

FOREST BIOSECURITY COMMITTEE REVIEW 2018 OPERATIONAL BIOSECURITY

Version 2.1 FINAL


Review of the biosecurity preparedness of the forestry industry to identify opportunities to improve biosecurity outcomes for forestry

Biosecurity Research

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1 EXECUTIVE SUMMARY

This review aims to review the biosecurity preparedness of the forestry industry to identify opportunities to improve biosecurity outcomes for forestry. Specifically, to identify:

- Options for FBC alongside MPI (and NZPPI) to progress a nursery biosecurity standard
- Forest biosecurity practices
- Consider need for forestry industry incursion response plans in the event of a major incursion to Douglas-fir or radiata pine (esp. Phytophthora)
- Consider industry wide preparedness gaps and needs
- Implications of GIA for forestry incursions and mechanisms to respond when MPI decide not to
- Linkage between forest biosecurity surveillance and MPI’s HRSS.
- Any other aspects of biosecurity that the FBC should consider, as assessed by the contractor

Industry and government documents were reviewed, and interviews were undertaken with members of the FBC, NZPPI and MPI.

1.1 KEY RECOMMENDATIONS

Multiple recommendations are made for improved biosecurity in this review document, however it is impractical to implement all of them at once. The key recommendations for improving biosecurity preparedness are listed in the table below, along with an indication of the recommended time-frame for implementation.

Key Recommendations	Timeframe
Implement industry-wide Forest biosecurity hygiene practices to reduce the spread of existing pests and pathogens and to suppress the distribution of a new outbreak prior to detection.	Short term
Revise the pitch canker response plan under an Operational Agreement with MPI to ensure operational alignment.	Short – medium term
Progress a multisector Lepidoptera response plan focusing on community engagement for the use of aerial spraying.	Medium term
It is recommended that the strategic alignment component of the FBC review consider how sufficient resourcing will allow governance and response role holder training in the future to maximise GIA benefits.	Short term
FBC review the draft NZPPI nursery standard and consider development of a forestry module.	Short term

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<p>FOA update the biosecurity profile to:</p> <ul style="list-style-type: none"> • consider the implications from the eucalyptus and cypress reviews and commitments under the deed to develop a clear response policy for commercial tree species in the biosecurity profile. • Add detail on the FBS and HRSS surveillance programmes • Provide CBA variables • Develop an organism management plan into the biosecurity profile that incorporates existing registered agrichemicals, a description of host removal/disposal options and the machinery/resources available, proactive engagement on disposal with Council and Iwi and standing volume estimations. 	<p>Short - long term</p>
<p>It is recommended that a readiness activity be undertaken to map all commercially important species, that FOA will respond to under the deed, by identifying and combining all sources of data available to fill the minimum fields for surveillance.</p>	<p>Medium term</p>
<p>It is recommended that FOA engage with MPI as part of preparedness to clarify a straightforward process of exactly how information will be shared with the wider industry during responses <u>in a timely manner</u> in the future. This could be in the form of a checklist testing the confidentiality deed examples at Governance meetings prior to releasing information.</p>	<p>Short term</p>
<p>FOA request the GIA secretariat to develop a guideline for how key response information and data will be handed over to signatories when MPI decides not to respond, including how confidentiality of infected/infested properties will be managed as this is key information to enable signatories to respond alone.</p>	<p>Short term</p>
<p>FOA and MPI progress options for deployment of forestry technical liaison roles into the intelligence team and forestry resource liaison roles into the logistics/operations teams.</p>	<p>Short term</p>
<p>Conduct a desk-top exercise combined with field sampling and analysis of material on logging equipment to determine if significant pathogens are likely to be transported during forestry operations.</p>	<p>Short term</p>

2 INTRODUCTION

The overall goal of the Forestry Owners Association biosecurity review is to investigate the strategic direction and oversight of the forest biosecurity committee and the biosecurity preparedness of the forestry industry to identify opportunities to improve biosecurity outcomes for forestry.

The review will align with the FLGT Strategic Review and Forest Research Committee research strategy reviews.

This report specifically reviews “the biosecurity preparedness of the forestry industry to identify opportunities to improve biosecurity outcomes for forestry” component of the wider review.

2.1 SCOPE

In 2017 the FOA FBC determined that the strategic direction of the FBC Committee, including the goals, focus, and identified opportunities, needed review. The Committee has received funding from FGLT to complete this review in 2018.

The review goal will be achieved in two parallel review workstreams:

- A. Strategic alignment
- B. Operational biosecurity

The aims of each workstream are detailed below.

Part A. Strategic alignment

To determine:

- the role and responsibilities of FBC
- the scope of the FBC, core focus, and membership
- FBC linkages with key agencies and groups (e.g. MPI, STIMBR, Dothistroma committee)
- biosecurity risk assessment and identifying new research opportunities
- where STIMBR fits in the bigger biosecurity picture and if there are gaps that FBC should fill (or another organisation)

This workstream is led by Andrew Harrison and is reported separately.

Part B. Operational biosecurity

To identify:

- Options for FBC alongside MPI (and NZPPI) to progress a nursery biosecurity standard
- Forest biosecurity practices
- Consider need for forestry industry contingency plans in the event of a major incursion to Douglas-fir or radiata pine (esp. Phytophthora)

- Consider industry-wide preparedness gaps and needs
- Implications of GIA for forestry incursions and mechanisms to respond when MPI decide not to
- Linkage between forest biosecurity surveillance and MPI's HRSS
- Any other aspects of biosecurity that the FBC should consider, as assessed by the contractor:
 - Is the current FBS programme suitable for freedom from pathogen declarations during a response?
 - IHS reviews

3 OPTIONS FOR FBC ALONGSIDE MPI (AND NZPPI) TO PROGRESS A NURSERY BIOSECURITY STANDARD

The current state of the NZPPI plant production biosecurity scheme is that a core standard has been drafted and released for consultation (www.nzppi.co.nz/ppbs). Feedback was due by 7th July 2018 and then will be finalised approximately August 2018. NZPPI then intend to field test the core standard with early adopters and representative nurseries for 6-12 months (part of Stage 2). There will be two further stages following this, Stage 3 which sees a limited roll out of the scheme with support from NZPPI and Stage 4 which is a full roll out of the whole scheme (John Liddle, Pers. comm.). Once the scheme is fully implemented it is likely to be self-funded through a form of registration and audit fees, although options are still being explored.

There is an opportunity for FOA to be involved in Stage 2 (as an early adopter), which comes with the opportunity to assist funding the pilot study specifically on forestry nurseries. There is a further opportunity to be involved in Stage 3 rather than waiting for full roll out. NZPPI are very keen to work with FBC to implement the scheme (John Liddle, Pers. comm.). The advantage in early involvement is the ability to identify gaps and threats of the scheme to forestry, and to influence changes to address these risks prior to full implementation.

Discussions with John Liddle (NZPPI) identified multiple risk pathways relating to nurseries and forestry and where mitigation of risk could be made using the biosecurity scheme (Figure 3-1).

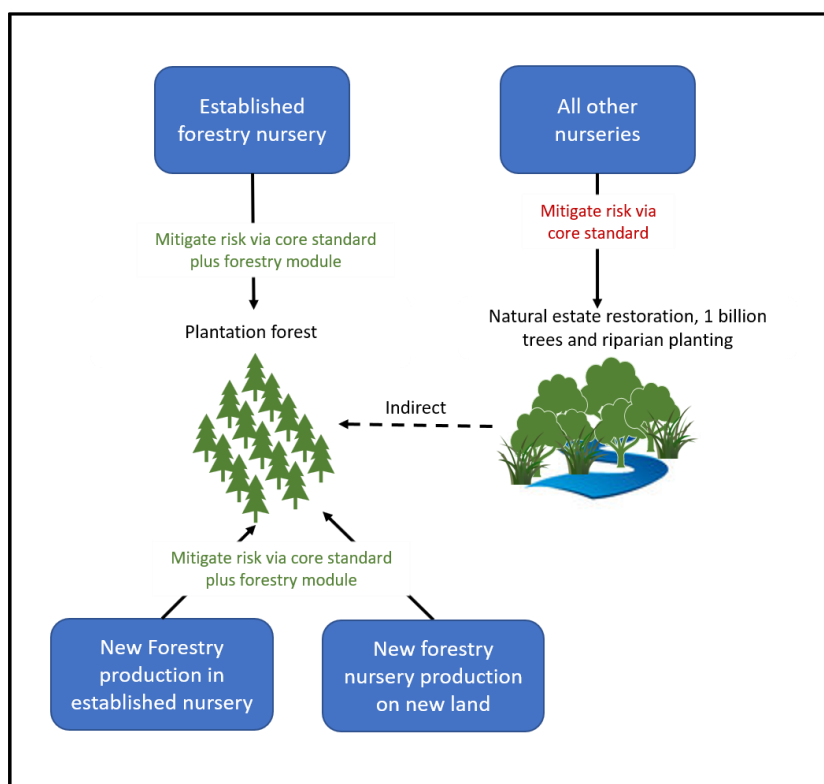


Figure 3-1 Nursery biosecurity risk pathways into forestry and points of risk mitigation using the Plant Production Biosecurity Scheme.

John Liddle noted that biosecurity concerns that may arise from increasing nursery volumes because of initiatives like the 1BT programme need to be considered as these programmes take effect. Risks associated with increasing nursery volumes in association with the one billion trees initiative were also raised by other members of the FBC during interviews. Potential risks associated with this initiative should drive an early commitment to adopting the PPBS and developing a forestry module within the forestry sector.

The core standard is designed to address a wide range of risks faced or posed by most nurseries, with a strong focus on nursery biosecurity hygiene needs (John Liddle, Pers. comm.). It will address much of the generic biosecurity hygiene needs of concern to forestry, however a forestry specific module is likely to be necessary to address organism or pathway specific issues.

The core standard covers nursery operational details, training, visitor management, signage etc. It also prescribes biosecurity best practice such as awareness, hygiene, crop monitoring, traceability of stock etc. Along with hazard management of new plant material and growing media, transportation, propagation and growing, crop protection etc. received into the production facility.

Feedback from Nigel Heron, the Nursery representative on FBC, about the proposed standard was that it made technical sense and there were items that are currently not done or not done intensively making the standard useful from a management point of view and providing a good incentive over and above the obvious benefits from doing them. However, some components are impractical for forestry nurseries. Examples of these are:

- Material cut from plants must be removed from the beds
- Cleaning machinery when they move from one block to the next

While it would be best practice to remove potential pathogen host material, it is impractical to pick up all the material from bare root beds and stool beds after they have been topped due to very large volumes of material (>20ha). Once stool beds are 3- 4 years, topped material is mulched straight into the ground by machine (Nigel Heron, Pers. comm.).

In addition, while it is desirable to reduce the spread of pathogens like Phytophthora that can be spread in soil machinery cleaning between blocks would be logistically difficult as tractors and vehicles visit multiple nursery blocks in a single day. This component within the proposed standard would be possible but impractical and would likely cost a lot to implement (Nigel Heron, Pers. comm.).

From a national/regional biosecurity viewpoint these two components would require evidence of significant risk for the propagation and spread of pests and pathogens to warrant a change of practice within nurseries. However, machinery cleaning between sites rather than blocks is likely to be justified from a risk management viewpoint. These concerns were passed onto NZPPI as part of their consultation.

