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Biosecurity A New Zealand Perspective

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Why does New Zealand have the world leading biosecurity programme?

- Historical focus (late 1800's)
- More to loose that other countries
- We can do something about it
- Major research contribution underpinning
- Clear strategy enabling an alignment of objectives


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And what's different about Antarctica?

- Also a history of protection and generally acceptance of need for protected status
- Measures already in place to protect
- Research seems to be plentiful – but is it targeted & coordinated in the biosecurity area?
- Something can definitely be done to protect this wonderful and very isolated area.
- But measures need to be more that just focusing on protection/prevention

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Biosecurity program has 3 main components

- **Prevention** (keeping things out)
- **Surveillance** (finding things as soon as possible)
- **Response** (eradication & control)

All parts underpinned by science, and involve active research programmes, risk analysis, effective regulation, education, audit, and enforcement

Essential to have all three components aligned and working to clear goals

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New Zealand Biosecurity Strategy

Developed (August 2003) by the Biosecurity Council



Identified the need for:

- clarity of leadership and greater integration
- strengthened capabilities
- more supportive organisational culture.

For any biosecurity system to be effective, need to be clear about what needs to be achieved, why, and how its going to get done


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Definition of Biosecurity

“The exclusion, eradication or effective management of risks posed by pests and diseases to the economy, environment and human health”

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Prevention focuses on the pathways of how biosecurity risks arrive in New Zealand

There are 3 major types of pathways

- legal movement of people, goods and vessels
- natural migration and dispersal
- illegal border activities

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Pathways - managed

- Risk analysis used to determine whether risk imports can proceed
- Import health standards – 7000 specific risk items
- 4 million passengers and over 500,000 containers
- Carriers of goods increasingly a major risk in themselves
- Stowaway pests difficult to find and often difficult to predict



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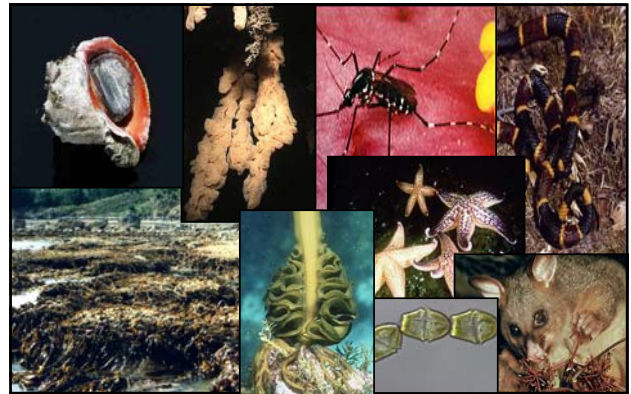
Whats being found at NZ's borders?

NZ border program operated by MQS, involves over 500 people, utilising advanced risk profiling techniques, xrays, sniffer dogs, awareness and enforcement programs, at a cost of over \$50 million

- 20,000 kg fruit and 8,000 kg meat and poultry products seized per year
- Estimated that the program is finding between 92-99% of risk goods
- As passenger and container/cargo numbers and volumes increase, amount of risk goods they carry also increases

Worried also about illegal wildlife movements, and seeing an increasing amount of smuggling (export) of NZ native species

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Antarctica – are there similar risks?

- Approx 4000 scientists in 45 research stations
- McMurdo the largest with over 1000 people
- 9000 "eco" tourists in 1995-96, and in 2005-06 reached 30,000
- South America alone, 30 tourist boats per season leaving for the ice
- Also private yachts and planes, over and above fishing activities
- Strong statistical links between numbers of alien species on Sub Antarctic Islands, and number of human visitors (Steve Chown et al)

The catch 22 of biosecurity – how to manage the risks while still supporting human activities

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What's being found when checking people and goods going to Antarctica?

- Live spiders
- Snails
- European wasps
- Bumble bee
- Soil debris
- Moss sprigs
- Grass seeds
- Weed seeds
- Suggested risks from Artic travellers arriving in the Antarctic

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NZ's biosecurity challenges

- Historical introductions – possums, rabbits, gorse, ragwort, berries etc
- Cost of terrestrial pests to NZ estimated to be over \$ 1 billion per year
- Often a lag phase between introduction and a species becoming a pest (>30 years)
- In NZ every 40 days a previously introduced plant becomes a pest by jumping the garden/fence, establishing and spreading in the bush
- Marine challenges greater than terrestrial!

