Submission

Queensland Biosecurity Capability Review

August 2015

Table of Contents

Contact details

Andrew Cox
CEO
Invasive Species Council
www.invasives.org.au

Nichola Hungerford
Campaign Coordinator
Queensland Conservation Council
www.qldconservation.org.au

1. Preliminary Comments

The Invasive Species Council (ISC) and the Queensland Conservation Council (QCC) appreciate the opportunity to contribute to the Queensland biosecurity capability review.

The ISC is a national community-based organisation that seeks to reduce the environmental impact from invasive plants, weeds, diseases and other invaders. The QCC is Queensland's peak environment organisation since 1969 representing almost 60 member groups. These groups represent a wide range of conservation interests and include ten peak regional conservation councils.

The Queensland Biosecurity Strategy 2009-2014 was a good strategy for its time. It is an excellent foundation to build on as the review team prepares a five-year plan for biosecurity. Many of the core principles such as risk-based decision-making, the general biosecurity obligation and the precautionary principle have now been included in the Biosecurity Act 2014.

The points below appear under headings in orange that match in headings used by the review's online questionnaire.

1.1 Invasive species in Queensland

According to the Queensland Museum, 'Australia ranks among the top five most biodiverse countries in the world and Queensland is Australia's most biodiverse state. Queensland has both the greatest number of different species and the widest range of habitats, including five World Heritage listed sites and more than 12 million hectares of protected area estate.'

Invasive species pose a significant threat to Queensland's natural environment. As noted in the 2011 state of the environment report for Queensland at least 19 mammal, 13 bird, three reptile and one amphibian animal species have established in Queensland. There are also many invertebrate invaders, including the recent arrivals, red imported fire ants (first detected 2001), electric ants (first detected 2006), yellow crazy ants (first detected 2001) and Asian honeybees (first detected 2007). Cane toads continue to spread south and west across Queensland while there is a major national effort underway to eradicate red imported fire ants from areas south of Brisbane. Other species such as various turtle species and the Indian house crow have fortunately been detected and removed before establishment.

There are at least 1260 introduced plant species in Queensland with 23 of these being 'weeds of national significance'. A further 66 introduced plant species were found in Queensland in the period 2006-2011, including Mexican feather grass and candy leaf.

Myrtle rust, a deadly fungal disease, was first detected in Queensland in 2010 and will affect plants of the Myrtaceae family, a family that dominates Australia's forests and woodlands.

The State of the Environment Queensland 2011 report says, "Terrestrial pest plants are widespread across Queensland. The number of species increases from west to east, and there is significant potential for the number of weed species present in Far North Queensland to increase."[1]

Invasive species impact on the social welfare of Queenslanders. A healthy natural environment is critical for a wide range of recreational activities such as hiking, camping, fishing (freshwater & marine), swimming, boating and tourism. These benefits extend to nature dependent business activity such as providers of outdoor equipment, boats, tours, food and accommodation.

New incursions of pests and diseases regularly arrive in Queensland. Queensland, being close to Papua New Guinea and subject to high volumes of cargo movements though its ports, is particular susceptible to new outbreaks.

Major high-risk internal sources of new invasive species include the pet, aquarium and nursery industries, private gardens and pasture grass research projects.

2. Capability, gaps and priorities

2.1 Environment as a priority

A major rethink is needed into how Queensland tackles environmental biosecurity. Environmental biosecurity has been seen as an add-on to agricultural-focused biosecurity. This needs to change so that there is a comprehensive approach to biosecurity where all impacts – environmental, industry and social – are accorded equal status.

While there is often overlap between the biosecurity risks that may impact agriculture and risks that may impact the environment, the environment has particular needs, is often poorly understood, and has a broader range of species impacted and is difficult to value in economic terms.

Why a dedicated environmental focus is needed

The approach used to manage biosecurity risks to human health, food safety and the environment (including aquatic environments) needs to be consistent with the approach used to address risks that primarily affect the agriculture sector. However, comprehensive analysis will be required to guide precisely the measures to be applied along the continuum against specific risk pathways.

Beale review of biosecurity (2008)[2]

1 Page 39
2 Beale, Fairbrother et al. (2008)
2 Beale, Fairbrother et al. (2008)

A 'one biosecurity' (cross-sectoral, cross-jurisdictional) approach to biosecurity is supported but this requires recognition of the distinctive requirements of environmental biosecurity. Many invasive species have both economic and environmental impacts, and sometimes social impacts as well, warranting a joint approach.

