

# **Quarantine Strategy For Lord Howe Island**

**Prepared for the Lord Howe Island Board**

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## ABBREVIATIONS AND KEY DEFINITIONS

<b>AFFA</b>	<b>Agriculture, Fisheries, Forestry Australia</b>
<b>AQIS</b>	<b>Australian Quarantine and Inspection Service (part of AFFA)</b>
<b>BA</b>	<b>Biosecurity Australia (part of AFFA)</b>
<b>DNRE</b>	<b>Department of Natural Resources and Environment (Victoria)</b>
<b>DPIWE</b>	<b>Department of Primary Industries, Water and Environment (Tasmania)</b>
<b>EA</b>	<b>Environment Australia</b>
<b>CSO</b>	<b>Community Service Obligations</b>
<b>FAO</b>	<b>Food and Agriculture Organisation</b>
<b>IPPC</b>	<b>International Plant Protection Convention</b>
<b>IRA</b>	<b>Import Risk Analysis</b>
<b>LHI</b>	<b>Lord Howe Island</b>
<b>LHIB</b>	<b>Lord Howe Island Board</b>
<b>NPWS</b>	<b>NSW National Parks and Wildlife Service</b>
<b>NRMMC</b>	<b>Natural Resource Management Ministerial Council</b>
<b>PA</b>	<b>Parks Australia</b>
<b>SPS</b>	<b>Sanitary and Phytosanitary Agreement of the WTO</b>

### Key Definitions used:

"Pest" means an organism of plant or animal origin which can constitute a biosecurity risk and directly or indirectly cause disease, injury or damage to plants or animals, including any living stage of insect, mite, nematode, snail, slug, or other invertebrate animal, bacteria, fungi, virus or similar organism. It includes a weed pest; an insect pest, a noxious plant, noxious insect and can include an alien invasive species of plant or animals.

"Plants" means all species, varieties and types or parts thereof, including stems, branches, tubers, bulbs, corms, stocks, budwood, cuttings, layers, slips, suckers, roots, leaves, flowers, fruits, seeds, botanical specimens, germplasm and any other plant growth. It includes a dead plant or part of a dead plant.

"Plant material" means any part of a plant that has been partially or wholly manufactured, but still presents a phytosanitary risk:

"Animal" means any living thing that is not a plant. It includes a dead animal and any part of an animal.

## Executive Summary

This study has examined and developed a quarantine strategy for LHI. However, it needs to be said that no matter how many resources are directed to the task, unwanted incursions are still possible. What this strategy sets out to achieve is to minimise the risk of serious unwanted incursions.

At present LHI has quite strong quarantine legislative power. However, enforcement, including related activities such as surveillance and public awareness, does not match the power available.

The strategy recognises that there are a range of views on the island in relation to the issues considered by this study. A critical element of any strategy will be ensuring that a partnership is established with stakeholders. In the context of this strategy, stakeholders will include residents, visitors; commercial ventures based on the island, service providers to the island for example air and sea links as well as relevant Government/international agencies.

The cost impact of any measures recommended is also recognised as a critical component of the strategy.

The suggested strategy involves upgrading a number of key components but, wherever possible, either using existing resources or drawing on the resources of existing organisations where this is deemed appropriate. The key components are:

- Highlighting overarching structural issues that impact on the ability of LHI to maintain freedom from unwanted pests and diseases;
- Ensuring the legislative base of LHI is appropriate;
- Examining ways in which inspection effort, where it is required, can be provided;
- Looking at ways in which the usefulness of available (on LHI) expertise can be maximised;
- Looking at options for ongoing surveillance for pests and diseases. The basis of this premise is that it is invariably easier and less expensive to prevent introduction of unwanted pests and diseases; but if that is not possible then early detection is often critical;
- Upgrading and targeting quarantine public awareness material;
- Upgrading quarantine related training including internet based mentoring arrangements;

In developing the proposed strategy this study has drawn on the experience of a number Australian States and islands including Norfolk, King, Barrow and Thevenard. It has also drawn on the experience of the Galapagos Islands and the author's extensive experience with Pacific island countries.

## Methodology

This study (terms of reference are at Annex A) involved two visits to Lord Howe Island during which a wide range of people were consulted.

- ◀ The first visit from 23-26 September 2002 involved fact finding, consultation with stakeholders and following which a draft report was prepared and made available for public comment;
- ◀ The second visit from 2–10 December 2002 involved further consultation with stakeholders as well as facilitating a public meeting to discuss the draft report.

In addition contact was then initiated with agencies and specialists in relevant fields.

As the fortnightly vessel to Lord Howe Island represents a significant risk as far as incursions to Lord Howe are concerned, during October a visit was made to Yamba in order to observe loading and storage arrangements for goods destined for LHI.

A complete list of meetings and inspections is at Annex B.

Environment Australia, Biosecurity Australia and the Australian Quarantine and Inspection Service have all provided written comment on a draft of this document and their views are reflected in this strategy.

# 1. INTRODUCTION TO THE SCOPE AND IMPORTANCE OF THE QUARANTINE FUNCTION TO LORD HOWE ISLAND

## 1.1 Historical Aspects

The concept of quarantine goes back to the 14th century in Venice when vessels arriving from the Middle East where the black death (bubonic plague) occurred, were required to stand off shore for 40 days to allow symptoms of the disease to develop in travellers and to dissipate infection in their goods. The 40 day period was known as "quarantina" which was derived from the Latin word "*quarantum*" meaning forty. The basis of the 40 days is not known but it was probably influenced by traditional beliefs where the number 40 had acquired some special emphasis. For example, the Bible referred to 40 days and nights of rain during the deluge, the Israelites spent 40 years in the wilderness and there are 40 days of Lent. The system was soon adopted by other European countries and became the model for human quarantine for centuries. While quarantine measures for human diseases have remained with us in varying degrees since the 14th century, plant, animal, marine and environmental quarantine measures are relatively new.

The earliest plant quarantine legislation appears to have been enacted in the Dutch East Indies (Indonesia) in 1877 to prohibit the importation of coffee plants and beans from Ceylon where rust disease had virtually eliminated Arabica coffee.

One of the devastating effects of the Second World War on agricultural production was to enhance the destructiveness of pests and to facilitate their spread. This resulted from a continued neglect of proper cultural practices, the movement of military personnel within and between continents, as well as less effective sanitary and quarantine measures.

Much of the contemporary plant and animal quarantine legislation can be traced to the period following the Second World War. In practical terms the focus on wider environmental issues has only significantly developed over the past two decades.

## 1.2 Why Have Quarantine?

Most people are familiar with the fact that their particular countries have certain species of plants, animals and birds which are native to their countries. The same applies to the plant and animal life that is not so visibly obvious. Each country or region has a group of insects, fungi, bacteria, viruses, nematodes, snails and plants that originate there. Under normal circumstances this collection of plants, animals, and microorganisms are in a state of balance with their environment. When people move plants, seeds and goods from country to country they may move a pest or plant, animal or marine disease from its native habitat to a new location.

No one can accurately predict how an introduced pest or disease will perform in its new location. There is a distinct possibility that, freed from its natural enemies and competitors and with possibly more susceptible host material available, the insect or disease or plant in its new environment may be more damaging or more prolific. Some of the numerous examples throughout the world of the devastating effects of introduced pests and diseases into areas where they did not occur previously are:

- Late blight of potatoes in Ireland in 1845 led to widespread famine and mass migration of Irish people to USA, Australia and Canada;
- In France the introduction of Powdery mildew disease of grapevines (1847), Phylloxera of grapevines (1861), and Downy mildew of grapevines (1875) almost destroyed the wine industry;
- Chestnut blight introduced from the Orient to USA in 1904 destroyed most of the Chestnut trees in eastern USA;
- Cotton boll weevil introduced into southern USA from Mexico has caused annual losses of up to \$900 million to the cotton industry;
- Coffee rust virtually eradicated all Arabica coffee trees in Ceylon in the 1880s and led to the development of tea plantations as an alternative crop;
- The Brown Tree Snake is now endemic in some Pacific countries and is a major pest from both a biodiversity and human perspective;
- The Fire Ant is currently the subject of an eradication campaign in Queensland, estimated to cost \$141 m over five years;
- Siam weed is considered to be one of the world's worst weeds and has the potential to spread across northern Australia and down the eastern coastline

Unfortunately it cannot be guaranteed that, even with the most effective (and costly) quarantine measures, an unwanted exotic incursion will not occur. No quarantine measures can completely eliminate the risks of weed seeds and diseases carried by migrating birds, or the risk of wind blown spores being carried across oceans. What this means is that there is no such thing as a zero risk approach to quarantine.

However, appropriate quarantine measures can greatly assist in risk minimisation and that is the thrust of this strategy.

### **1.3 Economics**

Economics are relevant in the case of Lord Howe Island. There will be some who seek to return it to what they perceive as a pristine state, while others depend on a business on the island for their livelihood.

The cost of exotic incursions in agricultural production has been brought into sharp focus by the recent United Kingdom experience with Foot and Mouth Disease. Cost estimates, prepared by the UK Ministries of Environment, Food and Rural Affairs / Culture, Media and Sports, attribute the losses to agriculture and the food chain, including the costs compensated by the Exchequer, to amount to about UK £ 3.1 billion. Businesses directly affected by tourist expenditure are estimated to lose a similar amount (between £2.7 and £3.2 billion). In Australian dollars this translates to a total cost of approaching \$19 billion, a huge figure for any country to digest.

While it is difficult to draw a direct parallel between the UK FMD experience and potential costs to Lord Howe Island of an unwanted incursion, nevertheless costs associated with incursions can have a substantial detrimental impact on the economy of the island. Perhaps more direct examples are the estimated costs to the mainland of weeds at around \$3 billion per annum (in 1992), and the estimated costs to the Lord Howe Island Board of rat control that exceeds \$50,000 per annum (Alan Saunders and Derek Brown "An Assessment Of The Feasibility Of Eradicating Rodents From The Lord Howe Island Group", September 2001)

While difficult to calculate when it comes to putting an economic value on the biodiversity of a country or in this case Lord Howe Island, there is no doubt the economic value is enormous.

