not damage commercial crops but which will help stop them moving out from plantation areas. Targeted species so far are pines and acacias. The Forestry Industry, and SAPPI (a global pulp and paper group) have sponsored work by the Plant Protection Research Institute of South Africa to research, mass-rear, and release these biological control agents.

### South Africa's solution

Invasive species in South Africa are declared by the Department of Agriculture to be either: Category 1 — plants may not occur on any land or inland water surface other than a biological control reserve, and plants generally cannot be sold, propagated or maintained; Category 2 — plants with a commercial application that may be grown in demarcated areas as laid out by the government; and Category three — existing plants may remain unless they occur within 30m of a 1:50 year flood line of river or stream.

Category one takes care of most of the ornamental escapes with no commercial basis for existence, but which are causing damage to the environment. Plants in this category include mignonette vine (*Anredera cordifolia*), mistflower (*Ageratina riparia*), balloon vine, as well as Mexican devil (*Ageratina adenophora*) which has become a huge problem in the "kloofs" — ravines and gullies — and waterways of parts of the country.

Category two takes care of the conflict between commercial interests and protecting the environment by allowing forestry species, but only within certain areas. This category is to prevent the problem of wilding plants, such as willows, casuarinas, and so on.

Category three is to protect the water flow. It maximises clearance efforts for areas that are critical to preventing excessive moisture loss by thirsty invasive species.

By using a mixture of control standards, specific plants are targeted according to their specific problems. It is a sensible means to deal with a difficult set of situations. A plant may be both an environmental risk, a commercial crop, and a large user of water, but whatever the

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## Sth Africa's fight against invasive plants continued

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problem, this set of standards can cover all options.

### **So what has this to do with New Zealand?**

South Africa is a country with significant pest plant issues, high unemployment rates, industries that have provided ongoing pest plant problems, and very limited government resources.

South Africa's response has been to tailor pest plant control standards to the specific problems the plants cause, and to the places where they cause these problems, using central and local government as a way to bring local communities on board in a way that provides them with ancillary benefits, and getting

affected industry to contribute to the solutions to the problems they have helped create.

In New Zealand, where we face ever-increasing numbers of pest plant species, with very limited funding, the solutions being used overseas, in places such as South Africa, may present possibilities that will help improve our pest plant outcomes in future. And its not just New Zealand that can benefit by looking at overseas initiatives — it is a worldwide problem, and “thinking outside the square” will be needed by every country that faces a future where pest plants can grow faster than the rate at which traditional control authorities can afford to kill them.

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