A key feature of importance to the forestry industry is that the core standard uses practical freedom, rather than identifying specific organisms of concern:

*“The **Core Standard** does not specifically identify pests of concern. It instead employs the concept of “Practical Freedom”:*

“A consignment, field, or place of production, without pests in numbers or quantities in excess of those that can be expected to result from, and be consistent with, good cultural and handling practices employed in the production and marketing of the commodity” (ISPM5)

*to ascribe a high-level of biosecurity confidence in the producer, their nursery and plants they produce. **Specific Pest Modules** will very likely identify pests of concern and place additional requirements on producers who grow the plant species and/or supply the industry or ship plants through the pathway of interest. (NZPPI 2018) If Specific Pest Modules are applicable, producers must meet monitoring and diagnostic testing conditions prescribed by that module.” (NZPPI 2018)*

The core standard will not be sufficient to mitigate the inadvertent spread of Phytophthora species (RNC etc.) or other foliar or soil inhabiting pathogens or micro-invertebrates to pathogen-free areas via the nursery pathway. Nelson Forests Ltd. require evidence of nursery stock inspection by a Forest Health professional as part of their operating procedures and this could be incorporated into a forest module. There is a defined pathway for the forestry industry to develop a forestry specific module that addresses these specific needs. This would involve a collaborative working group between Forest Nurseries, FOA (via FBC) and NZPPI’s scheme managers to develop the module and ensure alignment with the core standard. Currently there is a draft Myrtle Rust module that can provide a template for a forestry module. In addition, the NZ Avocado Growers Association has developed a High Health Scheme for nursery production that addresses, among others, the risk of *Phytophthora cinnamomi* (New Zealand Avocado Growers Association 2017), which could also act as a template for

development and implementation. FBC should identify which existing and potential high-risk organisms may be spread on the nursery pathway and consider what monitoring and diagnostic testing would be required under a forestry specific module for them. Feedback from Nigel Heron was that this really needs some research investment to develop how you would deem a Nursery free of a certain pathogen or the stock leaving the Nursery free of certain pathogens prior to contemplating trying to implement testing. He also stated that implementation should be phased in slowly. NZPPI has indicated that the scheme has progressed to a point that they are ready to start as soon as forestry is ready (John Liddle, Pers. comm.). Further feedback from Nigel was the concern raised in the NZPPI research paper and by FBC members that fungicides may mask things such as Phytophthora and enable infected but healthy plants to be transported to the forest and he urges that balance be maintained. There are significant implications to managing this risk by reducing fungicide usage, for example:

“If this was to be included in a standard we would end up with crops full of Dothistroma and seedling crops full of Terminal Crook and Container crops full of Botrytis – so there would be a lot less trees heading to the forest and they would have been exposed to significant disease!” Nigel Heron

It is recommended that FOA undertake research into options for testing nursery material for significant pathogens that does not result in an added disease burden from established pathogens in nurseries and forestry plantings. Possible alternatives are to develop soil tests or to maintain unsprayed (covered) sentinel plants for testing and monitoring.

3.1 RECOMMENDATIONS:

- FBC members to review draft scheme and ensure that there is nothing in the core standard that limits, compromises or threatens forestry nursery production, and identify key items that may be missing. COMPLETED 5/7/18 (Forest Owners Association 2018a)
- FBC to identify specific areas of concern for forestry that are not present in the core standard and may be required for a forestry specific module.
- FBC consider funding Stage 2 pilot of the scheme in a forestry nursery, or Stage 3 involvement.
- FBC consider research to support what monitoring and diagnostic testing would be required under a forestry specific module and how it is best applied.

4 FOREST BIOSECURITY PRACTICES

This section reviews options to reduce spread of existing pests, weeds and pathogens and limit spread of new incursions prior to effective movement controls.

4.1 RISK PATHWAYS

There are multiple pathways that may introduce existing and new pests, weeds and pathogens, as illustrated in **Error! Reference source not found.** Risk pathways can include movements of risk goods carrying biosecurity risk organisms from imported goods, nursery stock, people and visitors

(e.g. International Forestry Conferences or sporting events). MPI is responsible for identifying emerging risks from international movements through the risk analysis team. However, as was demonstrated in the Psa incursion on kiwifruit (Moore & Loan 2012), both industry and science providers need to be proactive in communicating emerging risks they identify to MPI and ensure that these risks are included in risk analysis and site selection for the high risk site surveillance (HRSS) programme. It is recommended that the Forestry Industry includes an agenda item to discuss domestic and international emerging risks through changes to forestry practices and imports during the existing biosecurity forums they hold with MPI, SCION and other key stakeholders (i.e. FBC and the annual Biosecurity Workshop). The FOA needs to be proactive in lobbying MPI to ensure any risks identified are incorporated into reviews of Imported Health Standards and the HRSS or other relevant surveillance programmes.

In addition, the FOA biosecurity profile discusses risk pathways into and within New Zealand (Forest Owners Association 2016a). It would be valuable to review this section of the biosecurity profile and implement an annual review of this section to ensure new or emerging risks are identified.

Specific risk pathways are covered in sections 4.4 – 4.8 and generic response readiness for risks are covered in section 6.

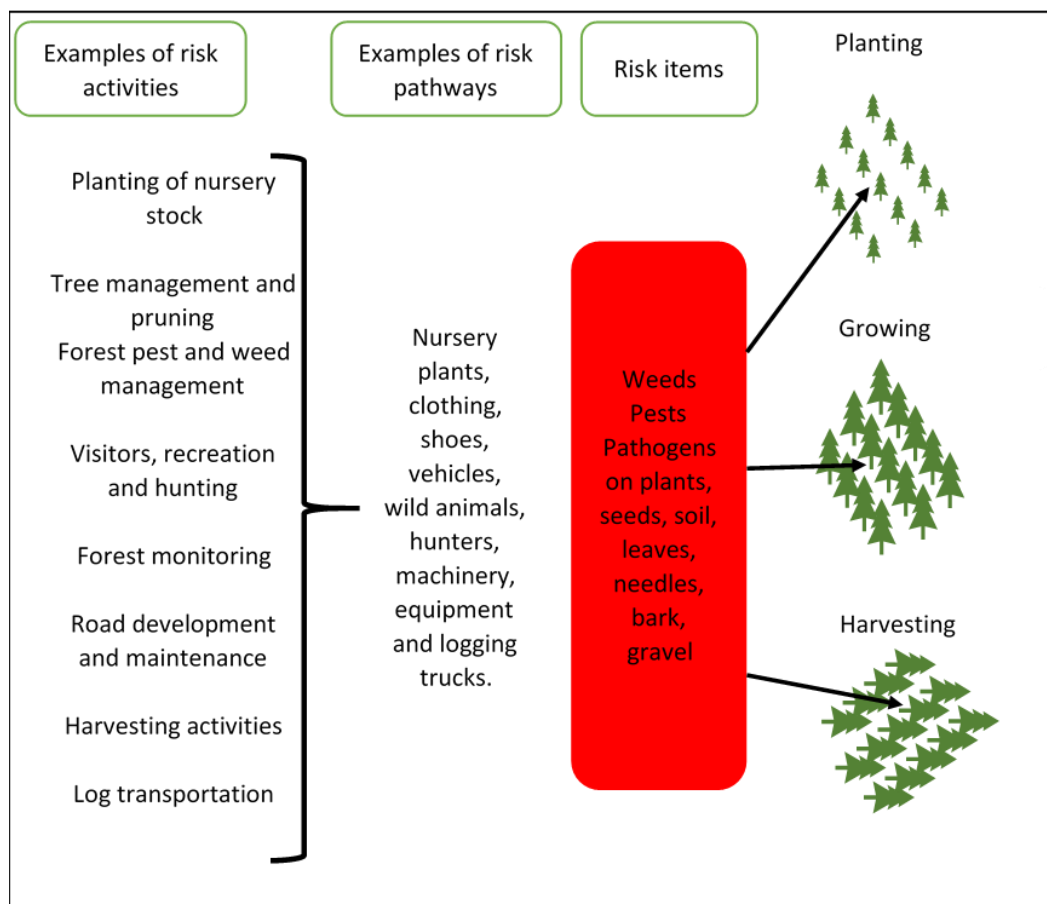


Figure 4-1 Examples of risk activities and pathways that can introduce new and established weeds, pests and pathogens to forests.

4.2 EXISTING HYGIENE PROCEDURES

Interviews with members of the FBC identified that larger plantation forestry companies have existing forest biosecurity practices, however all agreed that they were either not fully implemented or insufficient to fully address biosecurity risks. A good example of how forest hygiene protocols could be implemented was provided by Ernslaw One Limited, in the form of a simple one page operational standard for equipment entering forests (Ernslaw One Ltd. Operational Standard). A second example of pest, pathogen and weed management was given by Nelson Forests Ltd which gave specific pest control strategies for health and safety risks (roadside visibility weed control and wasp control) regional pest management plan weeds and forest biosecurity risk organisms (Nelson Forests Ltd. 2014). Hancock Forest Management also manages weeds around quarries to prevent spread of seeds and requires an annual nursery health survey prior to tree stock dispatch as part of their supply contract (Mike Baker, Pers. comm.).

The Forest Owners Association have developed a forest hygiene policy for international visitors and staff returning from overseas (Forest Owners Association 2018b). There is awareness of this policy

document within the FBC but those interviewed raised questions of whether it was widely adopted. It is recommended that this policy is regularly disseminated to FOA members in conjunction with relevant news articles describing biosecurity threats, such as in PineNet newsletters.

The National Environmental Standards (NES) (Ministry for Primary Industries 2018a) user guidelines reference the Biosecurity Act and wilding conifers. The NES aims to reduce the impact of plantation forestry on the environment. However, management of weeds, pests or diseases other than wilding conifers are not included. Biosecurity benefits of the NES are reduction of soil run-off which may reduce the natural spread rate of soil-borne pathogens. Biosecurity risks of the NES include the requirement to rapidly stabilise earthworks with the suggested methods of planting grass, legumes, hydroseeding, mulch (bark, woody material or hay) or spreading slash. Each of these methods have the potential to introduce biosecurity risk organisms such as weed seeds as contaminants and pathogens associated with bark and woody material. Improved awareness of introducing biosecurity risks via these pathways is recommended to forestry managers and contractors. Research into the risk profile for bark, woody material and hay would be recommended.

4.3 ADVANTAGES OF FOREST HYGIENE

There are two key advantages of forest hygiene measures:

1. To reduce the spread and impact of new pest or disease outbreaks prior to detection, to enhance eradication feasibility and reduce the cost of eradication.
2. To reduce the spread and impact of existing pests and pathogens.

How forest hygiene can contribute to reducing the spread and impact of new outbreaks is illustrated in Figure 4-2.

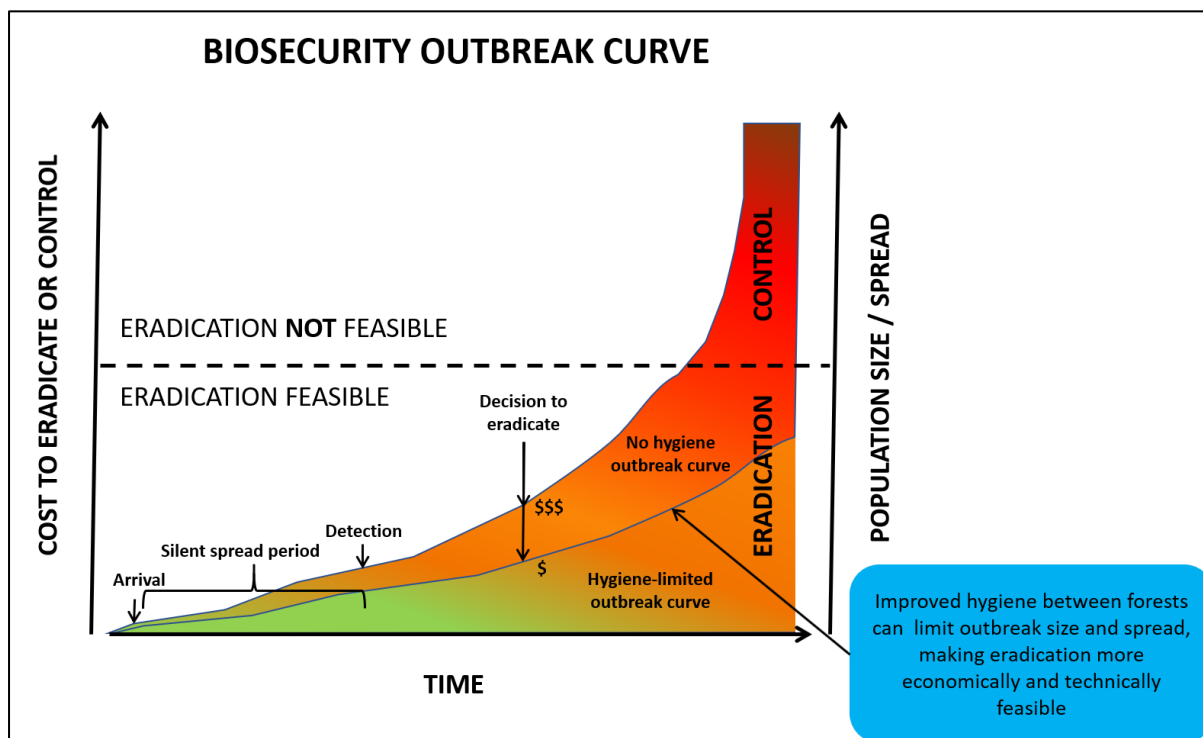


Figure 4-2 Biosecurity incursion outbreak curves showing where eradication is feasible and how hygiene measures can enhance options for eradication.

