

BIOSECURITY STRATEGY ISSUES PAPER

Submission from the New Zealand Ecological Society

Critical concepts: general comments

There is a focus throughout the document on security at the borders and incursion control or management. The Strategy overall has a lack of focus on biota that are here already and could potentially become weeds or pests (e.g. garden plants, captive exotic birds and fish).

There is insufficient emphasis in the document that biosecurity is an international issue in which New Zealand needs to play a part. The document needs to make plain that New Zealand already exports its indigenous biota and its naturalised biota, many species of which have either become serious weeds or pests in other countries, or have the potential to become so. At present there is only passing acknowledgement of this (question 57).

The issues paper does not adequately integrate science into its various elements; it is addressed as a separate component, rather than integral to all aspects, for example, in addressing many of the strategic, policy and operational issues, and means need to be set that enable research to contribute directly to policy and processes.

We believe the issues paper is not aligned specifically or closely enough to the Biodiversity Strategy. There are many obvious points of overlap between the two strategies, yet the principle sectors with which the draft strategy is aligned are primary industries and human health. Many opportunities exist to cross-reference directly from the Biosecurity Strategy to the Biodiversity Strategy.

We note that at present emphasis is strongly related to species (or organism) and not to pathway, or conduit, for incursion. The probability of an organism expanding its range is hundreds of times greater once it has achieved a local population (i.e. beach-head) than it is before entry at the border. The more New Zealand is invaded by species about which we know little or nothing, the more inadequate a species focus will be. An example is that ports and nurseries *per se* need to be a focus for identifying new and potentially invasive species, not just a schedule of pre-identified organisms.

It may be useful to make a graph, in effect the mirror image of the graph in the Biodiversity Strategy, which depicted the decline of biodiversity since human settlement in New Zealand. In the Biosecurity Strategy a similar graph would show the rapid increase of new organisms in New Zealand, especially since European colonisation. It would also show how various scenarios involving various levels of biosecurity activity, from none at all to very high levels, might change the trajectory of exotic organisms over, say, the next 50 years.

Answers to specific questions

Part V Biosecurity Issues

Section 1 – Strategic Directions and Objectives

An expanding biosecurity focus

1. What is the range of values and interests protected by New Zealand's biosecurity programme?
2. How do these values and interests interconnect?
3. What factors should be incorporated into a New Zealand definition of biosecurity?

Q1-3. The range of values is extremely broad, covering potential impacts of all types of organisms on economic, biological and spiritual values.

Values and interests interconnect through human health and well-being. However we wish to see recognised a boundary in biosecurity vs. public health issues, as to whether new organisms that arrive in New Zealand do so **within** arriving humans. In the latter case, this is primarily a matter of public health (e.g., new viruses, etc.), and the catchment of interested groups and agencies will be different from those involved in, say, management of New Zealand's natural environment or its primary industries. While we acknowledge there is a small overlap between the two (e.g., biting spiders and snakes that poison humans), this is a very small proportion of invasive organisms. However it is still important to have a broad framework for thinking about biosecurity. There may be many forums in which it is appropriate that the linkages be explicit.

The export of potentially invasive organisms needs to be acknowledged prominently here. The existing biosecurity strategy involves us fining passengers who bring seeds in to New Zealand, while known invasive species of plants are sold to departing passengers! Furthermore New Zealand acts as a trans-shipment point for other countries' exotic organisms now established here. For example we are probably the world's major (inadvertent) supplier of *Vespula* wasps, and we presently export one of our most serious pests, the brush-tailed possum, as pets to Japan!

Strategic objectives and priority setting

4. Who should be responsible for determining overarching objectives for New Zealand's biosecurity programme?

Q4: Central Government (i.e., the community at large), acting through a single Biosecurity Agency.

7. What factors should be considered when determining priorities for action across the wider Biosecurity programme?

In this section there is appropriate presentation for the need to control where the greatest gains will be made. There is a clear need for investment in risk assessment frameworks for invention strategies.

Regional (Oceania) biosecurity

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| 13. To what extent should New Zealand seek to enhance biosecurity partnership arrangements with other countries? |
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Q13. Experience of New Zealand's involvement in CITES suggests strongly that opportunities for forming partnership arrangements with other countries will ultimately lead to higher levels of biosecurity insurance for New Zealand. While Oceania is an important regional focus for New Zealand, we should not lose sight of the biologically critical need for partnership with other temperate countries whence many of our biological risks will emanate. The issue of trade risks to biosecurity requires some very sound risk analysis science so that these risks can be assessed alongside oft-touted benefits of free trade.

Section 2 – Biosecurity Principles and Policies

Appropriate level of Biosecurity protection

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| 14. Since zero biosecurity risk is unattainable, what level of biosecurity protection should New Zealand set? (Think about both the values and interests being protected by biosecurity, and the impacts of biosecurity interventions on beneficial trade and travel) |
| 15. How could New Zealand's appropriate level of biosecurity protection statement cater for different levels of risk? |
| 16. How should New Zealand express its appropriate level of biosecurity protection? |

Q14. No overall statement can be made about the appropriate level of biosecurity, as this will vary for different risks. What is required is defined as an acceptable level of risk for different classes of organisms. This requires quantification of a tolerable level of incursion (e.g. how many live snakes per annum, how many new garden-escaped plants established) set by some historic incursion rate, and multiplied by the potential risk (where its impact is either known or estimated). We note that current apportionment of effort to biosecurity is patchy. For example, border controls for the travelling public and for surveillance of posted material is high, it seems clear that there is inadequate focus on other methods of import of organisms such as shipping containers and household goods. These latter known methods of import should be the focus of publicity campaigns.