But protecting the natural environment differs in many ways from protecting industry assets and requires a distinctive ecologically based approach to biosecurity. Environmental biosecurity cannot just be a bolt-on to existing industry approaches. Here are some of the ways it differs.

The values to be protected – biodiversity and environmental health: Conservation requires a biosecurity focus on the hundreds of thousands of species, from microbes to macropods, and their populations and interactions that constitute ecosystems and ecosystem processes. In contrast, industry biosecurity is mostly focused on protecting particular species that are of economic value and number no more than a few dozen (except for the nursery industry which uses a wider range of species). The values at stake in conservation are mostly not replaceable whereas species or cultivars of value to industry can usually be replaced by new breeds or new enterprises.

Invasive species threats – scale and complexity: Because of the diversity of taxa, ecosystems and ecosystem processes to protect, there are far more invasive species that are of threat or potential threat to environmental values than production values. Many of them derive from or are introduced along with species introduced for economic purposes. The threats are more complex for they involve direct and indirect impacts arising from interactions between species, changes in ecological processes (such as fire regimes and carbon sequestration), and interactions with other threats.

State of knowledge: Much more is known about livestock, cultivated plants used in production and the invasive threats to them than about biodiversity and invasive species threats. The lack of knowledge about our native biota means that most invasive species impacts are not documented or monitored.

Predictability and timeframes: While impacts on individual cultivated species can be predicted with reasonable accuracy, there are high levels of uncertainty in predicting impacts in the natural environment due to complex interactions, long timeframes (millennia) and lack of knowledge. Many impacts are synergistic with other existing and emerging threats. Climate change in particular increases the likelihood of previously benign species causing harm. Invasive impacts may not be observed for decades due to lag effects, lack of monitoring or their insidious nature. The combination of great uncertainties, long timeframes and limited management options warrants a highly precautionary approach in environmental biosecurity.

Management approaches and options: There are many more management options in relatively simple, delimited agricultural systems than there are in complex natural environments. Weeds cannot be controlled with broadacre mechanical or chemical control methods in many natural situations. Most post-border biosecurity policy focuses on controlling or proscribing a small subset of invasive species that are causing proven harm, which is inconsistent with ecological

uncertainties and complexities. There are commercial incentives for industry management of invasive species but environmental biosecurity relies on government and community investment for the public good.

Stakeholders and resources: A multitude of stakeholders, often with conflicting agendas, make environmental biosecurity a much more socially and politically challenging policy area than industry biosecurity. Commercial incentives and government support also mean that industry biosecurity is much better resourced than environmental biosecurity. It is in the public interest for governments to invest in increasing the capacity of the community, including environmental NGOs, to fully participate in biosecurity.

The Queensland Government has a long history of giving a low priority to environmental biosecurity and this neglect was amplified under the Newman Government.

The placement of biosecurity within the agricultural department (after being moved from the Department of Natural Resources several years ago) reinforces the perception that biosecurity is primarily about agriculture. In practice this means that biosecurity risk identification, prioritisation, decision-making, resource allocation and engagement with stakeholders are much more heavily focused on agricultural responsibilities. Input from the environmental department is dependent on constructive working relationships between agencies, staff and ministers and on resources being allocated to biosecurity in the environment department even though there are no formal legislative responsibilities. Where there is conflict between agricultural and environmental interests, the agricultural will usually prevail.

The eventual listing of gamba grass as a weed was a welcome exception to this but it took considerable effort from environmental and other affected interests despite being clearly a major environment, social and economic threat.

In recent times, the department has responded with substantial resources to several agricultural outbreaks – Panama disease, cucumber mottled mosaic virus, red witchweed and bovine Johne's disease. There has been a major investment in wild dog control – for commercial benefit – while resources have been withdrawn from environmental projects, including yellow crazy ant control.

During the last term of government, the sole conservation representative was removed from the Biosecurity Queensland Ministerial Advisory Council and an Invasive Plants and Animals Committee was established without a conservation representative.

We strongly recommend that the Queensland government recognise that biosecurity is just as important for the environment as for agriculture – and that environmental biosecurity is more reliant on government coordination and funding – by removing biosecurity from the agricultural department and placing it within a natural resources department or making it a joint environmental-agricultural unit. As has been recommended at the federal level (by the Beale inquiry), there are strong advantages to having an independent authority for biosecurity to better ensure that decision-making is based on risk management and science. A Minister for Biosecurity could be established.