4.4 NURSERY STOCK

The nursery stock pathway is an important potential risk for introducing new and emerging weeds, pest and pathogens into forestry areas. The nursery specific hygiene measures for managing this risk are addressed in section 3 of this review. Imported seed is managed by MPI under the seed for sowing import health standard (Ministry for Primary Industries 2018c) which is consulted on with relevant industries. Non-nursery issues such as planting equipment and worker hygiene are covered in the sub-sections of section 4.

4.5 FORESTRY VEHICLES, MACHINERY AND EQUIPMENT

This section looks at options to reduce spread of existing pests, weeds and pathogens and limit spread of new incursions prior to effective movement controls. During consultation with FBC members this forest hygiene protocol was introduced to gauge opinion of the practicality of introducing industry wide hygiene measures:

“Machinery/vehicles that are not moved between forests do not need to be cleaned. If it is moved between forests but only used within a single company, then it may be a commercial decision towards best practice to clean between sites. If machinery is moving between different sites and forest owners, then it is recommended that the forestry owner insists that it arrives clean onto their site. FBC could consider

undertaking a feasibility study to determine if machinery cleaning can be practically implemented and what the costs will be.”

Results from interviews with forest biosecurity managers were very consistent with the message that hygiene measures would need to be very practical as contractors were already facing pressure with implementing NES and Health and Safety standards. It was also felt that uptake would be limited unless there was a serious incursion that would stimulate adoption.

Following consultation with FBC members, logging truck hygiene was excluded from a general forest hygiene recommendation and is discussed separately in section 4.6.

The introduction of forest hygiene post-incursion may be considered as part of response containment options, however in most cases it will already be too late to limit the spread of a pathogen. It is possible that inter-regional dispersal of RNC may have been prevented or delayed if forest hygiene was in place. There is also potential for *Nectria flute canker*, (*Neonectria fuckeliana*) to be contained if forest hygiene is adopted, specifically around removal of wood and bark debris on vehicles, machinery and equipment between forests. These two diseases would be good examples of serious incursions to stimulate the adoption of forest hygiene for future incursions. Given the potential for forest hygiene to slow the spread of new and existing risk organisms, measures are recommended for staged implementation at the national level.

Forest hygiene measures for forestry vehicles (excluding logging trucks), equipment (including wire rope) and machinery:

- 1. Items moved between regions need to be cleaned free of all plant material and soil PRIOR to leaving the region of origin. Wherever possible cleaning should be done on site.**
2. It is best practice for industry to keep an equipment and machinery inspection and cleaning log book which includes date, origin and destination.
3. It is best practice for items moving between forests in the same region to be cleaned PRIOR to entering a new site.
4. Items that remain in a single forest do not need to be cleaned, unless a specific weed, pest or disease is under active management.

It is recommended that #1 and #2 are implemented at a national scale as soon as possible. To be useful for tracing in biosecurity responses (discussed in section 6.4) equipment and machinery inspection and cleaning log books could be kept in a national register similar to the IRIS accident reporting system. Item #3 could be developed over time depending on changes to risks within regions. Item #4 is outside of the national interest and is a commercial decision for operators to consider. The National Pest Control Agencies (NPCA) in collaboration with the Local Government Biosecurity Managers Group, Rural Contractors NZ, Federated Farmers and MPI have developed machinery cleaning guidelines (available here: <http://www.npca.org.nz/index.php/news/84-general/231-keep-it-clean.html>) which could immediately be adopted for forestry to implement regional forest hygiene. Feedback from the FBC identified several key issues for the implementation of these forest hygiene measures that will need to be considered: management of service vehicles, plotting contractors and staff who often visit 3-4 forests in one day, how the

measures will be enforced, and how to ensure the measures are practical and achievable for all levels of forestry users.

Introduction of forestry machinery is a key border risk for unwanted organism introduction. All imported vehicles, equipment and machinery, both new and used are managed under the MPI Import Health Standard (Ministry for Primary Industries 2018b) which provides regulation on treatments for forestry machinery including wire rope entering New Zealand. Despite certification of cleaning and/or inspection at the border, it is recommended that all new equipment is checked by the receiving company and disinfected if previously used in forestry. New or used imported forestry vehicles, machinery and equipment should also be included in the inspection and cleaning log book recommended in the forest hygiene measures.

4.6 LOGGING TRUCKS

The inclusion of logging trucks in national forest hygiene recommendations was widely discussed during consultation with FBC members, with the result that logging truck hygiene was excluded as a recommended practice but included as a recommendation to undertake research to quantify the risk posed. The practicality of implementation was deemed difficult for several reasons. The first is that truck drivers plan their movements based on work time requirements which have a maximum of 13 hours (including driving, loading/unloading and cleaning) with two 30-minute breaks, within a 24hr period. For example, they may make two long distance and one short distance movement in a day to maximise number of loads within work time requirements. It is common for logging trucks to visit more than one forest in a day, and often visit 3-6 forests daily (Mark Forward, Pers. comm). Work time includes time taken for cleaning and therefore would directly impact drivers' earnings. It is also uncertain what risk logging trucks pose to biosecurity as they largely drive on metal roads although loading is often on disturbed bare soil. Potentially costly restrictions such as wash-down would not be evidence based at present, although research to quantify the risk posed by logging trucks is recommended and in future increased hygiene may be justified.

There are some existing mechanisms to mitigate risks from logging trucks. The loading/unloading industry standard from the log transport safety council (Log transport safety council 2015b) includes instruction for the removal of bark, slovens and dirt from logging trucks at a designated area following unloading at yards and mills. There are also existing provisions in the log load securing requirements for the removal, by sweeping, of loose stones and bark from loaded logging trucks (Log transport safety council 2015a). It is recommended that a small-scale study is undertaken to determine the uptake of these requirements and to quantify the volume of organic matter that may harbour risk organisms (weed seeds, soil and foliar pests and pathogens) associated with the logging truck pathway to determine if greater awareness and auditing of dirt and bark removal is required. In addition, FBC should make a recommendation to the log transport safety council that loose soil and clumps of mud be included in the next revision of these requirements.

4.7 ROADING

Site disturbance during road construction provides ideal conditions for existing weeds to colonise road edges and provides an opportunity for the introduction of new weeds, via machinery and roading aggregate. Forest hygiene recommended in section 4.5 should mitigate machinery risk. The risk of weed introduction from road aggregate was mentioned by at least 3 biosecurity managers and was considered a demonstrated problem that justifies mitigation. There are several existing management options employed for managing weeds from rock aggregate, including managing weeds associated with forest quarries and spraying for weeds post-gravel laying. Some companies already have procedures or guidelines on managing weeds from quarries and road aggregate. Gorse, broom, buddleia and pampas were all mentioned as being associated with road construction. It is recommended that FOA develop a national guideline for managing weeds associated with road aggregate. This could be an additional section in the next update to the NZ forest road engineering guide (Forest Owners Association 2012). This guide currently states, “weeds are expensive and difficult to control once established”. The guide mentions weeds in the sign-off section, asking the question:

Does the machinery need cleaning to reduce the spread of noxious weeds?

At the end of works. It is recommended that this question is asked PRIOR to the arrival of the machinery AND at the completion of works. In addition, there is a small section associated with gravel stockpiles with the guidelines of:

“Do not use weed-infested metal stockpiles unless the area to be metalled already has those weeds”; and “Kill weeds in stockpiles before they get large enough to seed”.

As there is a range of existing guidelines for rock aggregate weed management within different forestry companies and under FOA, it is recommended that a small subcommittee develop a more comprehensive national weed management for road aggregate guideline that can be incorporated into the NZ forest road engineering guide. This should include weed and pest management around quarries.

4.8 VISITORS

In most forests, visitors to the forest for recreation, hunting, pest control, firewood removal or scientific purposes currently need to either obtain a permit or sign-in, as a health and safety requirement. There is an opportunity to raise biosecurity awareness during this process by providing additional information about the risk of introducing seeds and pathogens on boots and other items such as mountain bikes, cars, utes, rally vehicles, motorbikes, horses, hunting, camping and hiking equipment. Forestry companies could add hygiene or cleanliness requirements to confirmation of permit bookings and publish these requirements on their websites. They could also ensure that visitors have fully understood the biosecurity requirements by including a tick-box or question in the online and office booking systems such as:

I understand that boots, vehicle/s, bikes and equipment must be free of soil, seeds and leaves PRIOR to entering the forest.

Name: _____ Signed: _____ Date: __/__/____

These records could be introduced for all forest entry, including commercial visitors and should be kept for tracing purposes for surveillance or to identify vehicles for cleaning and trace firewood in the advent of an incursion.

Submitters to this review indicated that illegal entry of forests was an issue and it is noted that the recommended measures will not mitigate any risk introduced by illegal forestry users.

4.9 RECOMMENDATIONS

- Implement national forest hygiene measures for forestry vehicles (excluding logging trucks), equipment (including wire rope) and machinery of: **Items moved between regions need to be cleaned free of all plant material and soil PRIOR to leaving the region of origin. Wherever possible cleaning should be undertaken on site before movement off.** Adopt the NPCA Keep it clean guidelines for machinery.
- Undertake a small-scale study to quantify the volume of organic matter that may harbour risk organisms (weed seeds, soil and foliar pests and pathogens) associated with the logging truck pathway and determine the industry uptake of bark and soil removal by sweeping requirements.
- FBC make a recommendation to the log transport safety council that loose soil and clumps of mud be included in the next revision of the log load securing requirements and the loading/unloading requirements.
- FOA form a small subcommittee to develop a national weed management for road aggregate guideline that can be incorporated into the NZ forest road engineering guide.
- Undertake small-scale research into the biosecurity risk profile for bark, woody material and hay as stabilisation materials.
- Improve industry biosecurity awareness of introducing risks via:
 - soil stabilisation practices for forestry managers and contractors and
 - International visitors
 - General and recreational visitors
 - Road development and maintenance
 - Forestry vehicles, equipment and machinery
 - Logging trucks
- Include an agenda item to discuss domestic and international emerging risks through changes to forestry practices and imports during the existing biosecurity forums with MPI, SCION and other key stakeholders (i.e. FBC and the annual Biosecurity Workshop).
- The FOA needs to be proactive in lobbying MPI to ensure any emerging risks are incorporated into reviews of Imported Health Standards and the HRSS or other relevant surveillance programmes.

