

BIOSECURITY PREPAREDNESS FOR QUEENSLAND'S PRIMARY INDUSTRIES, PUBLIC AMENITY AND ENVIRONMENT

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ABSTRACT

Biosecurity Queensland (BQ), a service of the Queensland Department of Employment, Economic Development and Innovation (DEEDI) has an Emergency Management Unit (EMU) focused on optimising BQ's preparedness for emergency and incident response. EMU aims to review, improve and develop systems to ensure BQ has appropriate emergency response capability across single or multiple responses for emergency animal diseases, plant pests or other invasive species in Queensland. Preparedness encompasses ensuring DEEDI staff are aware of their commitments in an emergency response, based on sustaining a relevant structure, focused skill enhancement, policy development, use of appropriate technologies and remaining contemporary in emergency management practices. The EMU provides specialist consultancy advice to BQ management, its three programs and external stakeholders regarding tactical procedures to respond effectively to incursions. Nationally, EMU develops and maintains incident and emergency management systems in conjunction with the Australian Department of Agriculture, Fisheries and Forestry (DAFF), Animal Health Australia, Plant Health Australia and the national institutional committees. EMU officers establish, enhance and maintain effective relationships within DEEDI, other State and Commonwealth government departments, non-government agencies and industry. EMU manages emergency preparedness training and exercises at regional and state levels while contributing to national emergency preparedness through national committee support (e.g. the Biosecurity Emergency Preparedness Working Group). The four phases of an emergency response (investigation, alert, operations and stand-down) have different emphases in regard to policy reference. Pivotal reference documents for an emergency pest plant response include the National Environmental Biosecurity Response Agreement (NEBRA) and the National Weed Incursion Plan. The Queensland Biosecurity Emergency Operations Manual and specifically tailored standard operating procedures are managed within a document quality management system providing essential and quickly accessed guidance for an emergency plant response.

Keywords: Biosecurity, Emergency, Incursion, Preparedness, Response, Weed.

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INTRODUCTION

On 12 December 2006, BQ became a business group of the Department of Primary Industries and Fisheries (DPI&F). The mandate was to build a quality unit within the Department to focus on innovative ways to manage escalating biosecurity risks. Contemporary risk assessment for exotic weed species such as Heartleaf hempvine (*Mikania cordata*) and Spiked pepper (*Piper aduncum*) are high priority as well as plant and animal disease, but not disease in human health unless vector cross-transmission is proven. The Biosecurity Queensland Control Centre (BQCC) has been established to manage the continuum from incident and emergency preparedness, through field level incident and emergency response, to long-term eradication program projects. The EMU forms a functional arm of the BQCC that is charged with ensuring BQ's preparedness for emergency and incident response. EMU operates within the BQCC to set down systematic unified processes that coordinate all aspects of incident and emergency preparedness that have statewide application and fall within the BQ portfolio e.g. developing a process for handling a report of a suspect exotic species (Figure 1).

An effective emergency response requires skilled specialists to establish and maintain response policy and operations. A first response unit (FRU) is seen as an integral part of effective and efficient emergency response. The FRU is intended to be a specialist, trained group of staff drawn from across Queensland that can deploy quickly to anywhere within the state to establish a functioning, structured, organised and operational control centre using the system(s) adopted or developed by the EMU (e.g. setting a standard functional structure for a Local Pest Control Centre). These systems will be compatible with or link to systems across all emergency operations centres. Once the emergency operations centre is established and functioning, the FRU withdraws their function and commences handover to other responders, to ensure continuity of the response. They will, as required, re-enter and exit the response at appropriate intervals (Cozens, 2008).

The Chief Biosecurity Officer (CBO) will decide if an emergency or incident exists. Upon declaration of an emergency, responders are tasked with completing activities guided by processes outlined in the Queensland Biosecurity Emergency Operational Manual (BEOM). The main elements are command, coordination and control with foundation laid in military process ((MPAT) 2009) and expanded in the Australasian Inter-service Incident Management System (AIIMS) that provides a system for calculating the size of a response by determining the level of response required (Australian Fire Authority Council 2004).