Why biosecurity should not be administered by the agricultural department

1. **Biosecurity threats are greatest in the natural environment**: More invasive species threaten environmental values than agricultural values and the majority of newly establishing species are environmental rather than agricultural threats. Much less is known about environmental invaders and they are more difficult to manage. Without regulatory and policy authority for biosecurity, the environment minister is hobbled in his/her responsibilities to protect threatened biodiversity and mitigate threatening processes.
2. **The state has more biosecurity responsibilities in the natural environment than in primary industries**: The state has a larger role in managing environmental than agricultural invaders, because it is a large landholder, and because while there are commercial incentives for industry management of invasive species, environmental biosecurity relies on government and community investment for the public good.
3. **The agricultural department has conflicts of interest**: in some aspects of biosecurity, the agricultural department has conflicts of interest, including breeding and promotion of invasive plants for agriculture (eg. buffel grass) and stocking of invasive fish in waterways for fishing. Biodiversity conservation has not been a priority for the agriculture department.

At the federal level the poor attention given to environmental biosecurity is replicated. This deficiency was highlighted in the 2011 State of the Environment report that said, "Government responses to invasive species are uncoordinated at the national level, reactive, focused on larger animals, biased towards potential impact on primary industry at the expense of the total ecosystem, and critically under-resourced". It was recognised by both the 2008 Beale review and the 2015 Senate inquiry into environmental biosecurity, the latter which said:

> Evidence presented to the committee suggests that Australia's environmental biosecurity capacity lags behind that of industry biosecurity. There appear to be several causes for this situation, including: the greater complexity of environmental biosecurity; the historical emphasis on industry biosecurity; difficulties in translating environmental impacts into economic terms, and the lack of stakeholders with economic resources that can be drawn on.

Recommendation:

1. Confirm the importance of environmental biosecurity through an institutional change that moves biosecurity from the agricultural department to either a standalone authority or within the natural resources department.
2. Move biosecurity to either the Minister for Natural Resources or a new Minister for Biosecurity.

2.2 Prevention focus

While prevention and early action have been a stated priority for the Queensland government, this often fails to translate into action, especially when it comes to the environment.

Queensland appears to have the highest rate of new incursions compared with other states. Thus the effectiveness of national biosecurity arrangements has a major impact on Queensland's environment. National biosecurity and response arrangements under the intergovernmental agreement on biosecurity and overseen by agricultural ministers under COAG arrangements have not been effective in preventing the establishment of new environment pests and diseases, as outlined in the Invasive Species Council's submission to the 2015 senate inquiry into environmental biosecurity[3].

Australia lacks a formal priority list of high-risk species for the environment, pathway analyses of high-risk species, and surveillance and contingency plans. As documented in the recent senate inquiry and in ISC's submission to the inquiry, there has been a high rate of new incursions into Australia including Queensland.

Secondly, the national environmental biosecurity response agreement (NEBRA) has thresholds for responses raised so high that the agreement is unlikely to trigger national cost sharing arrangements for all but the worst invasive species. As a result the Queensland and other state governments must bear the cost of responding, which means eradication is unlikely to occur.

The recent Senate inquiry into environmental biosecurity recognised the weaknesses in the NEBRA and suggested improvements[4]. The failure of the smooth newt incursion in SE Melbourne to trigger NEBRA (detected in 2011) exemplifies the weaknesses (see the **attached** Smooth Newt case study prepared for the 2015 Senate inquiry into environmental biosecurity).

National cost sharing agreements do not reimburse the significant state government costs of training staff and providing equipment and preparing procedures to respond to new incursions.

Surveillance for early detection and response aimed at eradication is strongly supported.

---

[3] http://invasives.org.au/project/invasive-species-council-submission-inquiry/

[4] Final report of the Senate inquiry into environmental biosecurity 2015, pages 135-136:

Recommendation 2

The committee recommends that the Commonwealth Government work with state and territory governments to revise the National Environmental Biosecurity Response Agreement such that disagreement by a single party need not prevent a response under the agreement from going ahead.

Recommendation 3

The committee recommends that the Commonwealth Government work with state and territory governments to include in the National Environmental Biosecurity Response Agreement an explicit precautionary principle which states that a lack of full scientific or technical certainty regarding the feasibility of eradication must be weighed against potential biosecurity risks when determining whether to mount a response.

Recommendation 4

The committee recommends the Commonwealth Government work with state and territory governments to develop a nationally consistent methodology for incorporating environmental impacts into cost-benefit analyses under the National Environmental Biosecurity Response Agreement.

Recommendation 5

The committee recommends that the Commonwealth Government work with signatories to the National Environmental Biosecurity Response Agreement to include in that agreement a transition to management framework to clarify the responsibilities of the parties for ongoing management activities if eradication is deemed to be no longer feasible.