- Improve the current risk pathways section of the biosecurity profile and implement an annual review of this section to ensure new or emerging risks are identified.
- Increase recreational and commercial visitor awareness of biosecurity risk by including information for permit bookings and adding a tick-box stating that boots, vehicle/s, bikes and equipment must be free of soil, seeds and leaves PRIOR to entering the forest. Keep these records for tracing.
- Regularly disseminate the FOA forest hygiene policy for international visitors and staff returning from overseas as a reminder (with link) within relevant biosecurity risk articles in PineNet and other industry forums.

5 FORESTRY INDUSTRY RESPONSE PLANS

This review considers the need for forestry industry response plans in the event of a major incursion to Douglas-fir or radiata pine (esp. Phytophthora). There is only one existing preparedness plan for the forestry industry, which is the Pine Pitch Canker (PPC) plan (Gadgil 2003). This plan is currently in draft (“*Fusarium circinatum* incursion management plan”) after being updated in January 2016 and has not yet been reviewed by MPI. It is uncertain whether this draft response plan would be deployed in the event of a PPC incursion or whether the original signed off plan from 2003 (Gadgil 2003) would be used.

Progressing forestry response plans for specific unwanted organisms is clearly within the definition of a GIA readiness activity, refer to Figure 5-1.

At the core of the GIA is the GIA Deed and Part 5A of the *Biosecurity Act 1993*. The *Biosecurity Act 1993* Section 100Y (2) defines a readiness activity as:
...“an activity undertaken to prepare to prevent or reduce the impact that an unwanted organism that is not present in New Zealand would have if it were to enter New Zealand”.
The GIA Deed (paragraph 7.7) adds an additional portion onto this definition:
....“and may include contingency planning, capacity and capability building, surveillance to detect organisms and market access contingency plans”.

Figure 5-1 Definition of readiness activities under GIA

5.1 FORESTRY PATHOGENS

The FOA biosecurity profile highlights six pathogens, only one of which, *Fusarium circinatum* (PPC), has an incursion management plan Figure 5-2

Pathogens not currently recorded in New Zealand			
Pathogen (Scientific Name)	Disease (Common Name)	Primary host	Description
<i>Endocronartium harknesii</i>	Western gall rust	<i>Pinus radiata</i>	Found in North America and causes serious damage to pine in some areas
<i>Bursaphelenchus xylophilus</i>	Pine wilt nematode	<i>Pinus radiata</i>	Not currently present in New Zealand. Has been recorded causing damage to radiata pine in Portugal. Little damage in natural radiata pine in California.
<i>Fusarium circinatum</i>	Pitch canker	<i>Pinus radiata</i>	Causes disease in radiata pine in California, Chile, South Africa and Spain. Not in NZ.
<i>Phytophthora pinifolia</i>	Dano Foliar del Pino (DFP)	<i>Pinus radiata</i>	Found in Chile and resulted in logs being banned in Australia and South Korea
<i>Phytophthora ramorum</i>	Sudden oak death	<i>Douglas-fir</i>	Perceived threat resulting in logs from Oregon being banned for export to China
<i>Heterobasidion annosum</i>		Conifers	It is considered the most economically important forest pathogen in the Northern Hemisphere.

Figure 5-2 Forestry pathogens list from FOA biosecurity profile 2016

Note that some revisions are required for sudden oak death section of this table in the Forest Owners Association (2016a) profile document. The scientific name is spelled incorrectly and the description “Perceived threat resulting in logs from Oregon being banned for export to China” needs to be updated to state: “Douglas fir logs sourced from infected counties in Oregon are required to be debarked before export to China” (Bill Dyck, Pers. comm.)

The only existing preparedness plan for forestry is the draft *Fusarium circinatum* (pitch canker) plan. At this stage it would be more valuable to enhance the pitch canker plan to incorporate additional response requirements which may be adopted to manage another foliar or soil pathogen in the future than to initiate another pathogen specific response plan. Many harmful pests and pathogens that arrive in New Zealand are not predicted and often are of limited impact in their natural range (eg RNC, Dothistroma, Paropsis, Essigella). Only when they come to NZ where they have no natural controls are they able to spread widely and cause loss. Because of this, generic industry-wide hygiene and preparedness recommendations in sections 3, 4 and 6 would be of higher priority than developing additional species-specific plans.

The draft *Fusarium circinatum* plan has not been reviewed by MPI as they have been waiting for a GIA operational agreement with FOA before starting this review. Modifications to the draft plan would enhance operational deployment of the incursion management plan by splitting it into sections as below (referencing existing sections of the draft plan):

1. Response management: Generic details of how GIA would work, response decision making procedures and funding (currently contained in sections 2,7,8,10). This could be separated entirely from the pitch canker plan and added to the industry biosecurity profile.
2. Organism specific information: information about pitch canker including introduction risk, biology and epidemiology, diagnostics, detection surveillance and the assumptions and knowledge that supports the recommended operational options (i.e. the science behind the plan, currently contained in sections 3,4,5,6, Appendix 1). Many of these items are outside a response framework but could be included in the plan, as the procedures for detection surveillance, diagnostics and notification are not readily available outside of MPI. This information should form Part 1 of the plan.
3. Response operational plan: this section would be Part 2 of the plan and should be split into sub-sections that can be handed over to those responsible for delivery of the plan to enable the plan to be rapidly operationalised.
 - a. Movement control: this is the current restricted areas section 9.2.
 - b. Response surveillance: this is the current delimiting surveys and post-treatment surveys sections 9.1 and 9.4.
 - c. Organism management: this is the current eradication measures section 9.3.
 - d. Diagnostics: currently in section 9.1.
 - e. Communications: this is currently absent but mentioned in 7.1.
 - f. Continuity of Trade: this is currently absent from the plan
 - g. Liaison: this needs to be more specific but covers part of section 7.1 and 7.2.
 - h. Logistics: this is currently absent
 - i. Welfare and recovery: these are currently absent

Specific gaps and opportunities to be considered when reviewing the pitch canker response plan are:

- Split the delimiting surveillance method to cover delimiting the outbreaks outer limit and case detection surveillance to support eradication. The difference between delimiting and case detection is that delimiting is aimed at finding the outer limit of the outbreak whereas case detection is aimed at finding infected plants within the known outbreak limit to ensure that eradication goals are met.
- A 1.5km radius overlapping a pine plantation could include >100,000 trees that require assessment (Froud 2012) therefore a randomised sampling plan should be developed to enable rapid delimiting of the outbreak and research to determine the sensitivity and specificity of visual or UAV/aerial assessment of disease, allowing sample size calculations for resource planning.
- Include tracing of risk movements for wider surveillance (and for cleaning/disinfection), managing report cases and freedom from disease surveillance (if necessary to continue log trade).
- Align the movement control (9.2 restricted areas) options with what is allowable under the powers of the Biosecurity Act 1993 (Part 6 Place and Area Controls), particularly regarding restricting access to risk items, rather than people.
- Risk items for controlled areas should be itemised and a draft legal notice be developed as part of the plan (refer to section 6.4.2 of this review).

- Consider the use of a controlled area to manage pitch canker in addition to restricted places which could be problematic due to the scale of forestry properties and due to the mode of transmission of the disease (refer to section 0 below).
- The expected rate of natural spread per annum via sporulation versus vectoring by bark beetles should be assessed and the movement control and surveillance zone be reassessed as recommended by Froud (2012).
- Consideration should be given to including responding to bark beetles as a potential introduction pathway for pitch canker and vector mechanism during an outbreak of pitch canker. This could include revising the options for bark beetle surveillance (Brockhoff et al. 2006; Brockhoff et al. 2010).
- Organism management measures are very comprehensive in the existing plan, they may also consider including deep burial as a disposal alternative to burning nursery stock along with chipping and disposal for planted forestry (refer to general organism management section 6.4.3).
- Align the diagnostic plan to meet MPI PHEL requirements for diagnostics for an unwanted organism, including prediction of sample volumes and pre-approval of SCION laboratories to help manage excessive workloads.
- Develop a continuity of trade plan, which would include both the existing MPI trade procedures AND business continuity planning for log movements within and through movement control areas.
- Develop a liaison plan of how information will be shared between agencies and with affected forestry industry groups.
- Develop a logistics plan which could use the pitch canker scenario for forestry resources (Froud 2012) and incorporate access to PineNet and other forestry-based resources and how this will be managed under the NBCN (national biosecurity capability network).
- Develop a welfare and recovery plan that includes access to the rural support trust, procedures for compensation, how the 2-year stand-down period will be managed and access to new planting material.

5.2 INSECT PESTS

Of the risk species listed in the Forest Owners Association (2016a) biosecurity profile as of concern, most were lepidopterans (Figure 5-3).

Pest (Scientific name)	Pest (Common name)	Primary host	Description
<i>Lymantridae</i>	Gypsy moths	Many species	Several species have been found in New Zealand (e.g. –white spotted tussock moth, painted apple moth, fall webworm, Asian gypsy moth) and have been eradicated. Of a major concern is the nun moth (<i>L. monacha</i>) which is not present in New Zealand currently
<i>Dendroctonus and Ips.</i>	Bark beetles	<i>Pinus radiata</i>	<i>Dendroctonus</i> and <i>Ips.</i> pose serious threats to New Zealand forestry should they establish
<i>Rhyacionia buoliana</i>	Pine shoot moth	<i>Pinus radiata</i>	This is currently causing issues in Chile
<i>Thaumetopoea pityocampa</i>	Pine processionary moth	<i>Pines and cedars</i>	One of the most destructive species to pines and cedars in Central Asia, North Africa and the countries of southern Europe

Figure 5-3 Insect pest list from FOA biosecurity profile 2016

There is considerable information around Lymantrid eradication in New Zealand and around the world. The FBC has been very proactive in investigating the social licence to operate for this type of eradication in the future in association with MPI and SCION (Forest Owners Association et al. 2017). Social licence to operate was the topic of their annual Biosecurity conference for 2018 (Forest Owners Association & Ministry for Primary Industries 2018). The conference outcome was a wider appreciation for the potential to use aerial spraying again in New Zealand and went a long way towards breaking the assumption that “we couldn’t get away with that again”. To maintain the momentum gained through the workshop, wider MPI, Industry and community engagement is required to change the “too hard” assumption that is likely to held by those that did not attend the workshop. In addition, there is significant preparedness work required to deliver on the workshop objectives.

The FOA recommended a Nun moth response plan be developed (Forest Owners Association 2016a), and progress towards this is under a planned multisector operational agreement (OA) for Lepidoptera with a workshop due before June 2018. In the development of the multisector plan, the forestry industry should also investigate whether the proposed surveillance and eradication

methodologies could be adopted for other forestry lepidoptera (e.g. pine shoot moth and pine processionary moth).

In addition, the multisector plan should include:

- Relevant life cycle and dispersal details for risk Lymantridae, pine shoot moth and pine processionary moth (as a forestry specific appendix).
- Pre-approval and registration of suitable agrichemicals (e.g. Foray 48Btk)
- A robust communications plan that includes:
 - Implementing the key recommendations from the social licence to operate report (Forest Owners Association et al. 2017). This includes increasing public engagement around the benefits of eradication including protection of the native forest estate and multiple media formats, a 24 hour information line to a key technical person, social media monitoring to detect and refute misinformation, a series of open house forums rather than town-hall panels.
 - Draft materials that have been pre-tested on focus groups
 - A logistical plan on how to rapidly operationalise a multi-million-dollar communications plan.
 - The communications plan should also address specific concerns from the 2007 Ombudsman report on aerial spraying of Foray 48B in New Zealand (Smith 2007):

“a) My recommendation is that the spraying agency must provide full and accurate information in relation to the need for the spray programme and about the contents of the spray. It should also unequivocally acknowledge that there may be harm caused to some people residing or present within the spray zone.

b) That publication should be made as early as possible to enable those who may wish to do so, to seek medical advice and to take steps to limit, or avoid, exposure to the spray.

c) There would need to be a well planned communications strategy which should encompass details on demographic groups, food allergies, respiratory problems, family disruptions, and the opportunities for access to medical general practitioners and specialists. Basically, there should be a health service that is sensitive to the community it serves, and is proactive.” (Smith 2007)

- Policy preparedness to meet the recommendations from the Ombudsman report (Smith 2007), specifically around use of the biosecurity act (Section 7A) to avoid the Resource Management Act:

“32. Also, I consider that there needs to be consideration given to the desirability of the seemingly automatic use of section 7A of the Biosecurity Act, which has the effect of overriding protections which might otherwise exist under Part 3 of the Resource Management Act. I appreciate that the processes of that Act can be time consuming, but it should be possible to devise a procedure which provides a sufficient opportunity for the Environment Court to furnish an independent judgement.