If an emergency response is declared, the FRU will be activated by the relevant General Manager (GM)/Director, after consultation with affected GM's, Directors, CBO and/or Managing Director. This same trigger also automatically activates supporting elements for the FRU such as transition to emergency response structure and management, emergency HR conditions including role based email. Should other states/territories be at risk of incursion from a high risk exotic plant, cost sharing funding guidelines are provided in the National Environmental Biosecurity Response Agreement (Department of Agriculture Fisheries and Forestry 2011). FRU officers receive necessary inductions by regional staff and may work alongside regional staff, NRM groups and local government to assist in staffing the emergency operations centre. Authorised FRU officers use approved plans to utilize systems/tools developed or adopted by the EMU to commence operations.

Methods Incorporated in Operational Plans

The core work of the EMU is centred on preparedness applicable to all biosecurity incidents and emergencies that fall within the BQ portfolio. Other business groups, such as Fisheries are incorporated into BQ emergency management arrangements. EMU activities focus on providing outputs that have principally a state-wide application ranging from policy development, coordinating activities to developing and delivering activities such as training. The EMU may take responsibility for regional needs where it is seen that the activity has a multi-region or state-wide application. Where a preparedness activity is specific to one region only or is species specific as determined by risk assessment, it may fall outside of the EMU responsibility and remain a regional program responsibility. An operational plan for the EMU assists in defining work activities and differentiation from regional program activities. Regional management, operations management and the EMU will work cooperatively to ensure incident and emergency preparedness operations are resourced and tasked appropriately to ensure delivery of desired outputs.

Individual programs and sub-programs will have defined activities and priorities for lower priority incident preparedness relevant to their business area. They are taken into account when developing the EMU operational plan and continual development of the BEOM. The Manager EMU negotiates EMU activities with the various Program areas ensuring that activities complement the needs of all Program areas.

The EMU will coordinate preparedness at all levels ensuring that readiness is optimised and that systems being used or developed for an EOC (Emergency Operations Centre) are applicable and consistent with other EOC's. Strategy, policy development, an understanding of

emergency management principles, command and control and effective communications and reporting are key components addressed at the State Control Head Quarters (SCHQ) level through to Local Pest Control Centre's (LPCC's) (Cozens, 2008).

The activities of national institutional committees provide an improved working framework for EMU. The Australian Government provides national policy leadership and direction, working with state and territory governments through the Natural Resource Management Ministerial Council. The focus of work in developing Intergovernmental Agreement on Biosecurity has enhanced opportunities for information sharing for preparedness and response (Hinder, 2010). Government Departments have membership on the Australian Weed Committee that has major input into the Australian Weed strategy and indirectly into the Queensland Biosecurity Strategy 2009–14.