In the case of the economics related to unwanted pests and diseases, the costs of preventative measures are invariably a fraction of the costs of control or eradication. An additional strong principle that can be adopted is that the earlier any pest or diseases incursion is identified, the higher the chance of eradication and control.

It does not always follow that eradication will be successful, but there have been some notable examples in Australia's history, including that of Brucellosis and Tuberculosis, and in more recent years, the halting of the Papaya fruit fly incursion into North Queensland. The total direct cost of the successful eradication program in the latter case was around \$35 million adding in the indirect costs to growers exporters and the like took the figure over \$100 million.

The current Fire Ant control program has costs of \$141 m split between the Commonwealth and the States, and there is no absolute guarantee of success. A USA attempt at eradication in the 1950s failed.

## 2. Current Arrangements in Australia

### 2.1 Federal and State Agencies

A number of Federal and State agencies and the Lord Howe Island Board have responsibilities in respect of quarantine arrangements for LHI. Some of these are better developed than others. Specific agency responsibilities include:

- AQIS (part of AFFA) for operational international import quarantine activities, which it discharges via an agency arrangement with the NSW Police, and established mentoring through a Quarantine Officer based in Port Kembla. AQIS also has direct responsibilities in terms of phytosanitary certification related to the exports of Kentia palms;
- Biosecurity Australia (part of AFFA) has primary responsibility for risk analysis associated with animals, plants and their products imported to Australia. This risk analysis includes risk identification and risk management as key components. Biosecurity take into account the environmental impact in terms of pests and diseases when they undertake risk analysis. Biosecurity Australia has strong and well developed links to AQIS;
- Environment Australia is responsible for ensuring that the obligations of the Commonwealth Government to protect and conserve World Heritage properties under the World Heritage Convention are met. Under the Environment Protection and Biodiversity Conservation Act 1999, administered by Environment Australia, actions which are likely to have a significant impact on the world heritage values of a declared world heritage property are subject to an environmental assessment and approval process.
- NSW Agriculture has domestic quarantine responsibilities related to preventing the introduction, establishment, spread, control and eradication of pests and diseases within NSW. Until recent years NSW Agriculture also had operational responsibility for international import quarantine operations under an agency agreement with AQIS;
- The NSW National Parks and Wildlife Service provides administrative support to Lord Howe Island.

The Natural Resource Management Ministerial Council is a key consultative body co-chaired by the Ministers responsible for Environment Australia and Agriculture, Fisheries and Forestry. This council appears to be in the early stages of developing a focus on quarantine as it relates to biodiversity.

The Primary Industries Ministerial Council is a forum at which, among other things, production related biosecurity-related issues are discussed and resolved. There is a Memorandum of Understanding between the

Commonwealth and the State and Territory Governments covering the quarantine continuum and the Commonwealth-State/Territory partnership.

## **2.2 Australia's Quarantine System**

Australia has a highly regarded quarantine service that ranks amongst the best in the world. The island status of Australia has conferred natural advantages that contribute to the ability to deliver an effective quarantine service.

In making this observation it is important to note that quarantine does not stand alone. Quarantine can be regarded as a subset of wider animal (including marine) and plant health activities.

Quarantine services around the world have traditionally focussed mainly on production (or human) related pests and diseases. Very little attention has been given to biodiversity related quarantine issues until the last two decades. In terms of risk analysis, there is still a significant skewing towards production pests and diseases compared with wider biodiversity issues. This to a large degree reflects funding constraints and political realities.

Two major components of Australia's quarantine arrangements are border activities undertaken by AQIS as they relate to international passengers, cargo and mail and import risk analysis undertaken by Biosecurity Australia.

### **Border activities**

Border activities have been substantially strengthened in recent years, particularly having regard to the Government injecting additional funding in response to the UK FMD outbreak. This will be quite noticeable for any international passenger clearing one of the major airports on the mainland. Electronic scanners and the Beagle Brigade are increasingly being used for passenger arrival screening for both checked and carry on baggage. Trained dogs are also in use in cargo and mail exchanges, although these areas still present substantial difficulties.

The border activities undertaken strongly support efforts to exclude unwanted pests and diseases that are biodiversity related.

Lord Howe receives only a limited number of international arrivals each year, with around 100 yachts and a similar number of light aircraft representing arrivals that are subject to AQIS clearance via their agent on LHI. Quarantine (and Customs and Immigration) clearance is presently undertaken by an officer of the NSW Police. This Officer has received limited quarantine training but has a designated Quarantine Officer on the mainland to which queries may be directed.

### **Risk Analysis**

The second major component of quarantine relates to import risk analysis, and this in the context of Biosecurity Australia has been substantially upgraded in recent years. However, there is a strong and arguably a disproportionate focus on IRA activities associated with production related pests and diseases. This reflects the very strong pressure that many Australian primary industries are able to bring to bear on the risk analysis process, when the pest and disease risks related to imports of a competing product are being considered.

This study has sought to identify specific mechanisms directed towards threat identification and threat management of issues that can be regarded as related to biodiversity, for example the world heritage areas that Australia possesses. At present these mechanisms are somewhat limited, and there are strong reasons why improved mechanisms should be developed and implemented in this area.

Weeds are an example of where weed management and eradication machinery has existed for many years; however only in recent years is threat identification gaining the recognition it deserves.

National Weeds and Vertebrate Pest Committees have existed for many years and they remain highly relevant to this study, although having had their roots in agricultural production issues, their focus on biodiversity and threat identification in particular is still developing.

### **Domestic Quarantine**

The net effect of NSW Agriculture transferring its international quarantine responsibilities to AQIS has, on the one hand, strengthened international quarantine activities but, on the other, weakened its domestic quarantine capability. This transfer not only affected Quarantine Officers formerly employed by NSW Agriculture, but also negatively impacted on the scientific expertise available to NSW Agriculture. As noted earlier in this report, quarantine can be regarded as a subset of animal and plant health. As such, having appropriate scientific expertise underpinning operational quarantine activities is critical. When combined with most State agencies being affected by stringent State Government budgetary restraints, this has all contributed to less scientific expertise than is really required being available to underpin domestic quarantine activities.

The need for scientific capacity has been recognised, and an upgrading of that capacity is now evident in NSW Agriculture.

NSW Agriculture is able to offer a no-cost service for the identification of weeds, and digital photos are a practical way of at least obtaining an indicative identification.

## 3. Focussing On Lord Howe Island

### 3.1 Pathways for Pests and Diseases

This study has taken some judgements on the relative risk that each pathway poses to LHI as far as introducing an unwanted pest or diseases. These judgements include:

- Visitors to the island will generally be sympathetic to the biodiversity of the island, and as such if they are informed of the risks are very likely to comply with reasonable restrictions;
- Returning residents represent a group that may inadvertently introduce a pest or disease through bringing new plants or animals to LHI;
- The fortnightly vessel from Yamba represents the highest risk due to the sheer volume and wide variety of cargo it carries.

The following table outlines pathways for the introduction of unwanted pests and diseases into LHI. An intuitive assessment has also been provided of the relative risk of the various pathways.

## Draft for public comment October 2002

### 3.2 Pathways, Risks and Management Options

Pathway	Intuitive risk	Surveillance	Inspection	Treatment	Public Awareness
Migrating birds/wind	Low	Yes, as best that can be arranged over whole island using existing resources	No	No	Yes
Visitors to LHI	Low, if purely on holidays, rising to moderate if carrying items for residents or hikers	Yes	Yes, perhaps random	Yes, if appropriate	Yes
Residents returning or importing goods from the mainland	Moderate	Yes	Yes, for plants and animals	Yes, if appropriate	Yes
International yacht arrivals	Moderate to high	Yes	Yes	Yes, if appropriate	Yes
International aircraft arrivals	Moderate to high	Yes	Yes	Yes, if appropriate	Yes
Yamba vessel	High	Yes	Yes, for high risk goods	Yes, if appropriate	Yes
Regular flights	Moderate	Yes	Yes, for high risk goods	Yes, if appropriate	Yes
Ballast water discharge and hull fouling	Low at present	Yes	No	No	Yes
Imports of live animals	Low, if controlled	Yes	Yes	Yes	Yes
Imports of plants	Moderate to high	Yes	Yes	Yes	Yes
Postal items	Moderate to high	International mail screened on mainland. No viable option for domestic postal items	Not possible for domestic postal items	No	Yes
Irregular domestic aircraft and yacht arrivals	Low, if purely on holidays rising, to moderate if carrying items for residents	Yes	No	No	Yes

### **3.3 Discussion Of Pathways**

Lord Howe Island is fortunate in that it is an island and a quite isolated one at that. Visitor numbers are quite constrained by flight availability, the size of operating aircraft and available accommodation on the island. The background to the major pathways described in the table above is as follows:

#### **Migrating birds and marine species**

Migrating birds have the potential to carry pests and diseases. Probably the key pest in the Lord Howe Island context would be exotic weed seed. There is also disease potential from migrating birds, but risk is probably most likely to be evident in existing poultry present on the island. It is quite possible that free range poultry and native avian species have over many years developed a degree of immunity to key avian diseases compared with intensively produced poultry on the mainland.

Migrating marine pests and diseases carried by migrating marine animals are always a possibility. This risk has been assessed as low by the Manager of the LHI Marine Park and events would be considered as a natural process.

#### **The Airport**

The airport has limited capability as far as aircraft size is concerned. At present, scheduled Qantas Link Dash 8 flights carry in around 12,000 passengers a year.

In addition two light aircraft are based at the airport and around 100 international arrivals occur each year. To this can be added domestic light plane arrivals.

Reflecting the limited access to goods for the island, all of the above flights also carry cargo.

It is relatively easy to conduct inspection activities of aircraft cargo at the point of unloading, although detailed in-cardboard box inspection may not be feasible at the airport for fresh commodities.

All international flights are met by the Lord Howe based NSW Police Officer who acts as agent for Quarantine, Customs and Immigration.

The airport has limited holding facilities, and by virtue of its size is in close proximity to vegetation. This provides relatively easy access for any pests carried in on aircraft.