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Problems – a quick Google search

- Rats, mice, chickens, rabbits, cats, pigs, sheep, cattle, fish, horses, reindeer, dogs introduced (1800s onwards) especially on Sub Antarctic Islands such as Macquarie
- Sewage from McMurdo (seals getting infected with human bacteria 00/01)
- Carnivorous beetle on South Georgia
- European grass, and *Sagina procumbens* on Marion Island
- Spider crab establishing 03/04

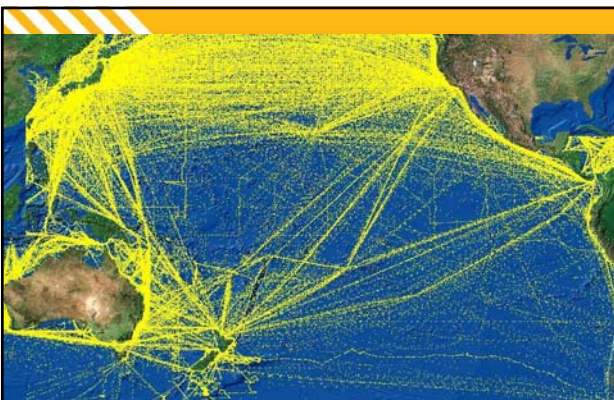
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Migratory and “natural”

- Includes Wilson's storm petrels, Skuas and Arctic terns
- Arctic terns (fly 35,000km from Arctic to Antarctic and back each year)
- Penguins testing positive to IBD 01/02
- Migratory South Polar Skua's positive AI and ND 01/02 (Penguins naïve)
- Survey in 02 of remote Sub Antarctic islands, found more plastic debris on some beaches than wood – worms, barnacles and variety of larvae attached.
- Highest proportion of man made rubbish is in the Southern Ocean, and estimations that it has risen by 100 fold in last decade (Barnes 02)

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No biosecurity program can ever stop all risks at the border – even with remote Islands

- Surveillance and incursion response key parts to programme
- Objective must be to find new species, serious pests and diseases quickly so have the maximum possibility to eradicate
- Awareness of people one of the ~~actions~~ actions of biosecurity programs around the world is that insufficient surveillance is conducted to rapidly identify new risks



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Surveillance

Surveillance objective is to find new pests and diseases early enough so that eradication is possible.

- Two main types of surveillance
 - Passive e.g. waiting for things to appear, get sick/die etc
 - Targeted e.g. going out and trying to find things as early as possible
- Must know what species are normally present (baseline surveys)
- One of the most challenging areas, especially to fund:
 - How much surveillance/baseline survey work is affordable
 - \$200k, 2, 20, 200million??
 - And equally challenging, is getting agreement on who pays

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Biosecurity Response Process

- Detect and identify
- Restrict affected area
 - Stop movements and spread (having clear legal basis essential)
- Determine distribution - find all cases
- Investigate areas at risk:
 - Similar environment, down wind, movements,
- Eradicate
 - Few tools currently available (more research necessary especially for marine)
- Prove freedom

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Response – eradication and control

Response options in NZ are dependent on 3 factors

- feasibility
- affordability
- desirability
- Rapid analysis of the 3 criteria is key to success
- If eradication is not an option, control must be considered
 - control approaches shouldn't been seen as biosecurity failures
 - need to clearly define what pests & areas will be targeted and why?
 - technology advances may mean new tools available in medium term

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NZ experience

- Be realistic – can't achieve the impossible
- Try to identify what is the key risks in advance – and target these with not just prevention, but also surveillance and response
- Need to have everyone working together – lone rangers while meaning well, are probably not going to get anywhere
- Conflicting science a real challenge – consider all, and use risk analysis to make informed decision in situations of uncertainty
- Don't underestimate the efforts that will be required, and the obstacles that will come along – but there will be successes
- Need public support – hearts and minds

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Finally is NZ any different from Antarctica??

- Not really, both are unique and both need to be protected
- No such thing as zero risk when human activity involved
- Antarctica has a natural advantage of being as isolated and inhospitable as anywhere on earth, but this won't be enough to stop invasive species, pests and diseases arriving
- Without a focused biosecurity to prevent, find and then respond, biosecurity problems will continue to occur (increasing with increasing human activities)
- Need to have a strategic, fully integrated and coordinated approach
- Biosecurity New Zealand very willing to be part of the process

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Protecting New Zealand's natural advantage

New Zealanders, our unique natural resources, our plants and animals are protected from damaging pests and diseases.

INTRODUCING BIOSECURITY NEW ZEALAND