It is a high priority to continue with current eradication and control programs, both national (fire ants, electric ants, four tropical weeds) and state-based eg mimosa pigra, bitou bush, Mexican bean tree and Hudson pear.

Particularly for pests having significant environmental impacts, it is critical to recognise that new pests arise from species introduced for other purposes, such as garden plants, aquarium plants and pasture species. All new introductions of plant species have been risk assessed at the national border since the late 1990s but many species were introduced before that and the pest potential of many is still being recognised. There needs to be capacity to continue to risk assess these species and respond when the weed potential is recognised even though the species may already be widespread.

The yellow crazy ant, which over recent decades arrived repeatedly though Queensland ports, and which is likely to cause severe environmental, social and economic damage, was not subject to a national-funded response due to it already being present on Christmas Island and Arnhem Land, NT. The Queensland Government was undertaking a poorly funded and poorly coordinated eradication, which was halted in 2012.

Yellow crazy ant can have major environmental impacts and are on the World Conservation Union's list of '100 of the World's Worst Invasive Alien Species'. The ants form large-scale supercolonies, extending over more than 100 hectares. On Christmas Island, they have killed tens of millions of the iconic and ecologically important red crabs and robber crabs. In places where yellow crazy ants flourish, not much else does. They can remove nearly all insect life, leaving none for other animals, and kill small animals such as lizards, crabs and bird chicks. Queensland's Wet Tropics World Heritage Area is at grave risk, for the ants' preferred habitat is moist lowland tropical forest. But climate matching suggests they are capable of inhabiting most of northern and north-eastern Australia, the eastern seaboard of Queensland and further south.[5] They most probably played a role in Australia's two most recent vertebrate extinctions – the Christmas Island pipistrelle (2009) and Christmas Island forest skink (2014). Yellow crazy ants are also likely to compromise eco-tourism in infested areas and reduce yields of sugarcane, coffee and coconut crops.

There is a federally funded project to eradicate yellow crazy ants from the Wet Tropics World Heritage Area. Yellow crazy ants being accidentally transported from infestations outside the WHA could easily waste this investment.

We believe that the feasibility of eradication and/or containment of yellow crazy ants should be reconsidered. An assessment of the delineation of current infestations would be the first step in determining how to proceed.

The importance of a permitted list approach

The only feasible way to prevent most new weed problems is to assess the weed risk of plants proposed for introduction into new areas, and permit the sale and movement only of those that

5 Merrin LE, O'Dowd DJ (2004) Supplementary Paper No. 1. Turning the tide on invasive tramp ants. A workshop on a national threat abatement plan for invasive tramp ants. 11-12 October 2004, Australian National Botanical Garden, Canberra, A.C.T.

present a low risk.[6] This approach already operates for proposed new introductions to Australia (from overseas) and to Western Australia. It involves establishing a permitted (or a 'safe') list of taxa and prohibiting or requiring risk assessment of taxa (species, subspecies and variants) not on that list. A complementary prohibited list identifies plants that do not pass the risk assessment or that are already declared and prohibited.

All proposed introductions of plants not indigenous to Queensland should be assessed for weed risk. This includes plants native to Australia but proposed for planting outside their natural range. Native weeds like golden wreath wattle (*Acacia saligna*) can be just as invasive as exotic weeds. Assessment should also apply to new varieties of existing introductions that could increase the weed risk. A permitted list approach is the most feasible way to implement the action under the prevention objective of the Queensland Biosecurity strategy 2009-2014: 'High risk activities are identified and specific risk mitigation strategies implemented.'

The permitted list approach is based on a straightforward concept applied to many other types of goods – don't permit the sale or movement of plants unless they meet safety standards (biosecurity safety). It is required, for example, that all foods and toys meet legislated safety standards. There is strong support for a 'safe' list approach by many environment NGOs, bush regeneration groups, regional weed committees and local governments and from within biosecurity agencies, as exemplified by a 2006 paper by biosecurity officers from six states recommending it.[7]

Queensland should work with other state/territory governments, particularly NSW, Queensland and the ACT, to promote the adoption of a permitted list approach across all states, with consistent mechanisms. This would reduce confusion for plant industries and increase efficiency (allowing states to share resources). The proposal could be adopted by the Council of Australian Governments, as part of implementing recommendation 23(1) of the Hawke review of the EPBC Act: 'the Council of Australian Governments (COAG) develop criteria and management protocols for the movement of potentially damaging exotic species between State and Territories, working towards a list of 'controlled' species for which cost-effective risk-mitigation measures may be implemented.' However, this should not delay Queensland's development and implementation of a permitted list approach. It is more likely that other states would follow Queensland in adopting the approach.[8]