Signage or targeted brochures relating to protecting the biodiversity of Lord Howe Island are not prominent at the airport, particularly against the

background that the airport is the first facility entered by the vast majority of visitors (and returning residents)

### **The Lord Howe Wharf**

The wharf represents the highest risk area for the introduction of unwanted pests and diseases in that most of the cargo imported passes through the wharf.

The surrounds of the wharf represent a relatively hospitable environment for many pests in that:

- Vegetation is close and the extent of asphalt is limited;
- The shed, which occasionally stores goods, offers opportunities for the harbouring of pests by virtue of a lack of tidiness at the time of the first study visit.

At Rarotonga in the Cook Islands an incursion of Giant African Snail was averted due in no small part to the distance the snails had to travel before finding hospitable host territory. The distance to travel contributed to the length of time taken, which in turn contributed to someone noticing an unusual snail.

### **Goodwood Island Wharf, Iluka**

This is the main wharf for loading of goods from the port of Yamba. Apparently the Norfolk Guardian and Island Trader are the two major users of the wharf. The Island Trader on a weekly basis (one to load and one to unload) and the Norfolk Guardian on a five-week basis.

There is a possibility of cross contamination of pests from shipping pallets carried by one vessel to the other. The Norfolk Island vessel is treated as an international arrival.

The wharf is adjacent to cane fields and there is no doubt opportunities arise for pests to hitch a ride. An asphalted area of approximately 100m by 100m surrounds the wharf. A well-maintained shed is located on the wharf and there are occasions when this is used to store goods. The shed is baited for rats. The wharf has a resident caretaker and is secured by mesh wire fencing and a locked gate.

The wharf to Island Trader operation was observed over a three hour period at a time when the vessel was being loaded for a departure to Lord Howe Island.

During this time disused and broken shipping pallets, and vehicle tyres were observed against perimeter fences. It was indicated that broken pallets are removed on a regular basis.

As best as can be organised, cargo is scheduled to arrive starting at 0700 and continuing throughout the day to facilitate loading, with the vessel departing on an appropriate tide. The cargo is delivered by a wide range of vehicles from a wide range of locations. In some cases the cargo, for example a piece of equipment such as a solar hot water service, may have sat around for months in the manufacturer's yard before possibly doing the same thing at a wholesaler's and then retailer's premises.

A deal of cargo is consolidated at Lindsay Bros warehouse in Maclean, however the origin of that cargo can be just about anywhere. The warehouse was visited during the course of the visit and is of a good standard, with baiting arrangements for rats. Cargo for the Island Trader, if not already done, is plastic wrapped at Lindsay's, as this provides both safety and handling benefits.

Cargo observed during the period at the wharf included:

- Fresh and pre-packaged food generally palletised and plastic wrapped, although not shrink wrapped which would seal the pallet;
- Pallets of alcohol in cardboard boxes;
- Road base in 1 tonne polyfabric bags;
- 45kg gas bottles from two suppliers, one of which had a lifting device on the truck that facilitated palletising the bottles, the other did not. Spider webs were evident underneath some bottles;
- Kiln dried pine timber for building and treated timber for building and landscaping;
- A wide range of building materials;
- Some loose cargo including mattresses, chairs, stationery folders;
- Items such as birdseed;
- Boxed electrical equipment and the like;
- Petrol in 4000 litre tanks and aviation fuel in (new) 200 litre drums;
- Garbage skips from Lord Howe Island that were being returned to the island. These were not as well cleaned as they could have been, with a small quantity of waste material and spider webs both evident. It is quite possible that these came from the island in the first place.

It is accepted that a wide range of cargo is transported to the island and that this will continue. What is striking about the cargo-sourcing situation is the wide range of locations where the cargo is sourced. Some orders are stored,

but others are delivered directly to the Island Trader on the day of departure. Obtaining an accurate manifest that would enable pre-arrival perusing of the nature of cargo aboard appeared to be difficult task.

A significant amount of cargo represents mixed pallet loads typically secured with plastic wrap. There are significant difficulties associated with being able to inspect this product at port of loading irrespective of where that port is located.

The loading staff at the wharf appears to be a reasonable stable workforce.

The issue was raised of a possible move to Port Macquarie and without a comparative study specifically from a quarantine perspective it is difficult to know whether the existing port or Port Macquarie would provide a less hospitable location for pests in terms of them boarding the vessel during loading. At present, aside from proximity to cane fields, and some limited housing in the immediate area, the hardstand area at Goodwood Island and the level of activity during loading mitigate against some pests moving on board the vessel. However, attention to wharf cleanliness is required in respect of pallets both broken and "in use", and tyres left at the wharf.

## **Vessels**

### **Island Trader**

The Island Trader is moored in Yamba harbour and moves to load at Goodwood Island, Iluka every second Thursday.

The crew of the vessel is fairly stable in terms of personnel. The crew is well aware of quarantine issues and likely to be a very useful surveillance resource.

The Island Trader is capable of carrying 200-300 tonnes of cargo in a hold that appears able to be sealed. The vessel is not suited to in-transit fumigation, and there is some doubt that many pests would be destroyed even if it were possible to fumigate in transit to Lord Howe Island.

Problems that were raised during a visit to the vessel mainly related to the problems associated with waste being returned from the island. This situation is conducive to rodent and fly/ cockroach infestation, and from a quarantine strategy perspective is likely to prove to be a negative aspect. The premise has been adopted that the cleaner the Island Trader is kept the better, and maintaining cleanliness on the voyage to Goodwood Island will be conducive to cleanliness on the return voyage to Lord Howe Island. This is so with any vessel, as there are just so many nooks and crannies for pests to hide in.

The Island Trader takes on ballast at Yamba as necessary to balance the vessel and discharges that ballast as best it can off Lord Howe Island. A policy will be proposed that only fresh-water ballast may be permitted to be discharged within the Marine Park. The Island Trader's current policy is that it

does not discharge salt water into the Lagoon, however some ballast adjustments are sometimes necessary to suit tidal conditions in the Lagoon.

There are real safety issues associated with the discharge of ballast water in open waters.

#### **Other vessels**

Yachts are likely to be numerically the main vessels visiting the island and from a quarantine perspective these are invariably a risk. The NSW Police Officer working under agency arrangements with AQIS, Customs and Immigration clears international arrivals on arrival. From an AQIS perspective, limited training has been provided although an experienced AQIS officer based in Port Kembla has been nominated as a contact point.

Potential problems with yachts include animals, plants and pests on board, as well as unwanted organisms associated with ballast water and hull fouling.

#### **Nursery**

The nursery has a staff with a great deal of useful technical experience relevant to the quarantine function. As phytosanitary certification is an integral part of exporting Kentia Palms, a good appreciation exists of phytosanitary requirements that are directly related to quarantine activities.

The nursery has a sheet fumigation capacity and is in the process of extending its capacity. At present Phostox is used as a fumigant.

#### **Mail**

All mail arriving on Lord Howe Island is domestic mail in the sense that any international mail has previously been quarantine cleared on the mainland.

It is quite possible for plants and seeds to be mailed to residents and for these to remain undetected until opened by the recipient. As such, mail provides a significant opportunity for the inadvertent introduction of unwanted plants.

#### **Waste disposal**

Waste disposal is and is likely to remain a problem on Lord Howe Island. As a general statement, waste is a prime source of significant unwanted plant and animal pest and disease incursions.

AQIS places requirements on Port (and airport) Authorities across Australia for the handling of international waste and a range of measures are used to treat or handle waste. These include:

- Incineration;
- Autoclaving;

- Chemical treatments;
- Deep burial; and
- Not allowing waste to be landed

Incineration was once the standard method of destruction of residual waste (non-recyclable plastics and packaging) on LHI but due to environmental concern now treats only international waste and a small portion of residual waste. Shipping international waste back to the mainland may be an option, but not the best option from an overall waste strategy perspective.

Medical waste is currently flown by light plane to Port Macquarie and disposed of at that location.

Problems have been identified with the current domestic waste arrangements of shipping some waste back to the mainland via the Island Trader. These relate to the sealing of containers and rat and cockroach infestations as well as significant fly problems.

It has not been possible to make a detailed study of the Composter as part of this report; but there may well be weed seeds that can survive the operating temperature of the composter. Depending on the subsequent distribution of the compost, if this is indeed the case, it has the potential to spread weeds.

## 4. Drawing on The Experience Of Others

As part of this study the author has drawn on his extensive Pacific Island experience, and contact has been made with all key agencies involved with LHI. In addition, contact has been made with:

- Personnel on islands that, for one reason or another, have quarantine arrangements. These include the Galapagos Islands, Norfolk Island, King Island and Barrow Island;
- Quarantine staff in the State Quarantine Services of Western Australia and Tasmania, as both States impose quite strict quarantine requirements on the movement of animals, plants and products from other States.

It is acknowledged that not all of the measures undertaken are appropriate for LHI as some of the environments are very different to that found on LHI. Nevertheless, many of the objectives are similar and provide useful comparisons for the development of this quarantine strategy. Quarantine is a difficult task for all of the islands and magical solutions are not easy to find. However, comparative analysis with LHI does provide some guidance for the development of a quarantine strategy.

**Galapagos Islands** (Material in the main summarised from communication with Dr Alan Tye, Head of Botany, Charles Darwin Research Station, Galapagos Islands)

The Galapagos Islands (Ecuador) have in the past five years moved to upgrade quarantine arrangements. This has included new legislation and quarantine restrictions.