33. Environmental Impact Assessments relating to West Auckland and to Hamilton were prepared but they each became available only after the spray programmes had been put in place and were operational. The timely availability of such information should be a priority, and form part of any legislation authorising reference to the Environment Court.

Recommendation 2 I therefore recommend that amendments to the relevant legislation be considered and enacted as a matter of urgency so that they are immediately available should the need arise.” (Smith 2007)

- Description of the role the Ministry of Health has in aerial spraying and how the health related issues described in the Ombudsman’s report (Smith 2007) and the recommendations for a senior Health official to oversee an aerial campaign in the future will be met.
- It would also be of value to investigate if any long-term health effects research has been conducted in areas where Foray 48B have been used frequently as recommended in the Ombudsmen’s report (Smith 2007).

5.3 RECOMMENDATIONS

In the long-term a risk profile for each of the named insect pests and pathogens in the biosecurity profile should be developed but operational plans may not be required. In the short to medium term, completion of the pitch canker and multisector lepidoptera plans are a much higher priority as the operational plan sections will inform responses to other risk organisms.

Recommendations are:

- Restructure the pitch canker response plan to align with operational groups.
- Review the pitch canker response plan to include specific operational items described in section 5.1.
- Develop a multi-sector response plan to manage lepidoptera, specifically aimed at addressing the ombudsman’s recommendations and obtaining social licence to operate for an aerial eradication campaign is strongly recommended.
- In the long term develop organism specific profiles for the other unwanted organisms named in the biosecurity profile.

6 CONSIDER INDUSTRY WIDE PREPAREDNESS GAPS AND NEEDS

Generic industry wide preparedness can be split into key areas of communication and liaison, training and awareness, detection surveillance, policy and legislation and response options. Each of these areas are discussed. The core document that details the current industry preparedness is the forest industry biosecurity profile (Forest Owners Association 2016a).

It is valuable to have a sole source of up-to-date industry preparedness and therefore this document is extremely valuable and should be revised annually to ensure that it is up to date, additional information from research and readiness activities are added and that references, and hyperlinks are active. The annual update of the biosecurity profile is part of the GIA minimum commitments (GIA secretariat 2016).

Other components of readiness activities recommended in this section of the review are aimed at generic readiness for new unwanted risk organisms and go beyond minimum commitments. They therefore will fit within the GIA definition of readiness activities (Figure 5-1) (GIA secretariat 2016). To be clear, where recommendations are made in this section, it is specified if they are considered to be minimum commitments or readiness activities.

Many of the concerns brought up by forestry industry members during the GIA deed consultation relating to nurseries (Forest Owners Association 2015) are not formally addressed in the industry biosecurity profile (Forest Owners Association 2016a) or the deed document (Forest Owners Association 2015). The planned inclusion of forest nurseries into the GIA forestry sector agreement will support these risks to be addressed, along with the recommendations made in section 3. It is recommended that the biosecurity profile be updated when nurseries are officially included as part of the minimum commitment.

6.1 COMMUNICATIONS

The biosecurity profile (Forest Owners Association 2016a) describes an excellent communication platform for the industry. There are multiple ways to engage both during preparedness and during responses. The PineNet initiative is specifically setup to enhance biosecurity (Forest Owners Association 2016c):

“The objectives of PineNet are to maintain:

- *A network of key personnel and resources that can be rapidly accessed in the event of a biosecurity response.*
- *A communication network to enable the Forest Biosecurity Committee (FBC) to keep regions up-to-date on biosecurity matters.*
- *A network of informally and formally trained personnel who can provide passive biosecurity surveillance and inform FOA should they detect unusual forest health symptoms or organisms.”*

The FBC has recommended that the visibility of PineNet is increased by having a direct link to it from their main website. It is currently several steps to access and only accessible if you are actively searching for it: <https://www.nzfoa.org.nz/resources/file-libraries-resources/forest-health/pinenet>. The contact list for PineNet (Forest owners Association 2016b) covers all of the key contact people in each region and organisation. There may be value in including a pest of the quarter factsheet in the PineNet newsletters and out to farm foresters for the top listed high impact risk organisms in the Forest Owners Association (2016a) biosecurity profile to raise awareness. It would also be recommended that the notification process for reporting suspicious pests/weeds or

diseases is included in each issue of the newsletter. In addition, as PineNet is currently not widely accessible, it would be good to increase the profile of biosecurity content in other popular media such as Woodweek, Forest Grower and Friday Offcuts.

6.2 TRAINING AND AWARENESS

Maintaining industry biosecurity awareness and training is a minimum commitment under GIA. FOA run annual biosecurity workshops, which are an excellent way to increase biosecurity awareness and provide training to the industry. Training of FOA staff that may be involved in GIA responses is also a minimum commitment and needs to be appropriately resourced. In March 2018 MPI sent out a request for participation in a five day 'Response Governance Capability Development Programme' based in Wellington. This is a significant time and travel commitment. In section 7.4 of this review additional participation within the National Response Team (NRT) of a response is recommended. AsureQuality and MPI have a commitment to train identified members of the NRT annually as part of the National biosecurity capability network (NBCN). Improvement in knowledge of MPI response processes and roles will be essential to FOA taking a leading role in future responses, this is discussed further in section 7.4. It is recommended that the strategic alignment component of the FBC review consider how sufficient resourcing will enable governance and response role holder training in the future to maximise GIA benefits.

Biosecurity training of forestry industry members at the tertiary level (programmes at Waiariki and University of Canterbury) is mentioned in Forest Owners Association (2016a). The Waiariki website and prospectus do not list individual papers and the content of these. The second-year forestry degree course at UC has a forestry biology paper that includes biosecurity providing students with: *"A good familiarity with the major plantation forest invertebrate pests and diseases."* It would be beneficial for FOA to liaise (if not already) with both institutes to ensure that changes in the NZ forestry biosecurity risk profile are incorporated into their programmes and that the notification process for suspected new to NZ organisms is clear. An example is the level 5 vet course at Massey University where two MPI veterinary incursion investigators give an annual lecture on exactly what to look for and how to notify new diseases of animals, along with a description of what happens in a biosecurity outbreak.

Biosecurity training of current forestry industry members that don't typically attend the annual biosecurity workshops is a gap. In the past forestry industry staff could attend industry forest biosecurity/health courses but these ceased around 2012/2013. With the change in forest health surveillance to the FBS, there is recognition of a need to get the awareness raised among forest practitioners, and how to detect and respond to something different relating to forest health.

The development of the 'General Surveillance Tool – Biosecurity 2025' app developed by Steve Pawson's team at SCION has the potential to improve the volume of reports for forestry passive surveillance. The app provides a rapid and convenient way for knowledgeable persons to report suspect new organisms. It is also likely to improve awareness within the industry of existing pests, and therefore provide a greater awareness that something that has not been observed previously may be important enough to report. The stated benefit of the tool that it:

“will reduce the time between identification and decision-making on response”

And,

“This has the potential to provide better containment of an incursion, reducing the overall cost of response.”

Both refer to advantages from early detection and rapid notification. The tool could also directly contribute to faster decision making if it is rapidly configured and deployed for delimiting surveillance (e.g. Myrtle rust) and to communicate movement restrictions. Investigation of how the tool could be used in a very targeted and rapid manner for these purposes would be valuable. This app is a good initiative and it would be valuable to measure the success of the tool over time by recording the volume of ‘hits’ and measuring the value of the information in a similar manner to the analysis of the MPI passive surveillance system (Froud et al. 2008; Froud & Bullians 2010).

A concern about the tool is the risk of notifications going through the app that may relate to unwanted organisms that pose a trade risk and how this risk will be managed on a public platform. It is recommended that the tool be investigated for use for delimiting and report case surveillance and discussed with MPI on how to best address potential for trade risk.

6.3 POLICY AND LEGISLATION

In the biosecurity profile (Forest Owners Association 2016a) the relevant legislation is described. It would be useful to have a short training session on the Biosecurity Act around the sections that are typically used during a response (Parts 4, 5A, 6 and 9) particularly movement control, privacy and compensation provisions. MPI provides this training to staff and may be able to present it at the annual FOA biosecurity forum.

There is no clear policy statement on what FOA will respond to in the biosecurity profile (Forest Owners Association 2016a), however it is covered in the deed:

“For radiata the initial cap will be set at \$5M, for Douglas-fir \$1M, and for minor species \$200K per incursion. Additional funding could be collected from members on a voluntary basis should they wish to invest more than what the FOA Executive (with FFA input) agrees reasonable. “

And,

“FOA, through the FBC, would make the call as to the fiscal cap to be applied by tree species and by pest organism.”

Appendix 2 of Forest Owners Association (2016a) describes the plantation species of interest to the forestry industry:

“The following trees are those considered to be commonly grown for commercial purposes. Due consideration of species which are also less commonly grown will be given in a biosecurity response on a case by case basis, with particular concern regarding carrier species”. (Forest Owners Association 2016a)

This tree species that FOA have a mandate to respond to should be more prominent in the main section of the biosecurity profile as a clear policy statement for responding to outbreaks. It should also include details of when they would respond in the absence of MPI. For example, the MPI’s current (2008) policy statement is in Figure 6-1.

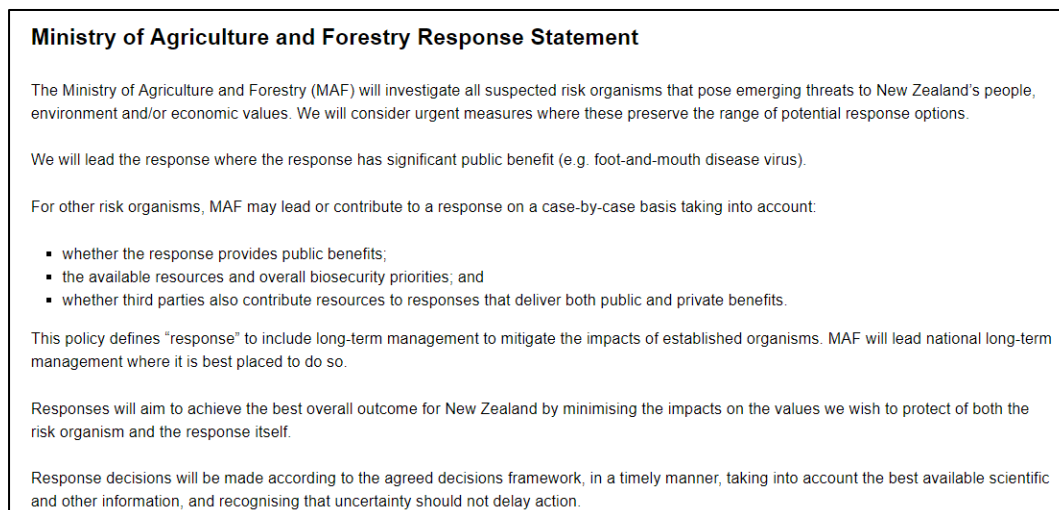


Figure 6-1 2008 MAF response policy statement

Implications from the recommendations in the draft biosecurity risk reviews for eucalypts and cypress (Bulman & Hood 2017; Hood & Bulman 2017) regarding whether a response should be attempted for these species should be considered and incorporated into the response policy during the next update of the Forest industry biosecurity profile.