There will of course be objections raised to the safe list concept, including probably perceived problems of cost, feasibility and impacts on industry. It is important to examine how the system works in Western Australia but the system would be different in Queensland because of the different circumstances applying at the Queensland border. Western Australia has a commendable focus on border inspections, requiring imported plants to be inspected at a

---

6 Csurhes S, Randall R, Goninon C, Beilby A, Johnson S and Weiss J (2006). "Turn the Tap Off before You Mop up the Spill': Exploring a Permitted-List Approach to Regulations over the Sale and Interstate Movement of Potentially Invasive Plants in the States and Territories of Australia. Proceedings of the 15th Australian Weeds Conference. C Preston, JH Watts and ND Crossman, Weed Management Society of South Australia Inc, Adelaide: 95-98; Invasive Species Council (2009). *Stopping Weed Invasions: A 'White List' Approach*

7 ibid.

8 For more details about a permitted list approach, see Invasive Species Council (2009). *Stopping Weed Invasions: A 'White List' Approach*. (http://invasives.org.au/files/2014/02/fs_weedwhitelist.pdf)

bonded warehouse facility in Perth and be treated for pests and diseases. This wouldn't be feasible for Queensland. Just as occurs for many other goods, enforcement of standards would have to depend on audits of plants for sale and public reporting of breaches. There would have to be a phase-in of the approach to allow for adjustment. There will be costs involved in the setup and for enforcement, but any cost-benefit analysis should find the public benefit and economic gains far outweigh the costs.

Specific weed risks could be targeted with an increased focus on prevention. Some landholders in the Wet Tropics specialise in growing unusual tropical plants sourced from around the world. These include nurseries and other commercial enterprises, such as The Botanical Ark near Mossman, and private individuals on acreage properties. These collectors are a known source of emerging weeds such as cecropia, miconia and Koster's curse. The Botanical Ark has 3,000 tropical species sourced from 40 countries in Africa, Asia and South America. A large proportion of these may have the potential to become weeds, given the matching climates and soils. Tropical plant collectors pose a special biosecurity risk because they seek out plants that are otherwise rare in cultivation, including palms, gingers and fruit trees, because the pool of species they target is very large, and because Wet Tropics cyclones create disturbances that suit weed establishment. Some of these plants have the potential to become economic weeds as well as environmental weeds, by invading orchards and vacant land.

The weed risk assessment methodology requires strengthening. The methodology relies heavily on the question: 'Is it a weed elsewhere?' For many obscure tropical plants the number in cultivation elsewhere may be very small, or limited to the country of origin or to tropical countries where weediness is poorly documented. For example, the weedy New Guinea palm grows on private land in north Queensland without restriction.

The Weed Spotter's Network, hosted by the Queensland Herbarium and jointly funded on a year-to-year basis by Biosecurity Queensland, is an important preventative activity. The Weed Spotters' Network aims to find, identify and document new occurrences of potential weeds at an early stage so that preventative actions can be taken. It involves trained volunteers to be alert, collect specimens and provide them to a network of regional coordinators and one statewide coordinator. Information on potential pest species is regularly provided to all participants. This program is only funded on a temporary basis. Its continuity is critical and needs to receive ongoing funding.

Building public support for a greater focus on prevention and early action requires an explanation of the potential risks and benefits.

It is worth noting that the time scale for implementing successful eradication programs varies according to the species. For pest animals and weeds, many of which have environmental impacts, a time scale of years or decades may be needed, whereas many diseases and insect pests of agriculture require a relatively short period of time.

Recommendations:

3. Recommit to a focus on prevention and responses to newly established or emerging species.
4. Seek recurrent national cost-sharing funds for an ongoing biosecurity incident response

capability for Queensland.

5. Seek changes to NEBRA to increase the probability of high-risk environmental incursions triggering national cost-sharing arrangements.
6. Maintain or recommit to all current eradication programs.
7. Evaluate the feasibility, cost and benefits of yellow crazy ant eradication and/or containment in Queensland.
8. Adopt a permitted list approach, requiring risk assessment of all new non-indigenous taxa not on a permitted list and allowing the sale and movement only of low-risk plants.
9. Review the weed assessment process to ensure that a precautionary approach is adopted, especially for poorly studied tropical plants.
10. Provide funding certainty to the Weed Spotters' Network.