In the Galapagos Islands there are conflicting views between those original inhabitants who grow plants for a living as the resident farmers/market gardeners, and those who want it to be a pristine unchanged environment. The conflict is that people have to work on the island to support the ecotourists, and all have to be fed, this leads to the production of foods that could possibly be invasive. The island has had difficulty in striking a balance. Quarantine requirements include:

- Inspection of passengers and their baggage on the mainland before flying to the islands. Mainland control is regarded as crucial;
- “Declare it or dump it” bins on arrival and footwear sterilisation pads at the airport and at other ports;
- Publicity in airports etc;

- Spot inspection checks on arrival;
- Established procedures for the disposal of confiscated goods;
- Inspection of shipped cargo - at present this is done on arrival in Galapagos, but the idea is that it should be done on the mainland – the Galapagos just haven't got that far yet;
- Standards for cargo (permitted packing materials for different products etc). This is directed towards reducing accidental introductions of insects, seeds etc.
- A list of permitted packing materials for cargo;
- A permitted list for goods to be imported with everything else excluded;
- A risk analysis process for any proposed additions to the “permitted list” (roughly following Australia/NZ models);
- Permanent and continuous monitoring at import sites (ports, airports) for insect introductions (yellow traps, ant baits etc).
- A reporting system for any new pest and disease introductions identified (mainly for farmers to report new pests and weeds spotted);
- Contingency plans for dealing with newly detected introductions.

The above applies to inter island transport as well as arrivals from the mainland.

Visitors to Galapagos pay US\$100 (approximately AUD\$180) as a Park Entrance Fee, of which 5% goes to the quarantine system.

**Norfolk Island** (Material summarised from communication with Albert Buffett, Quarantine Officer, Norfolk Island)

Norfolk Island has a somewhat different status to LHI by way of its international status. A good deal of cargo comes from New Zealand, although the Norfolk Guardian also delivers cargo from the Goodwood Island wharf. Main features of Norfolk’s quarantine arrangements are:

- Both a Customs and a Quarantine Officer are on board ship at all times during discharging of cargo. Unlike Lord Howe, the cargo has to be lightered ashore and all involved with the unloading of cargo monitor for unwanted guest of any sort;
- All aircraft rubbish incinerated at a special incinerator at the airport;

- All timber, especially 2nd hand timber is inspected before landing and fumigated using Methyl Bromide if at all suspect, at the importers expense. No bark is permitted on incoming timber. The majority of the timber which is kiln dried and treated comes from NZ;
- All animal feed must be heat treated before importation;
- No straw, hay or green feed of any sort is permitted;
- Only new sawdust is permitted in animal crates and on arrival must be collected and burnt, the crate cleaned on the jetty and then disinfected with fungicide and insecticide;
- All seeds imported are from recognised merchants and in sealed commercial packages. No home garden seeds permitted particularly through the mail;
- Customs monitors all incoming mail and anything doubtful is held for quarantine inspection;
- All soil, sand, potting mix and peat must be heat treated as per quarantine requirements into Australia;
- Waste disposal. No landfill for waste disposal is permitted due to underground water contamination. Currently everything is burnt and then dumped into the sea. This is changing and a number of options are being looked at, including shipping waste and the dumping of certain types of waste (eg compressed car bodies) at sea.

**King Island** (Material summarised from communication Nigel Burgess, Quarantine Officer DPIWE, King Island)

King Island is part of Tasmania and has a resident Quarantine Officer from the State service. Main features are:

**By air**

- All vegetable matter i.e. fruit, vegetables, plants (no soil attached) have to carry a quarantine clearance certificate from DNRE Victoria;
- All vegetable matter from Victoria that does not carry a quarantine certificate is confiscated and destroyed, by burning. The exception being fresh flowers - they are sprayed when they arrive on King Island with a garden spray, to kill any offensive bugs;
- Dogs are also treated for Hydatids - preferably before coming to the Island, but can be treated on arrival, with tablets provided by AQIS. They require a Veterinary Certificate stating that they have been treated in the prior 6 weeks;

- No fresh water fish are allowed into any part of Tasmania.

**By Sea:**

- Goods coming by sea from Victoria are checked at Devonport, as the boat travels Melbourne - Devonport - King Island – Melbourne;
- Most, if not all timber product is sourced from Tasmania;
- Pallets of pavers or pallets of anything are checked for soil, snails, ants etc. at Devonport;
- Occasional specialized checks are done on King Island as requested;
- There is also a check on machinery, especially farm machinery, to ensure no soil or plant material is attached, must be washed thoroughly before shipping;
- Imports of birds are dependant on breed and type;

**Thevenard and Barrow Islands** (Material summarised from communication with Russell Lagdon and Stephan Fritz, Chevron)

Chevron operates oil operations on these islands. Quarantine is an integral part of environmental health and safety management at a field operations level, and is driven by environmental legislation for Barrow and Thevenard Islands operations. The company has a section of a manual devoted to environmental quarantine.

This section details the minimum standards that shall be applied to prevent the introduction of foreign species to Barrow and Thevenard Islands, or neighbouring island-based facilities, through Chevron operations.

Foreign species that these minimum standards aim to keep out include:

- Vermin, such as house mouse, black rat and cats;
- Insects, such as European Bees, Ticks and Wood Borers;
- Flora, such as Double-Gee, Kapok Bush, Buffel Grass, Noogoora Burr, Mesquite, Caribbean Stylo and Mexican Poppy.

These minimum standards also apply to the eggs, seeds and other life cycle stages and any juveniles, living matter or soil that may be associated with such pests.

Specific responsibilities are allocated for inspection, treatment, baiting, trapping etc. Consignments of palletised, caged, boxed, loose or bundled goods are avoided and, where possible, sealable containers are used as a preferred option.

No freight is allowed from Thevenard Island to Barrow Island without fumigation, or unloaded at Barrow Island in darkness.

Main features of quarantine procedures are:

- All goods including vehicles, mobile plant and equipment, transportable units, containers, pipes, etc are closely inspected for signs of earth, seeds, webs, eggs or vegetation;
- Any equipment that has visible contamination is thoroughly washed down immediately prior to loading on a vessel for shipment. Water is used as the primary method of removing any contamination, and is delivered at a pressure sufficient to ensure penetration to base metal or paintwork through any encrusting earth;
- When the goods are clean and all other necessary quarantine is completed, a Green Clearance Label and/or Quarantine Tape is placed in a prominent position prior to loading;
- Palletised, boxed, bundled and loose goods are inspected and treated immediately before loading for transport. Inspection and treatment are recorded on the Freight Management System. Green Label and Quarantine Tape are applied to all inspected and cleared goods in such a way that it endures barge transportation;
- Where vermin are observed or suspected in consignments of multiple pallets or boxes, the consignment is isolated (such as in a sealed 20' Container) then baited overnight and subjected to the Flour Tray Test. No baits remain within the freight;
- All transportable offices, accommodation units, tool sheds, food storage units, mobile messes and kitchens, logging cabins, dog houses, koomey shacks, caravans, work boats, etc are fumigated with methyl bromide by a licensed pest controller at an appropriate location before dispatch to Barrow or Thevenard Islands. All goods that have been successfully fumigated have a Green Clearance Label and Quarantine tape affixed to them and are labelled as such;
- All materials are transhipped as quickly as possible through Dampier and Onslow Supply Bases to prevent contamination by local vermin. Lay-down areas at Dampier and Onslow Supply Bases are maintained clean, weed free and preferably be hardstand. Materials or goods that have been stored for a prolonged period at Dampier and Onslow Supply Bases receive close inspection and treatment prior to forwarding to Barrow or Thevenard islands;
- Barge crews maintain baiting and trapping programs to prevent the spread of the introduced house mouse and black rat from Dampier and Onslow Supply Bases and from Thevenard Island to all island landing

sites. If vermin are sighted on the barge, the Barge Master, by arrangement with the Dampier Supply Base Manager, returns the loaded barge to Dampier or another mainland port at the earliest practicable time for further quarantine treatment. Upon arrival at Barrow and Thevenard Islands, a nominated crew member observes the lowering of the bow or stern door to determine if vermin leave the vessel. If vermin are observed, then:

- The bow or stern door is raised
  - Chevron is advised immediately
  - Arrangements are made through the Dampier Supply Base Manager to return to a mainland port for quarantine treatment on the first available tide
- 
- Environmental Staff and external parties conduct inspections on an opportunistic basis. Manifests are inspected by nominated person at each island unloading and periodically inspected by the Materials Coordinator and the Environmental Coordinator;
  - Any breach of quarantine is reported through the Chevron Incident Reporting System to determine if a foreign species was introduced.

## 5. Issues Related to the Development of a Quarantine Strategy

Most people will recognise and abide by common sense quarantine requirements and this strategy attempts to abide by that principal.

The strategy developed as part of this study has some flexibility in that it tries to take account of changing circumstances such as vessel or aircraft arrangements. Any quarantine strategy will need to be regularly reviewed and updated to meet changing circumstances.

The development of any quarantine strategy requires a good knowledge base of what pests and diseases are present and what are not present.

While this report as far as rats are concerned is based on the premise that an eradication program will proceed, there are many other pests and unwanted plants that, without accurate baseline data, make the development of a strategy more difficult.

There are practical limits as to how effective a quarantine strategy can be in maintaining freedom from unwanted pests and diseases. There is no such thing as zero risk, nor will there ever be. In the case of Lord Howe Island, a targeted approach is necessary as the potential range of pests and diseases is enormous. As such, a degree of prioritising of which unwanted pests and diseases should be the focus of the quarantine strategy.

LHI has a number of significant advantages that contribute to maximising the effectiveness of any quarantine strategy including:

- Its island status provides limited opportunities for unwanted pests and diseases to arrive;
- The island is quite small in size;
- Both residents and visitors are likely to be very sympathetic to minimising the introduction of unwanted pests and diseases. It is critical to build partnerships with the various groups;
- The nature of the Island will mean that visiting scientists whether working or on holidays are likely to contribute to the body of diversity related knowledge. It is imperative that this information is “captured” and held in an easily retrievable form;
- Personnel associated with aircraft and Island Trader arrivals understand and are sympathetic to the issues relating to the exclusion of unwanted pests, and appear willing to help;

- Relevant plans such as the “Strategic Plan for Weed Management” have already been developed.

However, once a pest or diseases arrives on the island widespread establishment is facilitated by the small size of the island.

## 5.1 The Lord Howe Island Board

This study has identified the need for biodiversity issues to be better integrated into quarantine issue consideration. There is an international quarantine perspective and a broader policy perspective that involves EA and AFFA.