6.4 GENERIC RESPONSE READINESS

All of the recommendations in this section covering movement control, risk items, response surveillance, cost-benefit analysis and organism management are considered to be readiness activities as defined in the Biosecurity Act (1993) and GIA guidelines (GIA secretariat & Pascoe 2016), refer to Figure 5-1.

6.4.1 MOVEMENT CONTROL

The biosecurity profile (Forest Owners Association 2016a) introduces the options for movement control, however it is a very generic description of what might happen and is based around 'zones'. It is recommended that the movement control section of the biosecurity profile is modified to refer to restricted places and controlled areas rather than zones as they are not a legal definition. The considerations for determining the size of a controlled area are consistent with those mentioned for zones.

The biosecurity act allows for several forms of movement control:

- Restricted place notices (s130 Biosecurity Act 1993)
http://www.legislation.govt.nz/act/public/1993/0095/latest/DLM316351.html?search=sw_096be8ed8167d94d_130_25_se&p=1&sr=6
- Controlled area notices (s131 Biosecurity Act 1993)
http://www.legislation.govt.nz/act/public/1993/0095/latest/DLM316356.html?search=sw_096be8ed8167d94d_131_25_se&p=1
- Road blocks, cordons, checkpoints, etc (s132 Biosecurity Act 1993)
http://www.legislation.govt.nz/act/public/1993/0095/latest/DLM316359.html?search=sw_096be8ed8167d94d_132_25_se&p=1

It would be useful to consider the most appropriate way to deploy movement control into the forestry industry. The legal description of a controlled area is the MPI's responsibility, but some preparation of spatial data of the population at risk would aid that process.

The use of a restricted place notice will be appropriate for discreet properties which are an infected place (pest or disease has been confirmed) or a suspect place (pest or disease is suspected on the place but has not yet been confirmed) AND where the mechanism of spread of the organism is suitable for management to be property specific. For example, in urban properties, parkland and small forest blocks that are not contiguous (i.e. sharing a common boundary) with other forestry.

For many risk organisms, the spread mechanism involves flight or wind, often in conjunction with rainfall, and, in these cases, a controlled area notice should be requested from MPI to ensure that movement off neighbouring properties does not occur while the outbreak is delimited. In addition, forestry in the central North Island is extensive with forests contiguous to each other and with large parcel sizes. As many parcels are >2000ha the use of a restricted place notice is potentially going to disrupt business unnecessarily. In these cases, the use of a controlled area notice is preferred.

In preparation for the use of controlled area notices in forestry areas, spatial data of the population at risk at the forest block level would be useful. In addition, these should be mapped to water catchment and water sheds (LINZ data) in preparation for movement control of water borne soil pathogens (e.g. some Phytophthora).

The potential for compensation liability to arise from the use of movement controls during a response needs to be fully discussed at an industry level. An investigation of the economic impact of movement controls should be conducted to inform whether precautionary movement controls could be deployed sooner in responses (e.g. EVB). It would also be valuable to investigate the potential for informal movement controls to be used within the forestry industry where MPI is unwilling to use the Biosecurity Act powers. For example, following the initial detection of a risk organism some industry communication could go out to land-owners in affected areas requesting that non-essential movements of risk goods (see description in section 6.4.2) are deferred.

Industry should be prepared logistically to deal with area closures for movement of logs. For example, if a controlled area notice was enforced around Kawerau how would logging trucks, log storage and logs that transit to the Port of Tauranga by train be affected? What would the biological risks be of exempting logging trucks or permitting them to allow movement through controlled areas? What are the other options for log movements? This is like the restrictions placed on export fruit transiting through Auckland during the Grey Lynn fruit fly incursion. It is recommended that this is developed under the pitch canker response plan refer to section 5.1.

6.4.2 RISK ITEMS

Forest Owners Association (2016a) gives a description for risk goods at the border. The biosecurity profile should describe risk items in relation to incursions within New Zealand, both in the urban environment and within forestry. It will be organism dependant but is likely to include: host propagative material (tissue culture, seed, seedlings, graft material, rootstock), host vegetative material (trees, leaves, prunings, leaf litter, bark, logs etc.), soil, machinery, vehicles and equipment, workers clothes and boots. The purpose of a risk goods description is to identify items that may require tracing and surveillance, organism management (destruction, cleaning, disinfecting) and to include in a movement control notice as illustrated in Figure 6-2.

Schedule 3 – Things subject to Movement Controls in the Controlled Area

The following things are subject to the movement controls described (above) in clause 3 of this notice, being that if located within the Controlled Area they must not be moved out of the Controlled Area:

- 1 Myrtaceae plants (including all Myrtaceae nursery stock and Myrtaceae foliage); and
- 2 Myrtaceae plant debris such as prunings and leaves.

Figure 6-2 Myrtle rust controlled-area notice risk goods description.

6.4.3 RESPONSE SURVEILLANCE AND TRACING

Forest Owners Association (2016a) provides an excellent description of seed and seedling growth and movement and a section on tracking. Tracking is equivalent to tracing, and neither term is described in the biosecurity act, however tracing is the term in common use by MPI and other countries in relation to biosecurity outbreaks, so it would be good to be consistent with terminology and change it in the biosecurity profile. Details that are missing from this description for incursion response operational purposes are a risk goods description and the current contact details for all commercial nurseries for forestry (annually checked and updated). A detailed description of the process and contacts for tracing from seed to forest is required (i.e. what data sources would be used: purchase orders, delivery docket, the seed certificate programme administered by Scion, databases for the main suppliers or receivers of material). Large forest companies can trace seedlings to the stand level in forests (e.g. Hancocks and Nelson Forests Ltd.) as described below:

“Each seedlot has a seed certificate describing the parents and their % in the seedlot and what seed orchard the seed came from. The trees produced from this seed are tracked by

delivery dockets with stockcode/seedlot number. Each planted stand in our GIS system has the stockcode/seedlot number recorded.” (Mark Forward, Hancocks Pers. comm)

This would be essential to initiating tracing of risk events for surveillance in an incursion disseminated on the nursery pathway. As farmed forestry is increasing it is important to ensure that all nurseries and foresters can trace the destination and origin of seedling stock.

Tracing of imported and domestic risk items (wire rope, equipment, vehicles and machinery) would be undertaken by MPI using access to BACC border records for imported items and by calling forestry companies for domestic movements. If the forestry industry implements the forest hygiene measures recommended in section 4, tracing of risk items will be much more efficient and comprehensive as they will be able to rely on a register rather than company records or memory.

Backwards and forward tracing of logs is also discussed as a gap in the biosecurity profile (Forest Owners Association 2016a). Export logs are individually tagged and easy to trace, however domestic logs are harder to trace as only some logs are marked, depending on how the sawmills manage their logs. In addition, firewood is collected from forests and may or may not be under commercial forest permit systems. Tracing needs to be updated in the biosecurity profile and FOA need to consider how domestic logs and firewood can be traced. If surveillance is undertaken at logging consolidation points or detection is likely at these sites, then traceability is essential. It is very difficult to plan surveillance if detection is not associated with the likely source.

Within the biosecurity profile the links to MPI maps of plantation forest are not active. The current link is: <http://mpi.govt.nz/news-and-resources/open-data-and-forecasting/forestry/new-zealands-forests/> however, this no longer includes a map. Site specific information at the forestry block level is maintained by most of the large plantation forestry companies in information, modelling and mapping systems. Access to spatial, tree species and stand age fields, that are consistent across software applications within these databases would enable a response dataset to be pulled together to aid surveillance planning and to track surveillance results within plantation forest. The minimum fields for surveillance are:

Latitude	Longitude	Crop (species grown)	StandAge (Active from)
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Updating the demographics of the key forestry species over time would also be valuable as new incursions may be related to changes in species planted. It would also be good to link to wilding conifer distribution maps and regional council maps of tree species (where available). The national exotic forest description (NEFD) report (Ministry for Primary Industries 2017) combines much of the commercial plantation forest data and states under ‘other sources of data’ that the ETS area and species data can be used in lieu of surveying, with owner permission. It is recommended that a readiness activity be undertaken to map all commercially important species, that FOA will respond to under the deed, by identifying and combining all sources of data available to fill the minimum fields for surveillance.

Information, modelling and mapping systems data could also be used to investigate timing of risk movements into forests (planting, roading construction, pruning, harvesting etc) to identify at risk

properties for surveillance. Additional data that could be used in a response, include the “Net present value” of a crop, which could be used to inform cost benefit analysis for eradication decision making and for valuation purposes for compensation. For example see the screen shot of the data from Geomaster: <http://www.integral.co.nz/wp-content/uploads/ATLAS-GeoMaster-Screenshot.png>

6.4.4 COST BENEFIT ANALYSIS

Economic values should be updated annually to aid in rapid cost benefit analysis (CBA) in the event of an incursion. The specific figures required for a CBA should be specified in a format that can be used by MPI and as recommended in Forest Owners Association (2016a), research into the in-direct national economic benefit of forestry in NZ should be conducted, along with the direct economic value stratified by region and by the key forestry species (Radiata/ Douglas fir/ eucalyptus/Cypress). In addition, the estimated costs of significant movement controls impacting harvesting and replanting activities and the supply chain needs to be added to the biosecurity profile, based on a standard scenario. For example, if movement controls affected harvesting crews this would result in reduced harvest and woodflow which in turn affects distribution contractors and customers, and if movement control restrictions are over a large area and for a long period of time (e.g. 6 months or more), and included harvest areas/cutover, then it will also affect the ability to re-establish. Likewise, the recreational sector value should be annually revised based on current visitor estimates and inflation factors.

6.4.5 ORGANISM MANAGEMENT

It is recommended that the FOA Biosecurity profile states all current agrichemicals registered for use on forestry plantations and in nurseries, (including herbicides and defoliants). Eradication of insect pests may be successful using insecticides (e.g. APM, AGM) however for bark beetles and most pathogens host removal will be the only way of ensuring eradication. In some instances, fire may be an option for risk organism eradication (depending on the spread mechanism of the organism as spread may be enhanced by fire). A description of host removal and the machinery available to undertake host removal would also be recommended for a range of host sizes and key forestry species (if different). The total standing volumes for different aged stands could be used to assist disposal decisions (and costings). It would be useful to identify places for deep burial of infected material (seed, seedlings and chipped material) which will involve a relationship with regional councils and local tangata whenua/Iwi groups. The MPI FMD preparedness programme has information that may be relevant for disposal and some shared sites may be possible (Ministry for Primary Industries 2016).

Organism management also includes cleaning and disinfection of infected sites and items. This involves cleaning up a site and equipment after host removal or control to kill any remaining sources of infection or infestation and may include soil fumigation. Existing protocols from NCAP (National pest control agencies 2013) and from MPI andASUREQuality (Ministry for Primary Industries 2016) are applicable to forestry.