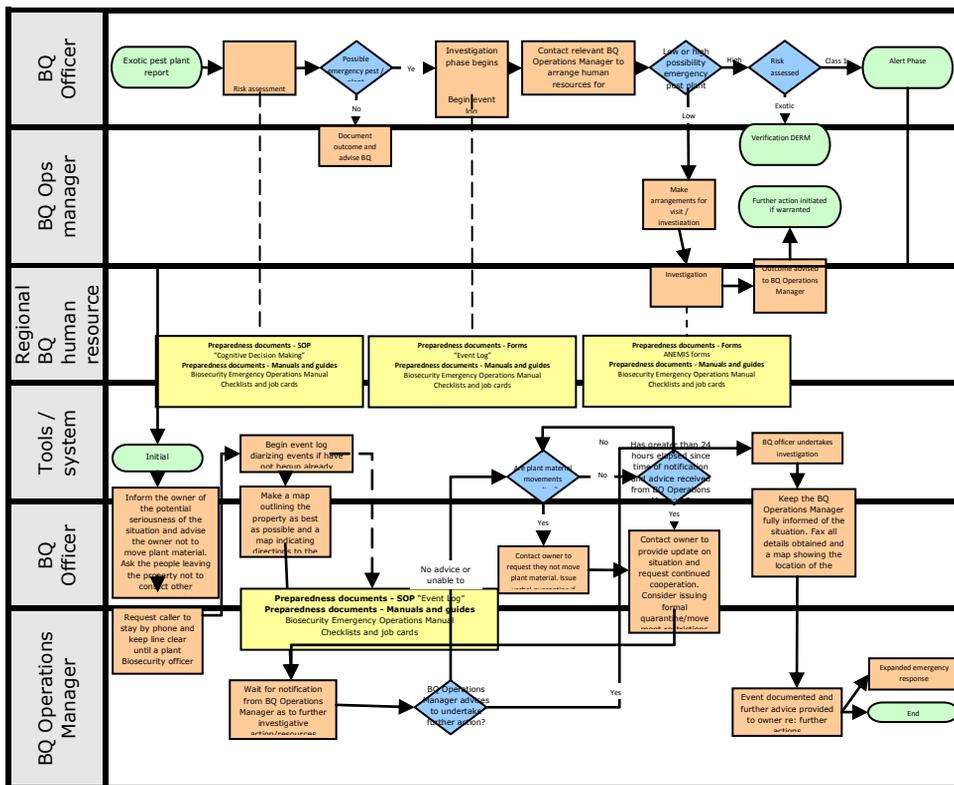


Figure 1. Report, investigation, alert and initial operations phases following notification of a suspect exotic pest plant. Oval shapes are start/finish/connection of process; Rectangle shapes are Processes; Diamonds shapes are decision points.

The National Biosecurity Management Consultative Committee (NBMCC) upon emergency declaration (as occurred for *Nassella tenuissima*), advises the National Biosecurity Management Group, the peak national decision-making forum, on various matters concerning the outbreak and any resulting national biosecurity incident response, and effectively coordinates the technical aspects of national biosecurity incident responses. The National Biosecurity Committee develops policy that may influence direction for the NBMCC. Moreover, Exotic Plant incursions that are limited or more easily controlled (e.g. *Stevia ovata*) are handled through The Consultative Committee on Exotic Plant Incursions that reports through the Australian Weed Committee to the Natural Resource Policies and Programs Committee (NRPPC) that is the equivalent of NBMG on less urgent incursion matters.

National Weed Incursion Plan (NWIP)

The NWIP is based on current national response plans such as PLANTPLAN and AUSVETPLAN. The key objectives are to prevent the introduction and establishment of new weed incursions into Australia on public and private land. Support for other agencies involved in Biosecurity is prescribed. A system of surveillance is operational to enhance the reporting of new weed incursions in Australia. Comprehensive risk assessment of exotic weed species to determine the appropriate type of response to each category of new weed incursion and the potential impact on agricultural, environmental and social values of each incursion of high-risk weeds is stipulated. EMU and BQ programs are evaluating, recording and reporting on the type and number of new responses to high-risk incursions and the effectiveness of on-ground management and eradication programs using After Action Reviews and Response Implementation Plans (Morton, 2008).

Queensland Pest Plant Emergency Responses

Siam weed

The National Siam Weed Eradication Program commenced in 1995 to eradicate Siam weed (*Chromolaena odorata*) from Queensland. The nationally coordinated program is managed and operated by the Queensland Government. Siam weed is a plant exotic to Australia and has the potential to impact on the environment and other primary industries.

Mexican feather grass

Mexican Feather Grass (Tussock Grass) (*Nassella tenuissima*) was distributed in areas of Australia as a hardy visually appealing ornamental. Incursion responses were initiated in a number of Australian jurisdictions including Queensland. This was the first Queensland pest plant response where formal aspects of EMU preparedness were incorporated.