Q15-16: Since zero risk is unattainable, levels of Biosecurity protection need to be better linked to contingency plans for security breaches. This might be expressed as a matrix of risk times sector interests. We note that traditionally the natural environment has not been factored highly enough in such estimates. For example, recent incursions by black widow spiders have centred on perceived risks to public health, but not on native invertebrates (the most likely species at risk). Where risks are not readily perceived by either interest sectors or the public at large, the risks can often be best explained by analogy, e.g., *Undaria* (an invasive seaweed threatening harbour biota) has been described as “the old man's beard of the sea”, capitalising on existing public awareness campaigns on invasive species impacts. For these and other unintentional introductions, there is a need to analyse the source and type of organisms that have invaded to date, e.g., invertebrates and weeds, to construct a profile of the sorts of organisms that should command our attention most seriously.

A risk-based approach

17. What principles should be established to guide biosecurity risk management decisions?
18. How could precaution be applied in biosecurity risk analysis and decision-making, particularly where there is a lack of information available on risks to native flora and fauna?

Q17-18: The precautionary approach should apply. We will always have imperfect knowledge on threats to native flora and fauna. With the speed of trade increasing, with more exotic organisms arriving from more diverse sources, so increasingly we will know less (or nothing) about new invasive organisms. Legislation needs to recognise that this trend is likely to get worse, not better. Because of the large amount that is unknown, the risks need to be borne by the sector(s) using the pathway that led to an invasion (e.g. included in travel, shipping, import costs). For some pathways for invasion, the management of the risk is daily (e.g., inbound aircraft), but for others (e.g., introduction of plant nursery material) an insurance-like scheme (or bond) would be a more appropriate means of managing risk. It is also clear that there are different criteria applied to different organisms, e.g., by MAF, and consistent interpretation is desirable.

Where conduits of invasion are well known, e.g., rats aboard fishing vessels as threats to internationally important island nature reserves, there have been successful risk profiles drawn up in the past, by the Marine Department, that are currently in abeyance. Under this Department's aegis, an assessment could be made of the likelihood of rats being on vessels of particular fishing fleets, and this should determine whether or not such vessels are excluded from certain fishing zones.

Domestic legislation

22. What changes, if any, should be made to the Biosecurity Act 1993 and/or the Hazardous Substances and New Organisms Act 1996, to create a seamless biosecurity legislative interface, and ensure compatibility with other legislation?
23. What changes, if any, are required to the Biosecurity Act to improve its implementation?
24. What changes, if any, are required to the HSNO Act to improve its implementation?

Q23. The current Biosecurity Act requires the capacity for rapid response at the outset of any invasion. In its current form, the Biosecurity Act slows or prevents responses at a regional level because councils can be locked in to their RPMSs. Where pools of money are supposedly designated for such rapid responses by local government, in reality this involves taking money from elsewhere. There are examples where new invasions have been countered only through the energy and initiative of various sector groups banding together informally (e.g. to counter a recent invasion by Argentine ants at the Port of Nelson); it is clear this is not an acceptable long-term solution. We suggest that a contingency fund (akin to the Earthquake and War Damages Commission) be established and be administered similarly, since invasions are unpredictable in time, space and potential severity of impact.

Q24. In the absence of data on the impact of most biological control agents on New Zealand's indigenous communities, the precautionary approach must prevail. This may well be expensive and time consuming, but that is a necessary cost to protect our indigenous biodiversity.

25. How could the current multi-agency approach to biosecurity be improved?

Q25. The current model of multi-agency cooperation in combating new invading organisms has had patchy success; e.g., apparent success in the case of white-spotted tussock moth vs. fiasco over painted apple moth. We believe there is a need for an independent and comprehensive agency that integrates and does not confuse agricultural, fisheries, forestry and conservation interests. Despite current publicity campaigns against import of new organisms (that do not mention the word "biosecurity"), there is no clearly identifiable agency with biosecurity as its central concern. The current Biosecurity Council does not suffice because it contains only representatives from other agencies. A new Ministry (or Department) of Biosecurity with responsibilities devolved to regional offices could give a higher profile and coordinated direction to biosecurity issues. Such a Ministry (or Department) should be composed largely by staff with a long history of practice in biosecurity activities, and should not simply be a policy ministry. The Ministry could administer a consolidated response fund for new invasions, and would ensure that the most appropriate expertise was employed for new invasions. Provision of science advice might be better ensured under such an arrangement. We note the current model of science funding does not readily enable the most appropriate scientists to be available at a moment's notice.

Section 3 – Biosecurity Systems and Procedures

27. What actions are required to improve the overall prioritization and co-ordination of biosecurity-related science and research?
28. What actions are required to improve integration of science and research into biosecurity policy and operational decisions?

