



Environmental biosecurity in Western Australia

1 Introduction

1.1 Background

In 2013, during investigations of cross-agency collaboration, the Biosecurity Council of Western Australia (the Council) identified a fundamental breakdown in situations where biosecurity actions span multiple State Government agencies — such as for environmental biosecurity. The reasons for this breakdown are complex, and have been highlighted in further work undertaken by the Council since that time. In broad terms, the issues can be categorised into i) definitions; ii) roles and responsibilities; and iii) resourcing; with unclear government policy an important contributing factor.

In late 2016, the Council resolved to further this work, with a focus on how environmental biosecurity is being addressed in Western Australia. The Council held a workshop with members of the Biosecurity Senior Officers Group (BSOG) in April 2017 to discuss and clarify State Government activities to maintain the biosecurity of Western Australia's environmental assets. Initial scoping identified two key areas requiring attention: harmonising a whole-of-government approach; and resourcing. The workshop enabled these areas to be explored and the issues to come to the fore. The information from the workshop, coupled with the Council deliberations, form the foundation of this report.

1.2 Environmental biosecurity definition

The Council has adopted the definition of 'environmental biosecurity' proposed in the IGAB review (Craik, Palmer and Sheldrake 2017) — that is, 'environmental biosecurity is the management of risks to the natural environment, and to social amenity, of pests and diseases entering, emerging, establishing or spreading'. In line with the national environmental biosecurity stocktake:

- 'environment' includes the natural terrestrial, inland water and marine ecosystem and their constituent parts, and their natural and physical resources
- 'social amenity' includes the social, economic and cultural aspects of the environment, including tourism, human infrastructure, cultural assets and national image.

For the purposes of this report, managing widespread and established pests and diseases is not within the scope of this definition.

1.3 Acronyms

ARM Act	<i>Aquatic Resources Management Act 2016</i>
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i>
BC Act	<i>Biodiversity Conservation Act 2016</i>
BSOG	Biosecurity Senior Officers Group
DAWR	Department of Agriculture and Water Resources
DBCA	Department of Biodiversity Conservation and Attractions
DPIRD	Department of Primary Industries and Regional Development
IGAB	Intergovernmental Agreement on Biosecurity
NEBRA	National Environmental Biosecurity Response Agreement

2 Environmental biosecurity in Australia

2.1 National arrangements

At the national level, the Department of Agriculture and Water Resources (DAWR) coordinates Australia's biosecurity, including managing the biosecurity risk to Australia's natural environment and social amenity. The work of DAWR is underpinned by the *Biosecurity Act 2015*, which primarily addresses how biosecurity risks associated with goods, people and conveyances entering Australia are managed (i.e. preventing pests and diseases from entering Australia).

The Intergovernmental Agreement on Biosecurity (IGAB) is the fundamental agreement to share the responsibility of biosecurity, including environmental biosecurity, between Australian governments. The purpose of the IGAB is to 'enhance Australia's biosecurity system' and strengthen the collaborative approach between the Commonwealth and State and Territory governments (IGAB 2012). A key deliverable under the IGAB is the National Environmental Biosecurity Response Agreement (NEBRA) — a formal agreement between jurisdictions that sets out a framework, including cost-sharing, for responding to national-level environmental biosecurity incidents.

The national environmental biosecurity obligations of Australian States and Territories are reinforced by other agreements such as the Intergovernmental Agreement on the Environment. As a nation, Australia also has international obligations, such as that of the Convention on Biological Diversity, where parties are required to 'as far as possible and as appropriate, prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species' (United Nations 1992). It must be noted that it is the Commonwealth Department of Environment that has the responsibility for these obligations, as well as other environmental biosecurity related activities under the *Environment Protection and Biodiversity Conservation Act 1999*.

It has been almost a decade since the Beale review of biosecurity in Australia highlighted the need for increased effort toward the biosecurity of the natural environment (Beale et al. 2008). Following on from this, Hawke (2009) argued that environmental biosecurity should be as important as biosecurity for human health and primary production. Over recent years there has been an increasing focus on the biosecurity of Australia's environment and social amenity.