2.3 Involving the community

The community sector is extremely interested in reducing the impacts of invasive species. While there is still growing awareness of biosecurity systems and looking at the problem from a long-term perspective, there is great potential for the community to be part of the solutions.

We encourage the government to see the community as more than just eyes, ears and brawn. The community can also contribute expertise, insights and experience at all stages of biosecurity system decision-making and implementation.

To meaningfully involve the community and to create genuine partnerships, early involvement in processes and decision-making coupled with improved transparency is essential. These elements would build trust and confidence in the resulting biosecurity system.

Broader community awareness and capacity also assists with prevention and is related to the need to improve culture and practices as part of the general biosecurity obligation. For example, the community could be actively encouraged to practise vehicle clean-downs, avoid moving items that may contain tramp ants (eg crazy ants, red imported fire ants), avoid planting species with weed potential and not dump plant material in bushland.

Opportunities for community involvement are mentioned in Section 6 'Leveraging opportunities'.

It must be acknowledged that the capacity of the community and environmental sector is limited given the lack of a direct financial benefit from good biosecurity and the multiplicity of issues being covered. There is a role for Biosecurity Queensland to enhance this capacity.

Linked to community participation is transparency. Transparency in biosecurity decision-making will develop trust in Queensland's biosecurity system and encourage broad participation.

A detailed paper, 'Engaging the community environmental sector in biosecurity' prepared by the Invasive Species Council, is **attached**.

Recommendations:

11. Establish a mechanism for environmental community representatives to provide input

to biosecurity decision-making at an early stage. The Biosecurity Queensland Ministerial Advisory Council could be one channel, but at present this body does not effectively represent environmental and community interests.

12. Support the environmental community through provision of support for travel and a yearly biosecurity consultation forum.
13. Publicly release the full report of this biosecurity capability review.

2.4 Public resourcing

Greater public investment in the public benefit of environmental biosecurity is needed.

Applying the Federal Treasury's wellbeing framework, improved environmental biosecurity has many benefits.

Freedom and opportunity: Many Australians place high value on a healthy natural environment and the existence and health of other species, many of which are gravely threatened by invasive species. Freedom to interact with, study, and explore within the natural environment are all compromised by invasive species threats. Many people spend substantial personal time and resources to control invasive species impacts, which could be directed elsewhere for benefit if invasive species were better managed. Unless better managed, invasive species impacts will foreclose many opportunities for future Australians.

Consumption possibilities: The impacts and costs of invasive species reduce 'consumptive possibilities' and undermine the capacity of Australians to enjoy the natural environment. Invasive species are the most expensive threat to protected areas, which attract high usage rates. The costliness of invasive species management for landholders and governments preclude expenditure on other goods and time spent on other activities. The costs of food production are significantly increased by invasive species impacts on agriculture. Failure to invest sufficiently in invasive species management devalues the work of volunteers by making their work more difficult or futile.

Distribution: The impacts of invasive species are widespread, and increasing both temporally and geographically. They will increasingly compromising wellbeing, and future generations will bear the costs of current failures to prevent their introduction and spread. The burden of invasive species is borne by land managers and taxpayers, while those responsible for and benefiting from introductions generally do not contribute to management costs.

Risk: Wellbeing would be improved if risk preferences more closely match the risk borne. We court known risks in the failure to prevent and manage invasive species. The public is bearing risks due to the irresponsible preferences for use of invasive species by a small proportion of society who do not bear the consequences. Invasive species put people at risk in unexpected ways. For example, gamba grass increases the intensity of bush fires and makes fire fighting more dangerous. Exotic plants are responsible for serious allergies and exotic animals can serve as reservoirs of diseases which affect humans.

Complexity: Complexity is inherent to invasive species management due to the range of species and biological interactions involved, and the multitude of human interests at stake, some

conflicting. It is unrealistic to expect individual consumers to make risk-informed decisions about their use of non-native species and difficult for individual landowners to effectively manage multiple invasive species. Decisions on the basis of comprehensive risk assessments should be made for the public good.

The environmental impact of invasive species is extremely difficult to cost in monetary terms. As a result it often difficult to justify increased resources allocated to environmental biosecurity. One clear financial benefit of preventative action is the avoided costs of perpetual management.

Recommendation:

14. Develop non-monetary measures to measure the impacts and consequences of biosecurity decisions.

2.5 Scientific research

A long-term investment in scientific research is a critical component for a biosecurity system. Research can improve our understanding of current and potential pest species, establish and improve effective management options, develop supporting technology such as mapping and surveillance methods and identify biological controls for established pests and diseases. The potential for biological control to deliver solutions has not diminished; a 'critical mass' of research capacity needs to be re-established.