Q27-28. The preamble paragraphs before these questions are banal, and is an unstructured development of how science might best address biosecurity issues. It is a truism that more research is needed on indigenous ecosystems, and the impacts of exotic biota, but this does not really address the key issues of the strategy, i.e., how to stem the tide of invasion, and how best to identify the organisms that pose the greatest risk before they become established. Biosecurity solutions require more than replenishing taxonomy and systematics (these are key disciplines which have been steadily eroded or poorly supported in New Zealand). In addition, control technology will need cutting edge molecular biologists, toxicologists, innovators, etc. and interdisciplinary frameworks to support cooperative research, or to combat new invasions. Science and research can only be integrated into biosecurity when questions are clear. Science can contribute in all areas - border security; surveillance; incursion; risk mitigation/ emergency responses; and pest management. A framework for considering where science can best contribute is to consider an invasion by any new organism. For example at the border or soon after arrival, the principle skills required will be taxonomic (to identify the organism). This exercise may identify where key skills are lacking in New Zealand. Critical too here is liaison and

collaboration between New Zealand scientists and overseas science institutions so that knowledge is readily shared across borders. Current science funding arrangements often do not adequately promote scientific exchange. We need to look at where research gaps are within that framework and then focus on filling those. A process for where science and research might best assist is: (a) identify risk factors; (b) define mitigation measures to be used outside New Zealand; (c) define post-border-control processes for incursions; (d) identify information gaps that will hinder this process; and the (e) develop research priorities.

We considered it may be appropriate to initiate a scheme where “exacerbators” should pay for research if they can be clearly identified, e.g. importers of new plants that naturalise and become weeds.

It is important to realise that exotic organisms may change in their capacity to invade once within New Zealand. Natural selection may result in organisms adapting to their new environment, while other environmental changes (e.g. global warming) may lead to the expansion of range within New Zealand, of species that are currently geographically confined. Moreover, even for long-established invasive organisms, there is a need for vigilance on new sources of invaders. For example a cold-climate karyotype of the ship rat (*Rattus rattus*) from high-latitude East Asia may be an even more serious threat than the established karyotypes, and there are risks of introduction from grounded fishing boats.

We suggest that the Biosecurity Council becomes more effective as a lobby group in directing science funding towards issues it considers require attention not currently addressed.

Operational policies and technical standards

30. What areas of the biosecurity programme would benefit from the development of a specific risk management standard, and why?

Q30. Current risk management standards do not reflect threats to the natural environment, at the species level e.g., exotic spiders, or at the pathway level, e.g., plant nurseries. For many pathways, no standards apply. Within New Zealand, there are public awareness programmes about the need for boat hygiene in avoiding spread of exotic water weeds, but no equivalent campaigns or standards to deter harmful trade in garden plants from nurseries, excluding the small list of “total control” or “progressive control” lists, etc., from Regional Pest Management Strategies. Some councils even plant species that are included in the RPMS of other councils.

Transition from national to regional pest management

32. What principles and objectives should guide decisions about the boundaries between national and regional pest management?

Q32. For new invasive organisms, the principles and objectives must be closely aligned to the invasion stage of the organism, and the extent to which the beneficiaries of the control (or eradication) efforts can be identified. These issues are scale dependent and individual pests can be managed at different levels of intensity at different spatial scales. For example, at a national scale, the species might be managed by scientific research (i.e. for control efforts for possums), whereas

population control may be conducted at different levels of intensity in different places. The apportionment of effort depends on the stage of invasion (no research is needed on an organism if it can be eliminated quickly, simply at the point of entry).

Management of widespread species that are harmful remain a biosecurity issue through the potential to export the organism (e.g. *Vespula* wasps). While some staff believed that in other respects biosecurity should be directed against organisms that are not yet widespread, there was no consensus about this. Principles need to be reached about when containment or control of an exotic organism should cease or be scaled down so that spending can be reprioritised for new exotic organisms.

Recognition needs to be given to the spread of native biota transported by humans outside their natural range and becoming established, e.g. of plants known to be weeds outside New Zealand, such as pohutukawa.

Beneficial new organisms

33. (P.19, typo) What actions are required to ensure that New Zealand can continue to acquire and utilize beneficial new organisms?

33. Sound risk management research is required to balance the potential economic benefits of new organisms (e.g. for agriculture or for biological control). Currently research in these cases is usually geared only to one side (i.e. to investigate the benefits of the new organism) and is countered only by a regulatory framework.

Funding of biosecurity activities

34. What principles should guide decisions on who should meet the cost of biosecurity programmes?

Q34-35. Exacerbators should pay. Plant nurseries contribute nothing to biosecurity costs and are not required to screen their material. Beneficiaries should also pay. Government contribution is also needed for the public good aspect and sometimes it is not possible to identify beneficiaries or exacerbators. Biocontrol organisms are a classic – once established then everyone benefits, even those that did not fund the research etc. It is hard to imagine a more appropriate use of the term 'public good' in some of these cases.

Initial responses to incursions should be funded from a dedicated fund – that would help improve response time.