In 2015, the Environment and Communications Reference Committee presented its report following an inquiry into 'the adequacy of arrangements to prevent the entry and establishment of invasive species likely to harm Australia's natural environment'. More recently, reviews of the IGAB¹ and the NEBRA² have been completed; and the National Biosecurity Committee has instigated 'environmental biosecurity roundtables' to provide environmental biosecurity stakeholders an opportunity to engage with government.

There are four themes that are consistent across the recent reviews and roundtables:

- Environmental biosecurity risks are increasing
- Environmental biosecurity is complex, and incursions are difficult and expensive to address
- Environmental biosecurity does not get the pre-emptive planning and action that goes into agricultural biosecurity; however, it is just as important as biosecurity for primary industries and human health
- Environmental biosecurity requires private/non-government as well as government participation and awareness, including increased participation from environmental agencies.

A total of 46 recommendations were put forward through the inquiry and reviews mentioned above to improve Australia's environmental biosecurity. The Australian Government response to the recommendations is generally supportive, with the view that the 'most effective approach to addressing these unique difficulties is to continue to strengthen the existing biosecurity system, which is designed to manage biosecurity risks to all sectors' (Australian Government 2017).

2.2 Western Australian arrangements

In line with the national arrangements, the Western Australian government agency with responsibility for agriculture (currently, Department of Primary Industries and Regional Development — DPIRD) has lead responsibility for biosecurity in Western Australia. Within this mandate, DPIRD is the custodian of the *Biosecurity and Agriculture Management Act 2007* (BAM Act). It is also custodian of the *Aquatic Resources Management Act 2016* (ARM Act), which governs the conservation of the state's aquatic resources and protection of aquatic ecosystems, including managing aquatic

¹ See Craik, Palmer and Sheldrake 2017, 'Priorities for Australia's biosecurity system: An independent review of the national biosecurity system and its underpinning intergovernmental agreement', Canberra.

² See KPMG 2017, 'National Environmental Biosecurity Response Agreement: Five year review. Final Report – May 2017.

biosecurity. Furthermore, under State Emergency Management arrangements the Agriculture Director General is the Hazard Management Authority for emergency management of animal/plant pests and diseases and the Department of Primary Industries and Regional Development the Controlling Agency (Office of Emergency Management 2016).

Organisms that pose a biosecurity risk may be ‘declared’ under the BAM Act, including those that impact upon the environment and social amenity — in fact, the potential for a species to have adverse effects on the environment is a core criterion used to determine an organism’s status under the BAM Act. Similarly, the ARM Act also allows for the declaration of organisms that may have an adverse impact on aquatic biodiversity or the aquatic environment.

The *Biodiversity Conservation Act 2016* (BC Act), of which the Department of Biodiversity Conservation and Attractions (DBCA) is custodian, also includes provisions relevant to environmental biosecurity. Here, species that pose a risk to biodiversity or biodiversity components may be declared as environmental pests. Furthermore, threatening processes³ can be listed as ‘key threatening processes’ under this Act, and regulations may be made to prevent, eradicate, reduce and contain key threatening processes⁴. This is similar to the provisions in the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, although the Commonwealth Act addresses threatening processes through threat abatement plans. Western Australia’s *Environmental Protection Act 1986*, although silent on biosecurity, also aims to protect the environment from threatening processes.

In essence, species or process declarations under these Acts enable government intervention to mitigate the risk posed by the species/processes, such as border controls, eradication and control activities.

Given the relevance of the different legislation to environmental biosecurity, coordination across, and within, State Government agencies is essential. The BSOG provides a forum (albeit, non-legislated) to support a coordinated and collaborative effort in the environmental biosecurity space. As examples, the group has been working to identify and prioritise state-level biosecurity risks including environmental pests and diseases, and have completed cross-agency response arrangements relating to Myrtle rust. Nevertheless, from the Council’s and the BSOG’s perspective, there are still fundamental issues around the strategic and operational activities to address the biosecurity of Western Australia’s environmental assets and social amenity.