In terms of developing the linkages, having a Commonwealth representative on the board may have merit, if that person were charged with the responsibility of pursuing some of the significant structural issues identified by this study.

## 5.2 Funding and Cost Recovery

There are costs associated with the recommended strategy. Some of these will fall directly on the importers of specific goods, for example the need to have steam cleaned any second hand vehicle or machinery. It would also be appropriate for importers of plants to contribute to the inspection cost associated with their importation to LHI. A formal permit system is an option for goods such as plants and animals and should be considered by LHIB. On the broader front there is a strong case for specific funding to be made available for the maintenance (and quarantine activities are a valid part of this) of World Heritage areas generally in Australia. Nominating an area is one consideration, maintaining it in as close to its natural state as is possible is another. That is not to say funding is not at present directed towards this end, certainly AQIS border activities directly assist, as do programs such as the Northern Australian Quarantine Strategy.

The issue of the LHIB raising additional funding is a difficult one as already residents bear additional costs to those of most mainland Australians.

The current visitor taxes are one avenue, and although these now total in excess of \$50, there may be scope to increase them further. An interesting comparison is with the Galapagos Islands, where the current visitors tax (of which 5% is directed towards Quarantine) is USD\$100 i.e. approximately AUD\$180, and there is a school of thought which believes that Lord Howe should be an expensive place to visit. This study is not able to assess the impact of higher visitor charges on tourism (with residents perhaps exempted) but believes it would be appropriate for LHIB to examine the issue further. It is noted that if an additional levy were introduced (and dedicated to quarantine activities), that for every dollar increase in the tourist arrival taxes, approximately \$12,000 would be made available to the Board for this purpose. The recently introduced ‘Environmental Levy’ (\$5/sector on passenger flights), which forms part of the visitor taxes, has to date been allocated to offset the

operation of the Waste Management Facility. This levy could be partially re-allocated to fund quarantine initiatives.

Aside from visitor taxes, funding options include:

- Permit charges for the importation of plants and animals;
- Seeking sponsorship for funding some quarantine activities, particularly those related to public awareness;
- In kind funding, which is also likely to be an important element with the strategy suggested;

Other opportunities include:

- Drawing on the expertise of AQIS, BA and NSW Agriculture. This is likely to be quite possible with some of the activities suggested;
- Cross State quarantine arrangements. These are significant for quite a number of products, and accordingly a cross State Quarantine Awareness Committee already exists and produces a “Travellers Guide to Interstate Quarantine”. Part of this brochure summarises in table format, permitted imports into each State. The expressions “no”, “yes” and “ask” are used to guide readers and a free call phone number is provided for further information. This brochure is specifically directed towards “protecting Australia’s valuable agricultural industries” but could (and should) be extended to cover biodiversity issues, and could even have incorporated a special section for Lord Howe Island. The brochure is currently 16 pages long (folded A5 format) and the front and back is shown at Annex E. This committee has funding of about \$150,000 pa at its disposal.

## 6. How Can The Current Arrangements Be Improved?

### 6.1 Structural Issues

#### Legislation

The Lord Howe Island Act 1953 provides for “the Board shall, subject to any other Act in force relating to the protection or conservation of fisheries, fauna or flora, take all practicable measures to protect and conserve the fisheries, fauna and flora of the Island”

The Act allows for Regulations to be made in respect of:

- Prohibiting the introduction of any species of fauna or flora to the Island or prescribing conditions in relation to the introduction of any species of fauna or flora;
- The destruction of plants declared by the regulations to be noxious.

This study has assumed that in the event of an exotic pest or disease, emergency powers held in other relevant State Acts can be applied to the specific situation in a manner that allows for any necessary action to be undertaken. Clarification may be required regarding the ease of applying other NSW legislation in relation to the LHI Act. It would be anticipated that other Agencies would support LHI in the event of an incident.

However there are a number of additional specific provisions that may be of use to the Board:

- Providing the Board with the power to enter into formal compliance arrangements with individuals or businesses which have the effect of delegating the power to undertake specific inspection (and related) functions;
- Providing the Board with the power to appoint “Authorised Officers”, who would not necessarily be LHIB staff, but who might, for example, be crew members of the Island Trader, with the power to inspect goods (as best as they are able) at Goodwood Island wharf, and to refuse to load any goods which are found to be carrying an unwanted pest or disease;
- Provide for a permit system to be introduced on a cost recovery (to users) basis, and inter alia to provide for all imports of plants to be labelled accurately;
- Having an offence provision in respect of any false or misleading declaration.

## 6.2 Contract Related

The current shipping freight contract includes provisions for east-bound vermin control and limits operations to daylight hours to optimise surveillance.

Future tender and contractual arrangements for the movement of cargo to LHI should include:

- Standards for both the vessel and the departing (and arriving) wharf;
- Appropriate surveillance, fumigation (possibly in transit, depending on specialist advice being received as to the effectiveness and safety of such operations) and baiting/trapping provisions;
- The power for goods to be refused boarding at the port of departure in the event that an infestation is found.
- Consideration could also be given to incorporating a declaration on the consignment note for key “exporters” to LHI.

## 6.3 Board Importation Control Policies

The current policies prohibit a range of plants, whilst allowing for a situation where Board approval may be obtained prior to importation for some plants, and a continual approval list exists for some plants. There is no question that stringent measures must be applied to the importation of plants and the current powers appear adequate. However, the extent of enforcement appears an issue, as does the expertise available to the Board to perform essential risk analysis on any plant for which Board approval is sought.

Any new plant or animal proposed for introduction to Lord Howe Island should be the subject of formal risk analysis.

The Board has a policy of soil-less importation of plants and it is important that this is applied to all plant imports. If credible certification is available as to freedom from key pests and diseases in the soil then this may be considered as an alternative.

Animal controls also appear appropriate with the same caveats applied as suggested for plants above.

At present a Board letter provides approvals, and it may be that a formal permit system that is cost recovered from users, will serve the Island better. Such a system would need to have standing approvals to accommodate frequent commercial imports and the continuation of a free list.

Regularly reviewing existing conditions in order to determine whether they remain appropriate is an important ongoing function that can be neglected in situations where resources to undertake the work are quite limited.

Additional controls should include:

- A prohibition on all untreated timber, and bark attached to timber;
- A prohibition on straw, hay and green feeds;
- Mandatory cleaning prior to departing the mainland of any second hand machinery or vehicles;
- Controls on the discharge of ballast water and hull defouling.

Additionally it would be appropriate to seek expert advice on the potential for introducing unwanted pests and diseases via the importation of animal (including avian and marine) feedstuffs.

## 6.4 Federal and State Agencies

There is a real need to press the point that ongoing maintenance funding must be an integral part of the process which leads to world heritage status being accorded to areas such as Lord Howe Island. From an economic perspective, there must be more significance placed on the economic value of places like Lord Howe Island.

At present threat identification, risk assessment and management activities are not well coordinated as far as LHI is concerned.

Improvements are needed at Federal level between EA and Biosecurity Australia, where it will be important that existing arrangements are improved to specifically examine threats to biodiversity and the integration and management of these threats into national and State risk analysis (and response) machinery. The balance as it relates to threat assessment between agricultural production and biodiversity is a further issue for consideration.

It will be critical that formal machinery is developed in both State and Federal jurisdictions, and that appropriate cross over links are between Federal and State agencies are also developed. There appears a need for a Commonwealth / State group which integrates information relating to threats to biodiversity. At present the National Weeds Committee and Vertebrate Pest Committee brings some focus to biodiversity issues. This study would like a reference mechanism that is easy to access by NPWS Officers who are located in relatively isolated locations.

The current AQIS Officer, who is a very experienced officer and who is mentor for quarantine activities on the Island, is located at Port Kembla. There may be merit in suggesting to AQIS that a Brisbane based Officer may be more appropriate, as that person is likely to have a better appreciation of risks in the area from which most of Lord Howe's cargo originates.

This study has not recommended (due to the cost and doubts of the overall effectiveness) that an officer be engaged from NSW Agriculture to inspect the cargo being loaded at Goodwood Island wharf. However, there are likely to be special occasions when this sort of expertise is going to be valuable, and a flexible approach to this issue is encouraged, based on specific advice of “unusually significant” cargo. The case for full inspection of loading cargo will need to be revisited given the rat eradication program proceeds.

## **6.5 Training and Mentoring Arrangements**

Specific training should be provided to key LHIB personnel including all full time ranger staff covering:

- Threat identification, assessment and management in the context of biodiversity and potential threats to the Kentia palm industry. It is likely that specific training will need to be developed, and this should be encouraged as part of a national approach to World Heritage nominated areas;
- Deratting and rat inspection and baiting trapping activity. AQIS already has developed modules covering this area, and there would be sound reasons to seek its direct assistance in this area rather than initiate the development of a new training package;
- Inspection techniques that can be used with cargo. Again, AQIS has well developed modules covering these areas that should be able to be utilised.

Key LHIB personnel should then be responsible for on going training of other personnel who are likely to be capable of assisting either directly or indirectly in surveillance activities in particular. Threat identification is an area where activity needs to be upgraded, for example the “Strategic Plan for Weed Management” could well provide for additional focus in this area;

Training should also be developed and delivered to all participants in the tourist industry, for example owners/managers of accommodation places, tour operators, pilots and captains. The training could take the form of an annual evening presentation, and would be designed to provide this key group of people with knowledge that they then pass on to visitors and/or their employees.

Also critical in a situation where specialist resources are in short supply and a fair degree of isolation exists, is being able to access necessary resources, including information in a timely manner. There is no shortage of information available to access but the sheer volume, for example of web based material, can be quite daunting in a location like LHI where time is short and Internet line speeds are not high. A successful initiative in the South Pacific has been the establishment of a (free to users) email based help system called Pacific Pest Net whereby advice or even basic identification work can be obtained by posting an email, with an attachment if necessary. Subscribers to this email

service include a wide range of scientists based in Australia, New Zealand and the US Territories in the Pacific, and valuable advice is often provided in a very short period of time.