6.5 RECOMMENDATIONS

- Biosecurity awareness can be increased through greater visibility of PineNet, and the notification process for reporting suspicious pests/weeds or diseases should be included in each issue of the newsletter along with an Unwanted Organism of the quarter feature.
- It is recommended that the strategic alignment component of the FBC review consider how sufficient resourcing will allow governance and response role holder training in the future to maximise GIA benefits.
- FOA to liaise (if not already) with tertiary forestry training institutes to ensure that changes in the NZ forestry biosecurity risk profile are incorporated into their programmes and that the notification process for suspected new to NZ organisms is clear.
- Investigate the SCION notification app for use for delimiting and report case surveillance in responses and discuss with MPI on how to best address potential for trade risk on a public platform.
- Request MPI to provide a training session on the Biosecurity Act sections that are typically used during a response (Parts 4, 5A, 6 and 9) particularly movement control, privacy and compensation provisions.
- FOA consider the implications from the eucalyptus and cypress reviews and commitments under the deed to develop a clear response policy for commercial tree species in the biosecurity profile.
- Industry should be prepared logistically to deal with area closures for movement of logs.
- It is recommended that a readiness activity be undertaken to map all commercially important species, that FOA will respond to under the deed, by identifying and combining all sources of data available to fill the minimum fields for surveillance.
- It is recommended that research into the in-direct national economic benefit of forestry in NZ should be conducted.
- The direct economic value stratified by region and by the key forestry species should be updated annually in the biosecurity profile and variables required for a CBA be determined.
- Develop an organism management plan into the biosecurity profile that incorporates existing registered agrichemicals, a description of host removal/disposal options and the machinery/resources available, proactive engagement on disposal with Council and Iwi and standing volume estimations.

7 FORESTRY INCURSIONS UNDER GIA

7.1 NOTIFICATION OF INVESTIGATIONS AND DECISION TO RESPOND

Serious concerns were raised by FOA because of the slow and disjointed response to the eucalyptus variegated beetle (EVB) incursion in 2016. On review of EVB documentation from FOA and MPI (Figure 7-1), there were significant departures from the GIA response guidelines (GIA secretariat 2014, 2015; GIA secretariat & Pascoe 2016) regarding notification timeliness, Governance delays, confidentiality, joint decision making, urgent measures decisions, enabling signatory communications with their members and technical advice. The recommendations made in this

section reflect the desire to learn from the EVB response to ensure that GIA is an effective joint-decision making partnership and provides the benefits to industry it promised.

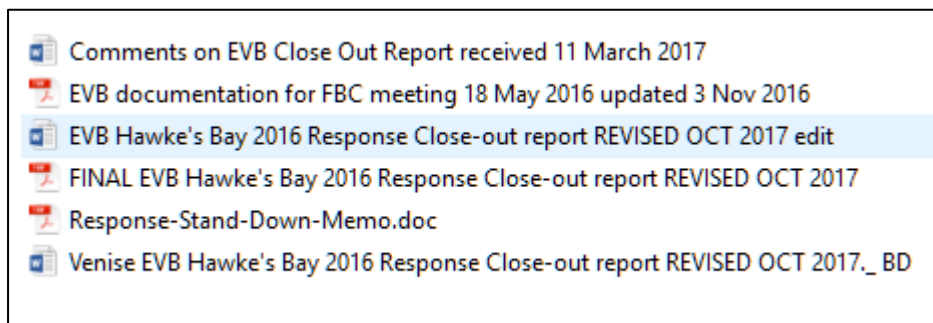


Figure 7-1 EVB response correspondence

The forestry industry would like clarity on when GIA becomes involved especially when investigation progresses to stand-down without consultation. For example, at the 2017 joint MPI/FOA forest biosecurity workshop several incursion scenarios were exercised. From the key outputs from the exercise noted in Forest Owners Association (2017a), they state:

“The exercise highlighted the need to make decisions quickly, based on available information, and to have clear processes for when industry is notified about an incursion.”

Incursion investigation is a minimum commitment of MPI under GIA, and is excluded from joint funding and decision making (GIA secretariat & Pascoe 2016). In the GIA response guidelines there are several points during an investigation where GIA partners may be informed but this is at the discretion of MPI unless it relates to a specific suspect unwanted organism (GIA secretariat & Pascoe 2016). The industry preference voiced during the MPI/FOA workshop in 2017 was that if in doubt, consult with industry. But with 400 investigations and 4000 notifications they don’t want to know about all of them and have built up trust that MPI can manage them. In the past an Incursion Investigation representative from MPI has presented quarterly investigation summaries at the FBC meetings. Redeveloping the relationship directly with the Plants Incursion Investigation and Surveillance team manager, in addition to the surveillance representative from MPI, and FOA through the quarterly FBC forum is recommended. In addition, FOA could request that a monthly summary of investigations initiated within the forestry sector be sent to them, extracted from the Investigation database.

7.2 CONFIDENTIALITY

Confidentiality of information was a common concern among FBC members. There were several aspects relating to confidentiality relating to surveillance results for new incursions, access to response information for decision making and communicating with industry, along with the ability to manage responses in the absence of MPI commitment to do so (discussed further in section 7.3). For example:

“An ongoing issue for the committee is how to report new incursions in forest areas given sensitivities about this information from forest owners and managers. The suggestion is that reports are written at a regional level, rather than a specific forest level.” (Forest Owners Association 2017b)

And,

“For EVB Governance recommended communication to stakeholders but no communication plan was developed, and industry was instructed to keep things confidential as per the GIA confidentiality agreement.”

There are two key documents that cover these issues. The Biosecurity Act and the Confidentiality Deed under GIA.

Reporting of new incursions in forestry areas should be direct to MPI as under the Biosecurity Act 1993 notification (reporting) new incursions is required under S44:

44 General duty to inform

- (1) Every person is under a duty to inform the Ministry, as soon as practicable in the circumstances, of the presence of what appears to be an organism not normally seen or otherwise detected in New Zealand.
- (2) The duty to inform does not apply in relation to an organism that is seen or otherwise detected in a place where it may lawfully be present in accordance with an approval given under the Hazardous Substances and New Organisms Act 1996.

This may initiate an investigation and then trigger a decision to respond under the GIA deed. If that occurs, then personal information and commercially sensitive information is covered under the GIA confidentiality deed. The confidentiality deed states that most information is NOT confidential and gives guidance on what is:

How will I know what is confidential?

Confidential information must be identified as such by its owner before it is disclosed, with written material marked as such. However, it is your responsibility to know the status of information before disclosing it. There is no one definition that covers all confidential information – but as a guide, it may include information that is of a private and/or commercially sensitive nature, such as:

- Commercial in-confidence information relating to a third party
- Commercial information detailing the finances of a company or individual; or the charging for particular services
- Sensitive information relating to Government policies or financial interests
- Information which attracts legal professional privilege
- Internal or draft working documents
- Information relating to national security, international relations, or trade

- Personal information about identifiable individuals

In general, information is not confidential when it:

- Is in the public domain
- Becomes part of the public domain following its authorised disclosure or release

(GIA secretariat 2015)

Under GIA the signatory representative on RSL and their technical advisor should have full visibility of confidential response documentation. **Confidential** information disclosed within the response must not be communicated outside unless it is authorised (by the chair of RSL). Based on the confidentiality deed, industry communications in responses the risk organism would **not** be able to be notified to the wider forestry industry **only** if it related to bullet 6 above i.e. relating to international relations or trade. In addition, if personal information that could identify individuals was not disclosed (i.e. name, company or address), then notifying the wider industry about the extent, approximate area, and general location of an incursion should not be unduly delayed. As an example of how this information could be disclosed, MPI gave press releases relating the myrtle rust outbreak that were very specific without disclosing personal information:

The Ministry for Primary Industries (MPI) says a serious infection of several hundred *Lophomyrtus* (ramarama) plants has been confirmed on a commercial plant production property in the Waimauku area of west Auckland. <https://www.mpi.govt.nz/news-and-resources/media-releases/myrtle-rust-appears-in-west-auckland/>

It is recommended that FOA engage with MPI as part of preparedness to clarify a straightforward process of exactly how information will be shared with the wider industry during responses, in a timely manner in the future. It is recommended that a check against the confidentiality deed examples (GIA secretariat 2015), is undertaken during Governance meetings prior to releasing information to industry. Note there is a clear difference between ‘Public Information Management’ i.e. communications outside the response and informing the signatories that are being represented in a joint response, i.e. FOA and NZFF members. Decisions not to disseminate timely information to signatory’s members should have the reason documented as an exception.

7.3 MECHANISMS TO RESPOND IN THE ABSENCE OF MPI

The options for industry to respond when MPI decide not to under GIA was investigated.

There are very limited options for industry to respond to a risk organism if MPI chose not to. Under the GIA deed guidelines (GIA secretariat & Pascoe 2016) there is provision for industry only response:

MPI may decide that response action is not a priority - in this situation beneficiary Signatories may decide to undertake and fund any management action. (Section 3.2.3)

However there is no provision within the Deed (GIA secretariat 2016) or the guidelines, for Industry to use any powers under the Biosecurity Act 1993 to manage a response. GIA signatories should have access to information about the extent of the outbreak including exact locations where the risk organism is present. This information is confidential and must not be disclosed to a third party as stated in the GIA confidentiality deed (GIA secretariat 2015). It is recommended that FOA request the GIA secretariat to develop a guideline on how key response information and data will be handed over to signatories when MPI decides not to respond, including how confidentiality of infected/infested properties will be managed as this is key information to enable signatories to respond alone. There is nothing in the deed or the confidentiality guidelines that inhibit this information being shared within the response, only to external third parties. If confidentiality is maintained particularly around personal information about identifiable individuals, this information should be accessible to an Industry only lead GIA response.

There are provisions within the Biosecurity Act 1993 that allow Organisations to access powers under Part 5 Pest Management of the Act. However, these are aimed at long-term management of an unwanted organism not for the rapid response and eradication of a new incursion. The administrative burden and time-constraints of consultation required to develop a National pest Management Plan will be prohibitive to rapidly accessing powers under the Act. Please refer to Table 1 as an indication of what is required.

Table 1 Excerpt from the Biosecurity Act 1993 Part 5 first steps in developing a National Pest Management Plan.

61	First step: plan initiated by proposal
(1)	The first step in the making of a plan is a proposal made by—
	(a) a Minister; or
	(b) a person who submits the proposal to a Minister.
(2)	The proposal must set out the following matters:
	(a) the name of the person making the proposal:
	(b) the subject of the proposal, which means—
	(i) the organism proposed to be specified as a pest under the plan or the organisms proposed to be specified as pests under the plan; or
	(ii) the class or description of organism proposed to be specified as a pest under the plan or the classes or descriptions of organisms proposed to be specified as pests under the plan:
	(c) for each subject,—
	(i) a description of its adverse effects:
	(ii) the reasons for proposing a plan:
	(iii) the objectives that the plan would have:
	(iv) the principal measures that would be in the plan to achieve the objectives:
	(v) other measures that it would be reasonable to take to achieve the objectives, if there are any such measures, and the reasons why the proposed measures are preferable as a means of achieving the objectives:
	(vi) the reasons why a national plan is more appropriate than a regional plan:

- (vii) an analysis of the benefits and costs of the plan:
- (viii) the extent to which any persons, or persons of a class or description, are likely to benefit from the plan:
- (ix) the extent to which any persons, or persons of a class or description, contribute to the creation, continuance, or exacerbation of the problems proposed to be resolved by the plan:
- (x) the rationale for the proposed allocation of costs:
- (xi) if it is proposed that the plan be funded by a levy under section 100L, how the proposed levy satisfies section 100L(5)(d) and what matters will be specified under section 100N(1):
- (xii) whether any unusual administrative problems or costs are expected in recovering the costs allocated to any of the persons whom the plan would require to pay the costs:
- (d) any other organism intended to be controlled:
- (e) the effects that, in the opinion of the person making the proposal, implementation of the plan would have on—
 - (i) economic wellbeing, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga:
 - (ii) the marketing overseas of New Zealand products:
- (f) if the plan would affect another pest management plan or a pathway management plan, how it is proposed to co-ordinate the implementation of the plans:
- (g) the powers in Part 6 that it is proposed to use to implement the plan:
- (h) each proposed rule and an explanation of its purpose:
- (i) the rules whose contravention is proposed to be an offence under this Act:
- (j) the management agency:
- (k) the means by which it is proposed to monitor or measure the achievement of the plan's objectives:
- (l) the actions that it is proposed local authorities, local authorities of a specified class or description, or specified local authorities may take to implement the plan, including contributing towards the costs of implementation:
- (m) the basis, if any, on which the management agency is to pay compensation for losses incurred as a direct result of the implementation of the plan:
- (n) information on the disposal of the proceeds of any receipts arising in the course of implementing the plan:
- (o) whether or not the plan would apply to the EEZ and, if it would, whether it would apply to all of it or parts of it and, if it would apply to parts, which parts:
- (p) whether the plan includes portions of road adjoining land it covers, as authorised by section 6, and, if so, the portions of road proposed to be included:
- (q) the anticipated costs of implementing the plan:
- (r) how it is proposed that the costs be funded:
- (s) the period for which it is proposed the plan be in force:
- (t) the consultation, if any, that has occurred on the proposal and the outcome of it:

- (u) any matter that the national policy direction requires be specified in a plan:
- (v) the steps that have been taken to comply with the process requirements in the national policy direction, if there were any.