³ A process that threatens, or may threaten, the survival, abundance or evolutionary development of a native species or ecological community (such as invasive pests, weeds or diseases – that is, biosecurity risks).

⁴ Note: regulations to this effect have not yet been drafted.

3 Environmental biosecurity in Western Australia – the issues

3.1 Coordination of environmental biosecurity

Key issue: Coordination of strategic activities to preserve the biosecurity of Western Australia's environment and social amenity is lacking.

The Western Australian Biosecurity Strategy (the Strategy) states that '*effective management of biosecurity risks helps to protect our biodiversity and our distinctive ecosystems and natural environment*'. However, structures are not in place to drive environmental biosecurity in Western Australia. Specifically, who is responsible for strategic planning, prioritisation and coordination at a State level? This is a key issue raised by the BSOG and the Biosecurity Council.

For the aquatic environment, there is currently a coordinated approach to biosecurity via DPIRD. Although the primary purpose here is to protect the State's commercial and recreational fisheries and aquaculture industries, significant environmental benefits are derived alongside the economic outcomes. Having said that, questions arise surrounding the coordination of effort in relation to marine parks and marine mammals, where jurisdiction lies with the DBCA. For the terrestrial environment, coordination occurs with regard to agricultural biosecurity via DPIRD. Undoubtedly, there are some flow-on benefits for terrestrial environmental biosecurity; but monitoring and surveillance for terrestrial environmental pests/diseases is essentially passive.

The BSOG anticipates developing State biosecurity risk mitigation response plans, following from their identification and prioritisation of state-level biosecurity risks and the jointly-agreed Myrtle rust response plan. This is an important step in formalising agency responsibilities for specific environmental pests and diseases, but coordination (and implementation) of the ongoing prevention, surveillance and preparedness activities for environmental biosecurity remains unclear. The Council notes that the DBCA is likely to be best placed for undertaking field surveillance for environmental biosecurity threats; but that DPIRD has overall responsibility for biosecurity.

It is the Council's view that the lack of coordination puts Western Australia's environment and social amenity at risk, particularly the terrestrial environment. Without a dedicated entity/group⁵ driving environmental biosecurity, government effort will continue to focus on the biosecurity of industries where clear economic benefits are recognised.

The amalgamation of two key biosecurity agencies (Agriculture and Food, and Fisheries) into DPIRD presents an opportunity to bolster environmental biosecurity structures. It also raises questions around how the BSOG might be structured and how it might operate into the future. From the Council's perspective, the timing is right to consider embedding environmental biosecurity into agency operations, noting that

⁵ For example, a 'program', 'project', cross-agency group etc.

environmental biosecurity structures must have close linkage with the coordination of primary industry biosecurity.

3.2 Roles and responsibilities

Key issue: Environmental biosecurity activities are not seen as a priority.

There are numerous examples of pests and diseases impacting upon the environment and social amenity of Australia's eastern States that are yet to be found in Western Australia. However, the extent to which agencies and associated industries actively undertake activities to prevent environmental pests and diseases establishing is minimal⁶.

DPIRD are viewed as the agency with primary responsibility for environmental biosecurity. This is despite the fact that environmental biosecurity is also addressed in legislation beyond DPIRD's remit, and 'environmental' capabilities and expertise are to be found in other agencies. In the previous agency (Department of Agriculture and Food), environmental biosecurity work (such as the identification of environmental pests), was generally not resourced or was done *ad hoc* (such as through border controls). Where programs are resourced, these are viewed as lower priority to programs targeting the biosecurity of agricultural industries. Consequently, with tight and declining budgets, such programs are exposed to resourcing cuts. In essence, the sustainability of funding for environmental biosecurity activities is questionable.