Queensland Pest Plant Responses

Four tropical weeds

This nationally coordinated program is managed and operated by the Queensland Government. The program involves extensive community engagement to identify infested areas, targeted weed surveys, weed control and research components. The National Four Tropical Weeds Eradication Program is a five year program to eradicate *Miconia* (*Miconia calvescens*, *M. racemosa*, and *M. nervosa*), *Mikania* vine (*Mikania micrantha*), *Limnocharis* (*Limnocharis flava*) and Koster's curse (*Clidemia hirta*).

Chilean needle grass and other *Nassella* species.

Chilean needle grass, (*Nassella neesiana*), was discovered in Queensland on a roadside south of Felton on the Darling Downs in 1998. Subsequent inspection revealed it in local areas with the largest expanse at the Clifton showgrounds and along the banks of the Condamine River. In 2004, the first cooperative work was conducted by the Clifton Shire Council and Queensland Government. Seasonal management strategies currently continue. Soil seed density studies show an improving situation in response to sustained management intervention. Chilean needle grass can be more invasive than serrated tussock, (*Nassella trichotoma*), when growing as a component of grasslands dominated by kangaroo grass (*Themeda triandra*). This gives perspective to it's invasiveness and persistence. It's management may be better handled by yearly sustained intervention rather than one off high resource emergency response.

Planning for the Future in EMU

EMU milestones and activity outputs are described and reviewed in the EMU operational plan. The EMU operational plan is developed from State Biosecurity program operational plans to ensure that the outputs of the EMU are in alignment with State needs. Where appropriate, the plan will be supplemented with emergency preparedness activities that may be strategic or beneficial to multiple/all BQ business groups and complement National endeavours. Regional needs for emergency preparedness shall be fulfilled from the regional operational plan but where expertise or resources are required from the EMU, the Manager EMU shall evaluate the need for EMU involvement on a case-by-case basis.

Activities identified for action will require negotiated prioritization. Where appropriate, activities will be benchmarked against milestones and projected outcomes. The outputs shall be measured against the EMU operational plan that is derived from a number of sources, namely: operational plans, program business plans, performance standards, incident and emergency response debriefs, after action reviews, continued development of the BEOM

(Emergency Management Group 2010) and exercises to test emergency response activities/systems. Where additional work is required to further improve systems, a cost/benefit and risk analysis will ensure that further additional activity will cease when diminishing returns can no longer warrant the cost or mitigate the risk. Main factors considered in developing the EMU operational plan are:

1. Review the compilation of feedback material received by EMU of all the activities from operational plans, performance standards, action plans, incident and emergency response debriefs from BQ programs and subprograms relevant to incident and emergency preparedness
2. Identify incident and emergency preparedness gaps across the BQ programs
3. Identify synergies and differences so that structure provides optimal productive outputs.
4. Prioritise preparedness activities based on a risk management approach
5. Deliver priorities to the GM BQCC for risk analysis and resource allocation by EMU
6. Review invasive species risks and re-prioritise as required so standard operating procedures and work instructions address likely scenarios.

Challenges for the EMU

With any coordinating initiative, there are a number of challenges facing the unit. These include, but are not limited to:

- The unit competing for resources with other priority work with a shared vision for emergency preparedness improvement.
- The value of incident and emergency preparedness activities is difficult to quantify when there are no emergencies. (This will be overcome by measuring them against systems similar to the Emergency Plant Pest Response Deed, NEBRA or milestones recommended in the Australian Weeds Strategy.
- Incident and emergency preparedness activities can often be 'put off' until resources are made available to progress them. Often this does not eventuate leading to a critical resource gap that becomes evident only during a response.
- Reporting structure reorganisation e.g. FRU development and expansion.
- Staff seeing emergency preparedness as an additional workload. This may necessitate reviewing business priorities to determine where resources should be allocated within EMU. Furthermore, sustaining the EMU will lead to overall staff 'savings' as the state coordinated approach will serve to reduce duplication and

streamline incident and emergency preparedness activities across all regions particularly if a business continuity plan is enacted.