The loss of expert taxonomists is also becoming a serious national problem. Without confident diagnoses of new plants, animals and diseases it is difficult to mount effective responses.

During the three years of the Newman Government, staff redundancies drastically reduced this research capacity. For example, we estimate that about 35% of Queensland invasive plants and animals research staff were lost. A critical mass of research capacity needs to be re-established.

The Senate inquiry into environmental biosecurity found a worrying decline in biosecurity science capability and made three recommendations:

> Recommendation 12
> The committee recommends that the Department of Industry and Science develop a strategy to address the current, and projected, decline in the level of scientific expertise in areas relevant to biosecurity.
>
> Recommendation 13
> The committee recommends that the Department of Industry and Science, in cooperation with the Department of Agriculture and the Department of the Environment, conduct a review to prioritise Australia's biosecurity research needs, both environmental and industry-focused, and determine what long-term institutional structure will best address these needs.
>
> The committee also recommends that this review specifically investigate whether Australia possesses sufficient research capacity to examine the effects of climate change on invasive species and, if not, how this can be addressed.

Recommendation 14
The committee recommends that, following the example of the New Zealand Marine Invasive Taxonomic Service, the Commonwealth Government work with state and territory governments to establish a coordinated taxonomic identification service that utilises existing scientific expertise, particularly that present in natural history museums.

A national biosecurity research and development capability audit was conducted in 2012[9]. This audit included capability in Queensland. It would be worthwhile comparing the results of this audit with the capability today.

Recommendations:

15. Restore scientific research capacity that supports the biosecurity system to levels at least equivalent to those existing prior to the start of the Newman Government.
16. Seek support for implementation of the Senate inquiry into environmental biosecurity regarding scientific expertise and research capacity (recommendations 12-14).
17. Seek greater capacity for public interest research at a national level (to benefit Queensland), including improved investment in surveillance and control measures, development of biological controls and taxonomy.

2.6 Established pests and diseases

Management of established species is critical (at the same time as addressing prevention, early detection and eradication). From a conservation perspective, hymenachne is just one example; it is a weed that has the potential to destroy all the wetlands of northern Aust. Feral cats are another example with recent evidence of their impact on Australian mammals. Feral deer is an emerging pest that may spread to cover most of Queensland, thus an obvious target for containment, but has seen little Queensland government action.

The topic of established pests is currently being addressed in a national paper '*Modernising Australia's approach to established pests and diseases of national* significance' (see **attached** submission by the Invasive Species Council). The core proposal in this paper to place primary responsibility for established pests onto land managers and to address them only from an asset protection perspective is not supported. Unfortunately the paper:

- does not address control of established pests having primarily an environmental impact on private land, where there is no reason for the landholder to carry out control and;
- a large number of established pests have not reached their potential distribution, so containment is essential; asset protection alone is not acceptable.

Reducing the impact of established pests requires support for research, planning (such as a national strategy for nationally agreed species), resourcing to coordinate implementation of plans, legislative support, community awareness, and extension.

Awareness, educational and extension activities commonly require the support of corporate

9 http://www.daff.gov.au/SiteCollectionDocuments/animal-plant-health/pihc/national-research-development-capability-audit.pdf

communication units. The resourcing of these units to provide an adequate service needs to be part of the Review, with resourcing increased if it has been reduced in recent years; it is not just the reduction in Biosecurity Queensland staff that is critical.

Recommendations:

18. Increase efforts in reducing the impact from widespread environmental pests and diseases.
19. Increase efforts to contain established but still emerging environmental pests.
20. Provide adequate communication to support the community's role in the biosecurity system.
21. Implement the Queensland Feral Deer Strategy through resourcing containment and local eradication and other activities.

3. Roles and responsibilities

There is the opportunity for the community to provide a greater contribution to Queensland's biosecurity system, both to inform decisions and to assist with reducing risks and impacts. This is elaborated further under Section 2.6 'Involving the community'.

4. Best Practice

There are examples of best practice biosecurity in Queensland and other states, nationally and in New Zealand and other countries. Most examples are in the agricultural sector since environmental biosecurity has received limited attention and is less mature.