Under the Deed, FOA have the mandate to manage a biosecurity response on behalf of their members and wider industry. It is recommended that FOA develop a process for an industry only response. It is also recommended that FOA discuss options with MPI to access minimum resources to review and advise on response actions. FOA will also need to clarify if there is a legal option to raise the levy to pay for a Forestry only response under the FOA forest deed application (Forest Owners Association 2015).

7.4 ENHANCING FORESTRY RESPONSE PARTICIPATION UNDER GIA

Options for how signatory decision makers access technical expert resources and how industry signatories embed their pre-identified resources (i.e. Pine Net) into the operational teams was investigated.

Under the deed (GIA secretariat & Pascoe 2016), a technical support person is permitted to accompany the person on governance (referred to as ‘Technical expertise’ Figure 7-2). Under current response structures this role will not have access to specific issues within the response and therefore to maximise the value of this role it is recommended that they are deployed to a liaison role directly within the Intelligence team of a response (Figure 7-2). That will allow them to be fully informed about the technical components of the response including organism science reports, surveillance methods and results, GIS mapping of the response, risk items, movement control permitting, organism management procedures and progress, discussions on the spatial and temporal spread of the risk organism in real time and the epidemiology of the outbreak. In the absence of this ‘inside response’ knowledge there is a distinct disadvantage in knowledge to base decision making on. Participation in a technical advisory team is NOT sufficient to provide information to support governance decision making.

The best option for deployment of forestry resources into the operational roles of a response is via the National Biosecurity Capability Network (NBCN). The NBCN is described as:

“... a partnership between MPI andASUREQuality. MPI owns the initiative and ASUREQuality is in charge of recruiting, training, relationships management, and response role coordination.”

In recent responses there has been a disconnect between governance requests for resources and field deployment. The most efficient way to ensure that forestry resources are deployed into a forestry response would be for members of PineNet to sign-up to the NBCN. In addition, during a response a forestry representative should be deployed into the National and Field Headquarters (FHQ) Operations/Logistics teams (Figure 7-2) to act as a Liaison between forestry resources and response resource requirements to ensure that Industry resources are used, where they have the specialist skills or equipment.

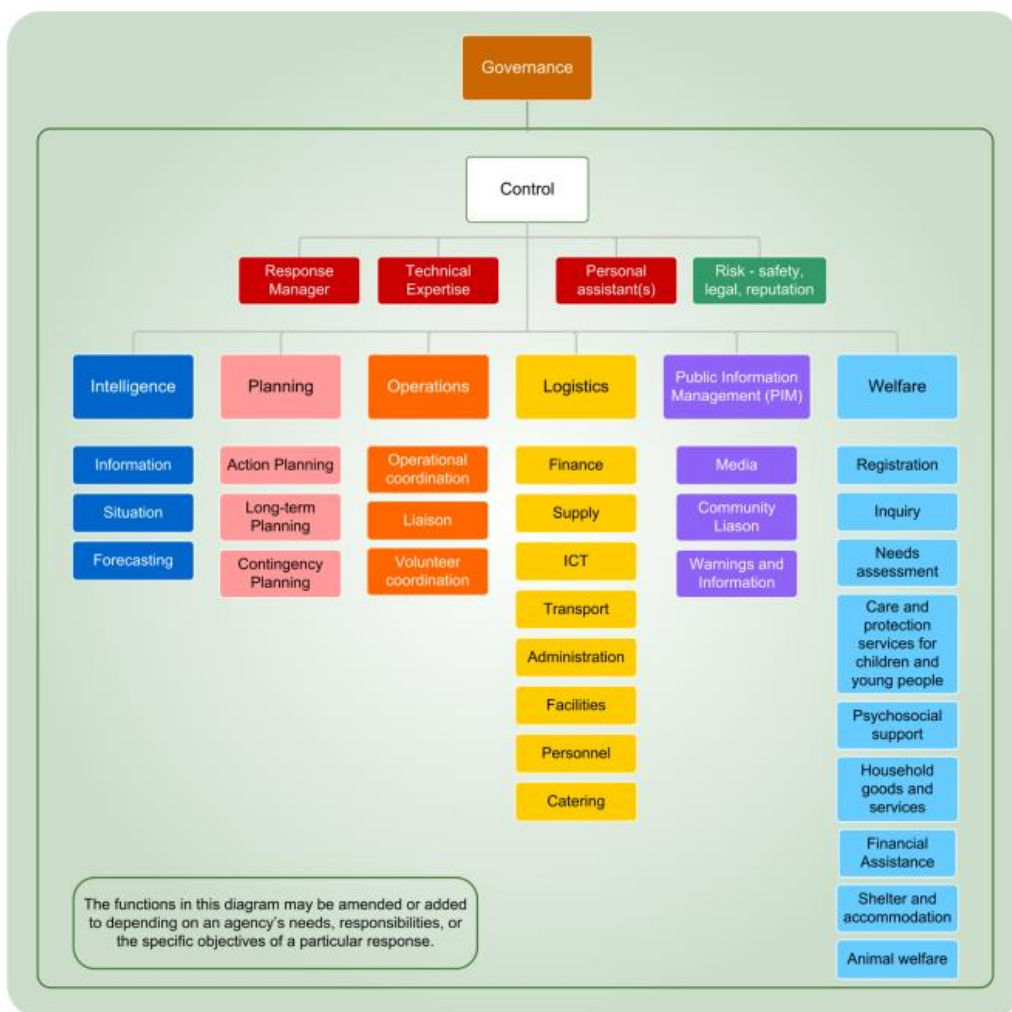


Figure 7-2 CIMS scalable response structure

Additional participation of forestry representatives was discussed with MPI staff from the GIA team and the Readiness Programmes team and was well received. They felt that there were no barriers to increased participation in the roles that are suggested. Options for FOA to enable enhanced participation within response roles could be part of existing minimum commitments or could be pre-agreed with external suppliers such as SCION. Role-holders within large responses are typically rotated (often weekly) to avoid burn-out and therefore agreement with external suppliers could involve multiple staff. Capacity for these roles should be considered in the strategic alignment of FBC review.

7.5 GIA AND NURSERIES

From (Forest Owners Association 2017a) it states that:

“The FOA is ... working on bringing the forest nurseries association into the forestry sector umbrella for the GIA. The process is being worked through with the association, FOA and MPI. FOA staff

recently visited a forest nursery to understand the biosecurity precautions taken by nursery growers. It was clear that biosecurity starts at the seedling stage.”

As of March 2018, the forest nursery industry is in the process of coming into GIA under the FOA umbrella and are currently getting a mandate from members (Bill Dyck, Pers. comm.). At present the 3 or 4 seed orchards are not included (Bill Dyck, Pers. comm.).

7.6 RECOMMENDATIONS

- It is recommended that FOA engage with MPI as part of preparedness to clarify a straightforward process of exactly how information will be shared with the wider industry during responses in a timely manner in the future. This could be in the form of a checklist testing the confidentiality deed examples (GIA secretariat 2015) at the Governance meetings prior to releasing information.
- FOA request the GIA secretariat to develop a guideline for how key response information and data will be handed over to signatories when MPI decides not to respond, including how confidentiality of infected/infested properties will be managed as this is key information to enable signatories to respond alone.
- FOA and MPI progress options for deployment of forestry technical liaison roles into the intelligence team and forestry resource liaison roles into the logistics/operations teams.
- FOA consider pre-agreement with external providers for technical liaison personnel.
- Capacity for additional response roles (and their training) should be considered under the strategic alignment review.

8 LINKAGE BETWEEN FOREST BIOSECURITY SURVEILLANCE AND MPI'S HRSS.

The overlap between the existing HRSS surveillance programme which is MPI run with multisector benefits and the FBS surveillance programme which is FOA run specifically for forestry benefits is being investigated in a project by John Kean from AgResearch starting in July 2018. Paul Stevens from MPI believes there is potential for synergies for field delivery of both programmes. MPI anticipate these two programmes eventually merging into a single programme in the future, as they both use the same risk modelling and surveillance resources. However, in addition to survey effort based on the risk model recommendations, the FBS also includes a “non-model allocation” component that ensures high risk areas in forests are surveyed, as well as high risk areas in urban and peri-urban areas. The HRSS and the FBS also have different end-users and objectives. The 2016 FOA review of the HRSS (Harrison 2016) will need to be considered in any decision to join the programmes, specifically the section that states:

“If MPI decides in the future to pursue cost-sharing for the HRSS programme (or future HRSS programmes), then a thorough economic analysis is needed to inform this. Again, this would warrant wider dialogue recognising the HRSS has a wide range of both public and private beneficiaries (as well as exacerbators), including many which HRSS data suggests have a more significant interest than the forestry sector.” (Harrison 2016)

The disestablishment of the forest health surveillance (FHS) programme which has been replaced with the risk-based FBS programme will result in a data gap for future analysis of plantation forestry specific pests and pathogen prevalence and distribution. Some forestry companies are investigating continuing with FHS on their own sites. It is recommended that if companies opt to continue their own arrangements to have forest health surveillance FOA investigates options to host this data into the existing database to allow for future analysis, for those companies that are willing to be involved.

In addition more detail is required in the biosecurity profile (Forest Owners Association 2016a) on the FBS and HRSS surveillance programmes (i.e. time of year it is performed, number of sites and staff). It is recommended that this is included in the annual update.

8.1 RECOMMENDATIONS

- Decisions to merge HRSS and FBS need to consider the Harrison 2016 report recommendations.
- More detail on the FBS and HRSS surveillance programmes is required in the biosecurity profile and should be included in the next annual update.
- There is an opportunity for FOA to maintain a valuable historical dataset by continuing to host FHS data.

9 ANY OTHER ASPECTS OF BIOSECURITY THAT THE FBC SHOULD CONSIDER

9.1 PRE-BORDER AND EXPORTS

There are options for FBC to push the review or suspension of forestry related Import Health Standards. SCION reviewed those that related to forestry and listed 7 wood related IHS's, of these 4 were recommended for further evaluation and 3 were recommended as possibly requiring further evaluation (Hood 2016). There is potential for FOA to use the SCION review to identify IHS's that FOA could lobby for suspension of on the basis that they are redundant (ie. Wood species not imported or countries that do not get imported from). For example, the United States now has 3 'buckets' of import standards:

- Approved
- Suspended
- Prohibited

In the suspended, they will only allow an importation if a request is made and the IHS is reviewed up to a standard of current knowledge rather than relying on out-dated protocols.

Many of the New Zealand forestry relevant IHS's are approx. 10-15yrs old now and well out of date with current best practice.

9.2 RECOMMENDATION

- It is recommended that FOA lobby for relevant ones to be reviewed urgently and all redundant ones be immediately suspended.

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