As mentioned above, under State Emergency Management arrangements the Agriculture Director General is the Hazard Management Authority for emergency management of animal/plant pests and diseases and the Department of Primary Industries and Regional Development the Controlling Agency (Office of Emergency Management 2016). This means that DPIRD has a lead role in prevention, preparedness, response and recovery in relation to animal/plant pests and diseases. That is:

- border controls to prevent the entry of environmental pests and diseases;
- surveillance and diagnostics to ensure the early detection of environmental pests and diseases;
- communication and engagement with communities/industries to increase awareness and participation in environmental biosecurity;
- maintenance of agency capacity and capability to undertake a rapid response in the event of an environmental pest or disease being detected; and
- environmental biosecurity incident response and recovery.

It is the Council's view that DPIRD has a legislated requirement to lead activities to maintain the biosecurity of Western Australia's environment and social amenity — that is, environmental biosecurity should be resourced as part of the department's core

⁶ For example, border controls, surveillance, preparedness for a rapid response if an environmental pest/disease is detected.

business. However, a collaborative approach across relevant government agencies is required, including to develop and operate a clear prioritisation process on threat categories.

Collaboration is important because other agencies, particularly DBCA and the Department of Water and Environmental Regulation, have strong interests in protecting the State's environmental assets (for example, in relation to the development of tourism). These agencies also house 'environmental' skills, expertise and appropriate legislation that cannot be found within DPIRD, although environmental technical expertise should also be considered within DPIRD.

3.3 Funding for environmental biosecurity

Key issue: How environmental biosecurity is to be funded is unresolved.

With the exception of a small number of specific surveillance programs, environmental biosecurity monitoring, surveillance and communication activities are largely unfunded across government agencies. It is acknowledged that passive monitoring at the border and passive surveillance does result in reactive identification/diagnosis of environmental pests and diseases; however, there is no funding allocated to such activities within the Agriculture and Food section of DPIRD, meaning that environmental pest/disease identification is done at the expense of core (i.e. agriculture-related) work⁷.

It is clear from Council discussions with the BSOG that private/non-government contributions are necessary to address environmental biosecurity. The underpinning factor for this position appears to be that environmental biosecurity work, if undertaken, is done to the detriment of core agency activities (although it is unclear to the Council as to why environmental biosecurity is not a core activity). How additional funds might be acquired is unknown; however, there are several options that can be considered.

The beneficiary of environmental biosecurity is the community at large. Community funding for environmental biosecurity may be secured through legislated mechanisms, such as the Declared Pest Rate under the BAM Act (a land-based rate that can be applied to parts of the State or the State as a whole). There is, however, argument that a funding model based on risk creators, as opposed to beneficiaries, is better suited to environmental biosecurity. This can work for industry (as the risk creator) to address environmental biosecurity in the areas that they operate — partnerships with industry can be an effective way to achieve contributions, and the right legislation and licence to operate can be a positive. However, in the broader environment the 'risk creator' becomes less tangible, as the term could apply to anyone in society. In terms of industry as a beneficiary of environmental biosecurity, there are limited industry partners that receive demonstrable benefit from activities to address environmental pests and therefore could be reasonably expected to contribute to the costs incurred.

⁷ Note: there is now no Agriculture and Food section of DPIRD.

Non-government and philanthropic organisations and volunteers (via community-based environmental groups) may be an important resource in the effort to address environmental biosecurity. In addition to the good-will of these groups (which can translate to on-ground action), they are avenues for sourcing grants and donations. Although these funds are often targeted toward established environmental pests, such funding may be important in on-ground surveillance, communication and in containment efforts — noting, however, that the quantum of funding through these avenues is relatively minor.

In terms of incident response, funding has been allocated to developing agency capacity and capability to undertake a rapid response. Although this is primarily to address economic-related biosecurity incursions, the capabilities developed are transferrable in the event of an environmental pest or disease being detected.