Some examples of best practice include:

- the permitted list (or 'white list') approach to limit the sale and movement of weedy plants and other invasive species (see reference under 2.2 'Prevention' section above).
- the research and outreach of the Invasive Animals CRC (which focuses on established vertebrate pests).
- the systematic process of risk identification, pathway analysis and targeted risk reduction carried out for many agricultural pests and diseases at the national level.
- the 'general biosecurity obligation' or biosecurity 'duty of care' (adopted by NSW and Qld).
- a tenure blind approach to invasive species management.
- biosecurity foresighting to plan for future biosecurity risks (none currently in place in Australia, but recommended at national level by Hawkes Review of EPBC Act and created for Qld Biosecurity but immediately closed down by the Newman Government.
- an environmental court modelled on the NSW Land and Environment Court, a specialist environmental court for enforcement of environmental harm (but not used in NSW for biosecurity offences).
- the proposed independent institutional arrangements for national biosecurity decision-

making: a national biosecurity authority, national biosecurity commission and biosecurity advisory committee as proposed in the 2008 Beale biosecurity review.
- Plant Health Australia and Animal Health Australia, collaborative bodies focused on biosecurity preparedness. An equivalent national body is needed focusing on the environment, along the lines of the Invasive Species Council's proposed Environment Health Australia.
- the 2050 'feral free New Zealand' goal to inspire a bold goal to eradicate New Zealand of all its feral animals.

Recommendation:

22. Consider adoption of biosecurity best practice listed above from other jurisdiction.

5. Low return activities

Wild dog control should not be a high priority for public investment. The program is primarily for the commercial benefit of sheep farmers and is likely to have detrimental impacts where it undermines the role of dingoes in suppressing meso-predators (feral foxes and cats).

The direction of current staff and special funds to wild dogs is in addition to over $1M per year state contribution (50%) to the wild dog barrier fence; the other 50% is from local governments. This allocation alone means that resourcing of wild dog management by Biosecurity Queensland is usually much larger than for any other pest animal. There was a review of the wild dog barrier fence approximately five years ago, with a recommendation that it be reviewed again within a set period, possibly 10 years. This subsequent review can be included in the Review Panel's report.

Farmers should be encouraged to invest in guard dogs rather than the government investing public funds in fences and control.

There is a major backlog of risk assessments prepared by the Queensland Government. It is more important to have a full set of basic risk assessments than to have a smaller number of very thorough detailed risk assessments. The risk assessment process should be expedited to focus more on the essential information needed for a precautionary risk assessment along the same lines as conducted by the Western Australian government.

6. Leveraging opportunities

The 'general biosecurity obligation' is a key component of the soon-to-be-commenced Biosecurity Act and presents an important opportunity for improving biosecurity and sharing responsibility.

The general biosecurity obligation will be a difficult but extremely important reform measure

and is without precedent in biosecurity management in Australia. It has the potential to bring about the needed biosecurity systems and cultures in the same way as Australia's occupational health and safety systems.

A key element of the general biosecurity obligation is how to create the willingness for the entire community to act. This will require the development of a culture to act, incentives that encourage/discourage behaviours and appropriate penalties or consequences.

Other opportunities:

- Use of new technology for controlling pests and diseases
- Harnessing community interest
- Community assisting with early detection (including through Weed Spotters) and volunteering in bushcare and landcare groups.

Recommendation:

23. Give a high priority to a well-managed introduction of the general biosecurity obligation to bring about a culture change in the way landholders and the general community understands their biosecurity obligations.
24. Encourage opportunities for community action to assist with managing biosecurity risks.

Attachments

1. Engaging the Community Environmental Sector in Biosecurity, Invasive Species Council 2013.
2. Case study into the incursion of smooth newt prepared for the 2015 Senate inquiry into environmental biosecurity, Invasive Species Council, September 2014
3. Submission by the Invasive Species Council to the discussion paper: *Modernising Australia's approach to established pests and diseases of national* significance, July 2015.
4. Queensland Government submission to the Senate inquiry into environmental biosecurity 2014

Scope of the Queensland Biosecurity Capability Review

In delivering recommendations for the long-term plan, the review will:

1. assess Queensland biosecurity responsibilities
    a. what are the appropriate roles and responsibilities of Biosecurity Queensland
    b. quantify the role of Biosecurity Queensland
    c. outline the decision making and investment criteria that trigger cost sharing and/or a move to different levels of intervention – eradication, containment, management, etc
2. assess Queensland's baseline biosecurity capability to meet its current objectives and future challenges including:
    a. leadership, strategy, policy and service delivery
    b. ICT systems and infrastructure
3. benchmark the capability Queensland requires to achieve world's best practice given its statewide service delivery requirements
4. identify examples of best practice in interstate and external agencies which could be used to benchmark Biosecurity Queensland's capabilities.