Subscribing to Pacific Pest Net is a useful way of keeping abreast of the movement of pests in the Pacific countries. However, what is really needed on the biodiversity front in Australia is the establishment of an email based mentoring service that, even if it cannot provide all the answers to queries, is able to direct an enquirer to a person with the required qualifications.

The provision of appropriate training and public awareness material for both land based and marine tour operators, will facilitate dissemination of information to visitors. It is possible that at some stage formal accreditation arrangements may be necessary for tour operators, and the Board should consider this issue.

Environment Australia supports the development of training materials specific to Lord Howe Island covering threat identification, assessment and management in the context of potential impacts on biodiversity. However, it is unlikely that any national approach to quarantine specific to World Heritage would be developed, as most World Heritage properties are on the mainland.

## **6.6 Organisational Arrangements**

In any small country, or in this case an island, having resources integrated as closely as possible is critical. Integration can mean organisational integration or a high degree of cross training.

The new LHIB structure involving the creation of a position of Environment / World Heritage Officer is a very positive step, as it will provide an opportunity more closely to integrate quarantine activities with the wider environmental and World Heritage activities. More closely integrating quarantine activities will imply that this area has a specific focus in both LHIB Corporate Plan and the operational plan developed. Judgements will be required on the relative priority of the activities regarded as mainstream by Ranger related resources to date, compared with activities that will be suggested as part of this quarantine strategy. The Environment/World Heritage Officer has specific quarantine responsibilities included in the duty statement for the position.

Now that the new Environment/World Heritage Officer is in place, the establishment of a "Quarantine" or "Biosecurity" Working Group would be a positive step, with the occupant of the new position as Chairperson. This group would include representatives from the various commercial interests on LHI, eg retail, shipping, accommodation and specialist resources on the island not directly employed by the LHIB. This group could regularly report to the Board and endorse the annual input to the Board's operational plan. A regular commitment for this group, say twice a year, would be actually to

observe cargo and passenger arrivals, and to intuitively identify any new risks, and assess existing quarantine measures in place for their adequacy.

The nursery already has established links with AQIS through the Phytosanitary certification certificate linked to the export of Kentia palms. It also has a workforce that is “out and about” both in the context of their daily duties and their residency on the island. To this workforce can be added the pickers engaged under contractual arrangements, as all of the above represent a valuable resource in terms of quarantine, particularly surveillance arrangements.

The technical expertise already available, for example fumigation, and the knowledge of plants at the nursery, represents wider expertise that can be harnessed as part of a quarantine strategy. Their value will come from the surveillance that they are capable of doing as part of their everyday life on the island. What are being suggested are not additional formal tasks for the people associated with the activities of the nursery, but rather enhancing their capacity through some additional targeted training to fulfil a valuable surveillance role for LHI.

## 6.7 Surveillance

Having baseline information, and regularly updating that information, is a critical component of any surveillance activity undertaken. This type of activity can be quite costly, and it is recognised that the capacity does not exist within the capacity of the LHIB.

There are a huge number of potential pests and diseases that could be of concern to the Island eg rodents, insects, snails, reptiles, spiders, plants (both land and marine), and animals. This strategy has the broad aim of preventing further unwanted introductions. However, linked to this the Quarantine Working Group suggested above could be the focal point for working up a priority pest and disease list.

As such, a focussed approach is necessary that:

- Identifies the key pests and diseases of concern;
- Carefully targets the most likely place of an incursion. In the case of LHI, for most pests and diseases, this will be the area around the wharf and airport, locations that regularly accept significant volumes of imported goods and other residential development on LHI;
- Uses all available resources on LHI, for example, by providing pictorial material to residences, and by harnessing the efforts of LHIB staff, contractors, residents and visitors. The Chevron poster at Annex D is a good example of a possible approach. This brochures uses the “dirty dozen” theme.

Given a focussed approach as outlined above, and having a person who is identified as the focal point of the receipt, storage and retrieval of information, will all contribute to more useful surveillance arrangements.

### **Marine Surveillance**

It will be important to establish baseline surveys in the vicinity of vessel mooring facilities, and in particular to compare the results of these surveys on an ongoing basis with the results of surveys undertaken at the port of Yamba (or whatever port is used to load the main Island cargo vessel).

### **Migrating Birds and marine species**

All that can be realistically undertaken in the case of migrating birds and migrating marine species is regular surveillance for pests and diseases. The strengthening of surveillance activities is a key platform of this strategy, as is having baseline data available for comparative purposes.

## **6.8 Contingency Planning**

Contingency or emergency response plans exist for a number of pests and diseases at national and State level. These plans facilitate control and/or eradication activities in the event of a specific unwanted incursion. LHIB has established a Rodent Eradication Task Force to develop a strategy for the eradication of rodents from LHI. An expected outcome is a contingency plan to deal with the possibility of a reintroduction of rodents to LHI.

Elements of a contingency plan might extend to:

- Intensive trapping and baiting (and the availability of appropriate compounds to undertake this activity);
- Ascertaining where specialised advice can be obtained;
- Procedures to harness necessary equipment and personnel;
- Communication management;
- Coordination

## **6.9 Harnessing Available Expertise**

In addition to the capacity of the LHIB, there are LHI residents with specific expertise of great usefulness to the Island as a whole. Additionally, there will be scientists who visit from time to time either in a work or recreational capacity, who are capable of making a valuable contribution to the scientific knowledge base of LHI.

Using a targeted quarantine awareness brochure for visiting scientists which seeks their assistance in noting and reporting any findings relevant to their field of expertise, is a measure worthy of consideration.

Having a person who is the focus for this information, and having a good information storage/retrieval system, the information will no doubt pay dividends in the future. Such a system could involve a web-based proforma with its existence notified via brochure material directed to visitors.

Dive companies may be able to contribute to on-going marine surveillance activities, and should be encouraged to do so.

## **6.10 Inspection and Treatment Activities**

There is a range of inspection and treatment activities that can be built into the Lord Howe quarantine strategy. Options include:

- Utilising a NSW Agriculture Regulatory Officer on an intermittent basis to inspect the loading of (specific) product at Goodwood Island wharf. This can be done at a current cost of \$130 per hour (including travel time from Coffs Harbour). However, the way in which cargo is brought to the wharf and packing arrangements such as pallets (plastic wrapped) with 20-30 boxes of different produce, highlight the difficulties associated with inspection at Goodwood wharf;
- Developing the capacity of the existing Island Trader crew and wharf staff and labourers at Goodwood Island wharf to undertake inspection of product (and shipping pallets) as it is loaded without unduly lengthening the loading process. A consultative process would be necessary, supported by appropriate public awareness material;
- Appointing key personnel who are at Goodwood Island wharf at the time of loading as “Authorised Officers” and providing them with the power to refuse to load any goods that show obvious evidence of unwanted pests and diseases is a further step that can be considered as part of utilising existing Goodwood Island personnel rather than using a paid Regulatory Officer from NSW Agriculture;
- In transit notification from the Island Trader to LHIB of any high risk cargo observed during loading, with the intention of this cargo being inspected on arrival either at Lord Howe Island wharf or at the point where the cargo is broken down;
- Regular random inspections by LHIB personnel of cargo being unloaded at the wharf, and mandatory inspection where any known high risk cargo is involved;
- The current practice of meeting and clearing aircraft must be maintained. Providing training and awareness material for the pilots of

the regular light plane flights and the NSW Police Officer responsible for AQIS clearance activities;

- Treating vessel with residual insecticide as is done on many international passenger flights, and may also be appropriate for regular light plane arrivals into the Island;
- Subject to expert advice on the safety and practicality in transit, fumigation of the cargo hold;
- Improving the awareness of residents, who receive goods at their residence, and encouraging observance (and notification if appropriate) for any sign of pests or diseases. For example, knock down sprays could be used on the underside of gas bottles if any infestations remain. Any person using birdseed for caged birds should be aware of the possibility of weed introductions, as should anyone feeding wild birds;
- If goods and their packaging material are suspected to contain unwanted pests and diseases, treatment may involve biocide applications (e.g. fumigation, pesticide application), water immersion, heat and cold treatment.

### **The Airport**

The airport has limitations that work in favour of a quarantine strategy. Its relatively small size and limited aircraft size capability all are positives from a quarantine perspective.

Additional signage, the availability of (high quality) brochures and the provision of an “amnesty” bin are all appropriate measures to be considered for the airport.

### **Mainland Wharf Facilities**

Attention does need to be paid to the cleanliness of the wharf area at Goodwood Island with respect to shipping pallets and tyres (and any other debris) that finds its way to the Port.

If serious consideration is being given to moving to Port Macquarie, then a Board staff member should undertake a comparative pest status study.

### **Lord Howe Island Wharf**

The more inhospitable the loading area and surrounds is to pests, the better.

There are practical limits to the extent to which the vicinity of wharfs and airports can be made less hospitable, but as developments are undertaken over time, consideration should be given to this aspect. To the extent that the

hardstand area can be practicably increased around the wharf, this is to be encouraged.

The wharf and surrounds lend themselves to structured surveillance, baiting and trapping arrangements.

Cleanliness of the wharf, its surrounds and the shed must be maintained.

Signage, brochures and an amnesty bin for arriving (domestic) yachts (and other vessels) will be important.

## **6.11 Public Awareness**

Public awareness activities targeted to specific groups must be upgraded and based on a partnership approach. A theme will need to be developed that is carried through all material produced. This theme must be friendly and one that engenders support from all target audiences. Helping to protect “our piece of the World’s heritage” might be one option for a theme, but there will be others.

Seat pocket laminated sheet to have a specific focus on protecting the biodiversity of LHI. Suggest these be used for any regular aircraft that carries passengers. The existing brochure is in need of upgrading.

A further option is the provision of a take away brochure in the seat pocket of Qantas flights. This brochure would cover both quarantine and waste and could encapsulate the information available on the existing “red map” handout sheet that is available to visitors on the Island.

In the event that scheduled QF Link aircraft have video facilities, the development of an arrivals video that incorporates key quarantine messages would be ideal. However, for the time being either a “top of descent” cabin announcement or a brief addition to the current arrival-boarding message would be useful. These messages must be friendly, seek passengers cooperation and could point to the availability of specific public awareness material at the airport.