Funding for environmental biosecurity incident response and recovery efforts is less certain; although some agencies feel this is the responsibility of DPIRD given the State Emergency Management arrangements. DPIRD have authority to draw up to \$1 million for an environmental biosecurity response, with additional funds available only on the approval of Cabinet. In short, State-based response funding is *ad hoc*, and it has been suggested that a central response fund be established. There is the potential for national funding via the NEBRA; however, this is relevant only to environmental pests that are exotic to Australia and generally not applicable to pests and diseases entering Western Australia from other Australian states. Furthermore, issues in the application of the NEBRA have been identified, and several recommendations for its improvement have been presented through the recent NEBRA review.

It must be noted that ‘governments contribute to the cost of risk management measures in proportion to the public good accruing from them’ (IGAB 2012). With its focus on protecting biodiversity, ecosystems and cultural assets, the public good of environmental biosecurity is significant, yet government funding is minimal.

3.4 Interactions between legislation

Key issue: There appears to be indifference in applying the Biosecurity and Agriculture Management Act 2007 for environmental biosecurity purposes.

In addition to the BAM Act, the ARM Act and BC Act include provisions relevant to environmental biosecurity. The *Environmental Protection Act 1986* is silent on ‘biosecurity’; however, its intent is to protect the environment from threatening processes.

There is general agreement that the BAM Act will likely be the ‘go to’ legislation in the event of an environmental biosecurity incursion, primarily because of the strength of its compliance powers. However, the ARM Act and associated regulations (once they have been developed) may provide sufficient powers for aquatic biosecurity.

According to the Parks and Wildlife section of DBCA, the provisions of the BC Act will only ever be a fall-back to the BAM Act and ARM Act; with the use of the BC Act an exception rather than the norm. The key issue raised by DPIRD senior staff was the unknown resourcing impacts on DPIRD in invoking the BAM Act for environmental biosecurity purposes, particularly given the strong views from some agencies that it is DPIRD's sole responsibility given its custodianship of the BAM Act.

Based on the information from the agencies, it appears that the BAM Act will be the underpinning legislation for terrestrial environmental biosecurity incident response. The ARM Act may be the 'go to' legislation for aquatic environmental biosecurity; however, decisions on which legislation to invoke will be dependent on the situation and which legislation will best support outcomes for the aquatic environment. The recent Queensland white spot incursion is a good example of when the BAM Act was used over the ARM Act.

Given this, it is important that agencies other than DPIRD understand how they can commit to and work within the boundaries of the BAM Act — for example, reciprocal powers (with appropriate training and compatible compliance arrangements), authorisations etc. Similar to section 3.2.2 above, a collaborative approach is necessary.

3.5 Community and industry engagement and communication

Key issue: 'Environmental biosecurity' is not well-understood within the wider community.

The vision of the Western Australian Biosecurity Strategy is to work together to minimise the risks posed from pests and diseases. Indeed, the Strategy includes key goals to enhance partnerships and collaboration, and enhance engagement. Previous Council work identified the role of community as reporting biosecurity issues, preventing the introduction and spread of pests and diseases, and being aware and understanding 'biosecurity'. However, it must be highlighted that the majority of the community can be considered uninformed on the issue. The Council work also identified the valuable role of not-for-profit and community organisations in biosecurity-related activities such as surveillance, research, communications and awareness-raising.

Agencies acknowledge that the community can be better engaged in environmental biosecurity activities such as surveillance. This is supported by the findings from previous Council work where citizens were viewed as an underutilised, but often willing, resource. Furthermore, industry's 'social licence to operate' has often been raised as a driver for engaging industry in environmental biosecurity. An obvious initial step is the development of comprehensive engagement and communications strategies. Indeed, this is a key tactic in the State Biosecurity Strategy. Although such strategies are important, the Council argues that the process of developing the strategy remains key — that is, clear identification of what it is that communities/industries are to be engaged on, why they need to be engaged, who it is exactly that are to be engaged and robust research and strategizing on the 'how'.