- A belief that the unit may become the default response unit for whole of DEEDI emergencies, not just BQ emergencies.
- The success of the EMU and FRU will depend on whole of BQ support – i.e. specific input will be required from other BQ programs to provide an optimal EMU and FRU.
- Invasive Plants and Animals Program interaction with EMU and emergency operations management on considering new science development. Revising operational procedures is vital when bearing in mind response operational structure and the type of control options considered with respect to standard operating procedure development and it's effectiveness on the target species e.g. new understanding of the effects of herbicide treatment on seed viability may influence the size of surveillance buffer zones on reassessment following initial control (Patane *et al.*, 2009).

After Action Review documentation, suggesting system fixes, and Implementation Plans are necessary to refine and improve response systems following an emergency incident. The EMU drives these processes in cooperation with the responsible BQ program.

Points that can be overlooked when initiating an emergency response include acting without referencing guidance documentation; initiating the response with too lean a structure (Sparkes, 2009); accepting volunteers who have no training in emergency management; not appointing "champions" to lead specialist areas such as tracing and surveillance; not having a comprehensive induction package that contains conditions of employment including flexibility in working hours and the ability to claim overtime; incomplete staff training issues; poor and non-dynamic aims and objectives and not considering relevant topics in the incident action plan; incomplete or not updated MOUs between the states when considering sharing training staff/resources and use of the FRU.

In recent times, emergency responses have been improved with enhanced business operational procedures such as acquiring an expert to examine the response and make recommendations for improvement. Scope for future further emergency preparedness enhancement will be considering such concepts as a Queensland Biosecurity reserve; increasing the duty statements of some Biosecurity Officers to be permanent members of regionally based Emergency Response Teams to immediately cover key roles for specific programs; FRU members to take over formal roles within 3-5 days; memorandum of understanding to be kept contemporary between other states and Queensland due to the continual interaction on emergency response and discussion on systems development (both

software and emergency systems development) other states have trialed and experienced under emergency conditions. Furthermore, negotiation could occur on policy and systems that interstate counterparts are prepared to share in preparatory management e.g. entry to Control Centers with photographic ID, bar code readers to record entry/exit times, recording systems for storing staff personal details and skills registry software. EMU could negotiate with other States with incentives in the form of BQ's Computerized Permit System (CPS) or the blueprint for the improved RAD system (Restricted Area Movement and Security Assessment Database) (Duff, 2011).

Training Enhancement

A large component of EMU business is ensuring appropriate DEEDI staff are trained in all aspects of emergency management. There have been 17 training events for the year ending May 31, 2011 and 43 training events since late 2008 equating to a total of 701 training seats. This equates to 398 individual staff that have been trained by the EMU since its formation. Identifying opportunities for cooperative training (i.e. training NSW and Queensland staff together where possible) is resource efficient, resulting in exposure to experiences and knowledge from a larger pool of specialist expertise. Consideration could be given to the possibility of joint training exercises on the NSW and Queensland border e.g. The Northern Rivers area of New South Wales. Furthermore, consideration can be given to the opportunities in utilizing interstate training staff to deliver/co-deliver specific specialized training. Experienced NSW staff could greatly assist EMU with the design and delivery of training in the logistics and planning areas because of parallel experience on different invasive species (Duff, 2011).

Prioritisation of Tasks by the EMU

The EMU approaches task prioritisation using a risk management approach to outline the risk (failure likelihood) and the level of resources required to lower that risk to an acceptable level. The EMU and GM BQCC cooperatively work together to allocate their resources to the risks identified or to refer the risk to specialist BQ programs for guidance and alternate management strategies when EMU resources are insufficient to reduce the identified risk. Priorities consider current structures and systems and the resources required to adapt or modify these systems so that multiple programs, subprograms and business groups may be able to utilize them (Cozens, 2008).

The development of a feasibility study to determine the prospects of utilizing a Biosecurity reserve is a major initiative for 2011. Better use of existing networks such as NRM groups, catchment groups and LandCare would underpin such a concept.

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