The production of a short “first nighters” video that encapsulates key tourist features of the Island and key quarantine messages, for example to hikers and visiting scientists, is likely to be valuable. This video should be made available to the visitor’s centre and all accommodation places.

Along with showing the video, there is quite a deal of useful public awareness that can be undertaken by accommodation places, for example, displaying on a prominent wall, posters, brochures and the like.

Targeted brochures to be made available in arrivals area of the airport, visitor’s bureau and accommodation places. There is scope for much more arrival signage at the Island airport. It may also be possible to place signage

at Sydney airport particularly if a gate in the new Sydney Qantas Terminal 2 were dedicated to Lord Howe Island departures.

Specific brochures to be developed for:

- General tourists;
- Hikers;
- Visiting scientists;

Posters to be developed for distribution to the airport, visitor's bureau, accommodation places;

Increasing the awareness of the crew and Goodwood Island personnel to the specific and general pest concerns related to Lord Howe Island by providing a short training course, perhaps on an annual basis. Essentially this would involve providing sufficient knowledge to enable them to know when to contact the responsible person on Lord Howe Island in the event that they notice something unusual. AQIS have for a number of years received invaluable help from wharf labourers at major ports in Australia, and as a consequence averted incursions include Asian Honey Bees and various termites, spiders and the like.

The LHI school children already have a much better appreciation of the value of their environment than might be the case in other parts of Australia. However, this can be added to by utilising specific schools program material developed and made available by AQIS at no cost.

The local newspaper and radio station also provide opportunities to articulate both broad messages related to threats to the biodiversity of the Island and to deliver specific tips on what to watch for and what to do about any unusual finding.

A brochure for residents that highlights the major areas where they can contribute to surveillance, as well as specific advice related to dealing with insect and spiders via knock down sprays, and how to avoid infestation by rats and the like.

AQIS has a well developed public awareness group that not only focuses on general public awareness but also on special locations, such as movements in and around the Torres Strait, to the extent that it is possible to draw on their expertise that should be done.

Including a "Quarantine Page" on the LHIB tourism web site will alert potential visitors to the key quarantine issues.

At some stage, in the future using information technology it may be able to provide specific information to visitors at the time of ticketing. However, at present given that ticketing may take place at a travel agent anywhere in the

world, or electronically, an approach involving seeking the assistance of LHI tour glossy brochure producers to incorporate a quarantine message in these brochures may be the most practical approach.

Seeking to broaden the current objectives of the Interstate Quarantine Publicity Group to include biodiversity issues and Lord Howe Island in particular should be explored.

#### **Awards**

Awards can be an important part of quarantine awareness and AQIS actively utilises quarantine awards. The development of an award program for the Island is worthy of consideration.

## **6.12 Specific Issues**

#### **Rats**

In the case of LHI, if a rat eradication program is mounted it will be at a very significant cost which is likely to be in excess of \$1m. It will be imperative that if successful eradication is the end result, then reinfestation does not occur. Appropriate measures will need to be developed and implemented to deal with this issue.

Maintaining a situation of freedom from rats will be a difficult task for LHI as it is for all islands. Regular structured baiting and trapping will need to be maintained at key areas, such as:

- On board all vessels and planes, although these activities are not common on passenger aircraft;
- Around the wharf and airport;
- Around accommodation houses and residences.

Measures will need to be introduced for moored vessels that minimise the chances of any rats finding their way ashore.

In respect of the Island Trader and regular in bound flights, formal arrangements should be developed with each party. In the case of the Island Trader, these arrangements should be part of future tender specifications and any contract emanating from this tender. Post rat eradication, appropriate measures such as a flour tray test should be mandatory in transit measures for the Island Trader.

All other arriving yachts and aircraft should be required to have deratting certificates, and to maintain baiting while in LHI waters.

Cleanliness of wharf areas (including the LHI shed), the airport and generally around residences will all contribute to a less hospitable environment for rats.

To the extent that areas around the wharf in particular can be made hardstand this will also assist. This will include prompt removal of debris such as broken pallets, storage of pallets away from potential host areas, prompt removal of tyres and other potential harbouring places.

An enhanced baiting program for the airport, Goodwood Island and the Island wharf and the immediate surrounds will probably be required.

Regular inspections of the wharf areas and airport to identify any change in the risk status will be required.

Solving current problems associated with the return of garbage to the mainland so that the Island Trader is kept as clean as possible, will also be an important element of this strategy.

Providing residents with information that outlines how they can assist in maintaining the Island rat free will contribute to early detection and control in the event that a rat finds its way to the Island.

#### **Reptiles, including Lizards and Snakes.**

Specific survey methods may need to be developed for early detection of these species, and specialist advice will be required. Trapping using rodents as bait in double-compartment traps, has been used on Guam to survey for the brown tree snake, and is being used for early detection on adjacent islands (Saipan and Rota) that are at risk of invasion. General survey and a high level of public awareness are important.

#### **Cattle**

This study has assumed that regular cattle imports can be expected to be a feature of LHI for the foreseeable future. Discussions with Animal Health officials at NSW Agriculture, show there is a willingness to provide a baseline set of conditions for the importation of cattle. These would be supplemented prior to purchase and shipping, by specific advice from the NSW District Veterinarian from where the animal was being sourced.

There are additional assurances available for example in the case of Johnes Disease via market assurance arrangements in place.

#### **General animals**

Tight control should continue to be exercised over the importation of any animal including aquarium fish and birds. A formal permit system which involves formal animal health certification as distinct from the current Board letter of approval should be developed, and costs associated with this system should be recovered from users. All new introductions should be the subject of formal risk analysis.

Existing companion animal movements should be capable of being assessed from a plant and animal health perspective with relative ease by seeking advice from Veterinary authorities in NSW Agriculture.

At present NSW NPWS has licensing provisions for a range of animals (including birds and reptiles) where a person wishes to maintain one in a captive situation. These provisions which are valid on Lord Howe Island could be added to in relation to LHIB powers by using the permit system suggested as a mechanism for screening whether any plant (eg weeds), animal health or biodiversity risks are likely to be associated with the introduction. This would best be done in consultation with NSW Agriculture and NSW NPWS, the former for animal and plant health aspects and the latter for biodiversity issues.

There does not appear to be any conflict between the licensing provisions of NSW NPWS and the screening (risk analysis) mechanism suggested above. It should be noted that imports of animals subject to NSW NPWS licensing controls would need to be assessed on a case-by-case basis.

For the transport of some animals to the Island there may well be animal welfare issues, and if this is the case these should form part of LHIB consideration as part of the permit issuing process. This may involve specifying conditions under which animals may be transported to the Island and NSW Agriculture will be able to provide advice in relation to this issue. There will also be issues related to any bedding material used. Any necessary pre or post travel quarantine arrangements should be based on specific case advice from NSW Agriculture.

### **Plants**

Due to the risks associated with importing soil to LHI, all plant imports should be imported bare rooted or in an approved medium. It may be possible to develop an accreditation arrangement with a range of nurseries as an alternative.

In order to ensure no unwanted plants enter LHI, it is suggested that a small compound be constructed at the airport and seaport to which all plant imports are consigned until cleared by a qualified person representing the Board. All imported plants should be subject to a permit system, required to be accurately labelled, and penalties should be imposed for non-compliance. As has been suggested above, the cost of operating the permit system should be recovered from users.

For major importers, developing compliance arrangements that are subject to audit and appropriate penalties could be considered as an option.

### **Weeds**

Expert advice should be sought, if it has not already been obtained, on the potential for survival and subsequent distribution of weeds that have been processed in the composter.

It would also be prudent to seek advice as to the possible risks associated with imports of birdseed to the Island.

#### **Timber and building materials including pavers and the like**

All second hand timber and untreated timber should be prohibited from importation unless accompanied by an up to date fumigation certificate. Hardwood pallets and other dunnage should be the subject of regular inspection.

Treated timber, either kiln dried or timber treated with a preservative should be subject to random inspection at the wharf, combined with public awareness material that will encourage the reporting of any unusual finds by the end users of the timber.

Depending on the relative pest and disease status of Norfolk and Lord Howe Islands from the perspective of pests that can be carried on or in shipping pallets, segregation (or appropriate treatment) should be a feature at Goodwood Island wharf.

All pavers and the like should be subject to inspection at Goodwood island and if necessary on arrival.

#### **Gas bottles**

Requiring the gas depot to present clean gas cylinders for LHI is an option, as is the spraying of the underside of gas bottles with a knock down spray at loading or unloading.

Encouraging residents wherever possible to inspect the underside of arriving gas bottles, and to use a knock down spray when necessary.

#### **Waste**

The current waste arrangements are likely to contribute to increased difficulty in keeping LHI free of rodents beyond any rat eradication campaign.

While understanding the concerns of environmental agencies relating to the use of oil-fired incinerators, there appears a case for such an incinerator to be installed on Lord Howe Island. The practical difficulties of disposing of waste on the island combined with the increased quarantine related risks associated with the current arrangements, point to the need for improved arrangements to be put in place.

Any waste considerations should include the issue of medical waste.

**Road base**

This is a difficult issue and surveillance at all points in the chain is needed, starting with the quarry or depot where material is obtained, and ranging right through to increasing the awareness of workers who use the aggregate on the island. Dr Michael Priest, on behalf of NSW Agriculture undertook a plant disease survey of the Island in 1992 and, while finding no significant problems with road base at the time, recommended “the continued monitoring of road base particularly for changes in composition such as inclusion of topsoil and much sub-surface root material”. This recommendation may well remain valid for plant diseases and surveillance will be the key for any hitchhiking pests found in road base.

If the Board does not already have strict contractual specifications for road base delivered to the Island in terms of contaminants, then this should be implemented for future contracts. There is also the option available of the LHIB establishing its own quarry on the island.

## 7. Moving This Report Forward

The issue of a quarantine strategy for Lord Howe Island has a number of significant elements relating to domestic and international quarantine as well as biodiversity policy issues. Biodiversity in the context of quarantine generally has still not gained the recognition it deserves particularly in the context of World Heritage areas such as Lord Howe Island. The author of this report as a former Head of Australia's Quarantine Service from 1990-1994 recognises that biodiversity issues during that period were not well covered. Whilst it is recognised that progress has been made in more recent years it is apparent from this study that quite significant issues remain to be addressed.