As an example, what is the role of citizen science for environmental biosecurity through activities such as the Biosecurity Blitz, Atlas of Living Australia's BioCollect, and BirdLife Australia's annual survey? What is the role for new technologies? Where do specialist groups and organisations, such as wildlife trusts, Landcare groups and regional Natural Resource Management agencies, fit?

In considering such questions, it is also important to ensure adequate processes and systems to facilitate greater citizen engagement and cope with increased expectations. Furthermore, although 'environmental biosecurity' may be valued intrinsically by many citizens, it may not be well understood and, therefore, require direction and guidance. Using citizen science cannot be viewed as a cheap way out, but it is a valuable way to increase confidence in the early detection of environmental pests and diseases and educate the public on the importance of preserving the environment (which can save resources and have significant social, economic and environmental benefits in the long term).

3.6 Data sharing

Key issue: Surveillance data, which can be used to target on-ground surveillance activities, is not being shared.

The Commonwealth collects data on the numbers and types of biosecurity detections occurring at checkpoints in Western Australia, and across Australia. However, this information is not provided to State agencies in a timely manner, if at all. The Commonwealth argues that confidentiality is needed to pursue prosecutions (e.g. for white spot disease in prawns) or to protect market access (e.g. Khapra beetle detections); however, the lack of data-flow is an important issue that can impact on the biosecurity of Western Australia. As an example, a spike in the number of Asian gypsy moth larvae detected on imported motor vehicles at the Fremantle Port can prompt increased surveillance for gypsy moth (a major forestry pest). If this information is not known to the State, timely and targeted surveillance will not occur and the risk of the pest establishing will increase, with potentially devastating consequences.

It is noted that recent Commonwealth Government Agricultural Competitiveness White Paper funding is being used for a biosecurity surveillance and analysis initiative that includes activities to improve data-sharing with Australian States and Territories (the Biosecurity Advanced Analytics Capability measure). The benefits of this initiative, from a Western Australian perspective, are still to be determined.

In addition to the Commonwealth data, Western Australian surveillance data is also being collected at State checkpoints, via various apps, through structured surveillance programs and by other means. State-based data-sharing has not been specifically raised as an issue with the Council because people 'know who to contact'. From the Council's perspective, if this is the case, then improvements can (and should) be made. For example, all surveillance data could be collated and made available through a shared platform. With a more collaborative approach to environmental biosecurity, it is suggested that data-sharing would be a key product.

4 Recommendations

Recommendation 1: Environmental biosecurity is integrated as a core function of DPIRD and resourced accordingly (financial and human resources). This does not mean that other agencies have no responsibility for environmental biosecurity — a cross-agency (and cross-legislative), collaborative approach is required to address environmental biosecurity. This leads to the Council's draft recommendation below.

Recommendation 2: That a dedicated cross-agency entity/group is established to drive environmental biosecurity across all terrestrial and aquatic land tenures and provide strategic coordination. The cross-agency entity/group is critical to, amongst other things:

- i. identify environmental biosecurity capabilities across government (including human resource capabilities, legislative capabilities etc.) and how these can be used, and identify gaps
- ii. determine the resourcing requirements for environmental biosecurity preventative actions, and where these resources might be found; and
- iii. develop policy around public/private investment in environmental biosecurity.

This group will ensure a whole-of-government approach to environmental biosecurity.

Recommendation 3: DPIRD, in collaboration with DBCA, (or the cross-agency entity/group — see recommendation 2) prepare a business case to justify a sufficient contingency fund from Treasury for environmental biosecurity response. With a known budget to work with, cross-agency agreements on environmental biosecurity emergency response roles and responsibilities may be progressed, and apprehension around using the BAM Act for environmental biosecurity emergency response may be reduced.

Recommendation 4: The agency responsible for environmental biosecurity (or the cross-agency entity/group — see recommendation 2) develop and implement a robust process to clearly define the 'who, what, why and how' in terms of community/industry engagement in environmental biosecurity.

Recommendation 5: That appropriate data-sharing arrangements and systems are developed and implemented within the State and with the Commonwealth.