It will be possible to raise the profile of this issue by convening an initial meeting on Lord Howe Island involving:

- The Executive Managers of Biosecurity Australia and AQIS;
- Key policy oriented EA executives;
- Key Executives of NSW National Parks and Wildlife Service and NSW Agriculture.

There are likely to be a range of issues that can be considered as part of this sort of meeting that will be conducive towards a more cooperative approach in the future.

## 8. Recommendations

<b>Recommendation</b>	<b>Cost Implications</b>	<b>Priority</b>
<b>Structural</b>		
1. That any approach to extending quarantine arrangements on Lord Howe Island should be based on a partnership approach with all stakeholders.	No direct cost	High
2. That a meeting is convened on the Island in the context of moving this report forward that includes as participants, the Executive Managers of Biosecurity Australia and AQIS, key policy oriented EA executives and key Executives of NSW NPWS and NSW Agriculture.	No direct cost by encouraging agencies (who have direct responsibilities in relation to the Island) to fund own personnel	High
3. That the new position of Environment/World Heritage Officer should have specific quarantine responsibilities and these should be reflected in the Corporate and Operational plans of the Board.	No direct cost	High
4. That the new position of Environment/World Heritage Officer should establish and Chair a Quarantine Working Group that meets quarterly and includes appropriate stakeholder representation.	Time of Officer	High
5. That the Board should continue to press for balance in terms of the recognition of the value of Australia's biodiversity in terms of national and State quarantine arrangements and related risk analysis activities	No direct cost	High
6. That in conjunction with a broadly based quarantine strategy that a priority list of pests and diseases be established for the Island	No direct cost	High
7. That AQIS be asked to consider whether mentoring arrangements currently provided might be better provided by an officer located in Brisbane	No cost	Medium
<b>Legislation and Contractual</b>		
8. That the following legislative changes be considered: <ul style="list-style-type: none"> <li>• Providing the Board with the</li> </ul>	No direct cost	High

<p>power to enter into formal compliance arrangements with individuals or businesses which have the effect of delegating the power to undertake specific inspection (and related) functions;</p> <ul style="list-style-type: none"> <li>• Providing the Board with the power to appoint “Authorised Officers” who would not necessarily be LHIB staff who might for example be crew members of the Island Trader with the power to inspect goods (as best as they are able) at Goodwood Island wharf and to refuse to load any goods found to be carrying an unwanted pest or disease;</li> <li>• Provide for a permit system to be introduced on a cost recovery (to users) basis and inter alia to provide for all imports of plants to be labelled accurately;</li> <li>• Having an offence provision in respect of any false or misleading declaration.</li> </ul>		
<p>9. That future contractual arrangements for the movement of goods to the Island include:</p> <ul style="list-style-type: none"> <li>• Quarantine related standards for both the vessel and the departing (and arriving) wharf;</li> <li>• Appropriate surveillance, fumigation (possibly in transit, depending on specialist advice being received as to the effectiveness and safety of such operations) and baiting/trapping provisions;</li> </ul> <p>The power for goods to be refused boarding at the ports of departure and arrival in the event that an infestation is found.</p>	<p>No direct costs but possibly indirect freight costs increases</p>	<p>High</p>

<b>Training and Mentoring</b>		
<p>10. That training be provided to LHIB staff (on a train the trainer basis) in the following areas:</p> <ul style="list-style-type: none"> <li>• Threat identification, assessment and management in the context of biodiversity and potential threats to the Kentia palm industry;</li> <li>• Deratting and rat inspection and baiting trapping activity;</li> <li>• Inspection techniques that can be used with cargo.</li> </ul>	Depending on the ability to secure established training direct costs should be limited to travel and subsistence costs of under \$5,000	High
11. That suitable surveillance training be developed and delivered to all LHIB staff and contractors	Minimal	High
12. That suitable training be developed and delivered to all participants in the tourist and transport to the Island industries for example owners/managers of accommodation places, tour operators, pilots and captains.	Time costs of Officers and equipment costs of (\$5,000- \$10,000) if a high quality digital projector is purchased.	Medium to high
13. That the Board explore with the appropriate authorities the establishment of an specialised biodiversity related email based mentoring service	No direct costs, minimal ongoing costs if established	Medium to high
<b>Surveillance / Contingency Planning</b>		
14. No unloading of cargo from the Island Trader to take place after dark	Possible additional costs to vessel	High
15. That a central repository for digital information be established to facilitate the reviewing and addition of key information	No direct costs	High
16. That formal risk analysis be undertaken where any new plant or animal is to be introduced to the Island	Depending on extent of analysis and ability to draw on others costs could be quite significant	High
17. That baseline surveys be undertaken as is possible for priority pests and diseases	Significant costs depending on range of pests and diseases to be surveyed	As the Board is able
18. That visiting scientists be	Small brochure cost	Medium

encouraged to communicate specific findings to a nominated Officer	annually of less than \$1,000	
<b>Inspection and Treatments</b>		
19. That the NSW Agriculture Regulatory Officer be used for specific inspection activity related to Goodwood Island wharf	\$130 per hour including travel time from Coffs Harbour	As needed
20. That LHIB staff be encouraged to conduct regular random intuitive inspections of cargo arriving at the LHI wharf	Some Officer time involved and as the LHIB is able increase the frequency of inspection	High
21. That the capacity be developed of the existing Island Trader crew and wharf staff and labourers at Goodwood Island wharf to undertake inspection of product (and shipping pallets) as it is loaded without unduly lengthening the loading process.	Some training costs involved	High
22. That key personnel who are at Goodwood Island wharf at the time of loading be appointed as "Authorised Officers" and a Senior person at the wharf be provided with the power to refuse to load any goods that show obvious evidence of unwanted pests and diseases.	No direct costs	High
23. That the Island Trader be asked to advise in advance of any high quarantine cargo observed during loading, with the intention of this cargo being inspected on arrival either at Lord Howe Island wharf or at the point where the cargo is broken down.	No direct costs	High
24. That specialist advice (from AFFA) be sought as to whether it is advisable to treat regular arriving vessels and aircraft with a residual insecticide	No direct cost	Medium to high
25. That specialist advice be sought on the safety and practicality of in transit fumigation of the cargo hold of the Island Trader	Direct costs less than \$1,000.  May be indirect cargo cost increases	Medium to high
26. That LHI residents (particularly those who receive cargo direct to their	Public awareness costs of less than	Medium to high

residences) be encouraged to observe, treat and notify any signs of unwanted pests or diseases.	\$1,000	
27. That Goodwood Island and Lord Howe Island wharfs, the airport and associated buildings and surrounds be made as inhospitable as is practical for pests	Hardstand costs significant for Lord Howe Island	In respect of Lord Howe Island wharf and airport, as funds permit
28. That sealed "Amnesty" bins be provided at the airport and seaport and labelled accordingly	\$2,000	Medium
29. That disposal procedures be developed for any seized or confiscated goods	Minimal cost	Medium
<b>Public Awareness</b>		
30. That public awareness be based on a partnership approach and have a specific theme adopted for LHI. That to the extent possible assistance be sought from established organisations such as State and Federal agencies and groups like the Interstate Quarantine Publicity Committee	No specific cost	High
31. That the QF link laminated seat pocket brochure be replaced with a take away brochure that incorporates quarantine and waste messages as well as general visitor information. This brochure could also incorporate the current widely used "red" island map and information sheet.	Sponsorship?	High
32. That either a specific "top of descent" quarantine message be broadcast on all incoming QF Link flights or a brief quarantine message be added to the current arrival boarding message.	No specific cost	High
33. The LHIB arrange the production of a short "first nighters" video that encapsulates key tourist features of the Island and key quarantine messages. Copies of this video to be made available to the visitor's centre and accommodation houses that have TV/Video facilities.	\$10,000 but with potential for reduction via sponsorship	High
34. That a range of posters be produced suitable for display at the visitors centre, Sydney and Brisbane airports and accommodation houses	\$2,000 to 5,000 with potential for sponsorship	Medium to high
35. That specific high quality brochures	\$5,000 annual with	Medium to

to be developed for: <ul style="list-style-type: none"> <li>• General tourists;</li> <li>• Hikers;</li> <li>• Visiting scientists;</li> </ul>	potential for sponsorship	high
36. That the LHIB school be encouraged to draw on existing AQIS schools' program resources	No direct cost	Medium to high
37. That the LHI radio broadcast and newspaper be utilised on a regular basis to deliver and update quarantine awareness messages	No direct cost	Medium to high
38. That an annual quarantine award be introduced that recognises an outstanding contribution to protecting the biodiversity of LHI	\$500	Medium
39. That the LHI tourism web site include a "Quarantine Page"	Minor cost	Medium
40. That the producers of glossy LHI package holiday brochures be approached with a view to incorporating an appropriate quarantine message in future brochures	No direct cost	Medium
<b>Specific Issues</b>		
<b>Rats</b>		
41. That regular structured baiting and trapping will need to be maintained at key areas such as: <ul style="list-style-type: none"> <li>• On board all vessels and planes;</li> <li>• Around the wharf and airport;</li> </ul> Around accommodation houses and residences.	\$5,000	High
42. That measures be introduced for moored vessels that minimise the chances of any rats finding their way ashore.	Minimal cost	High
43. That all vessels visiting LHI have current deratting certificates	No direct cost	High
44. That with regular vessels and planes that specific tailored programs be developed according to the need	Officer time costs	High
45. That all wharf and airport areas including buildings be maintained in a clean state	Minimal cost	High
46. That measures be taken to ensure	This could involve	High

that any waste being returned to the mainland is in sealed rat and vermin proof containers	significant costs	particularly post any rat eradication program
<b>Reptiles</b>		
47. That specialist advice be sought on the availability of baiting and trapping for specific threats.	Minimal if pursued through State agencies	High
<b>Animals Generally</b>		
48. That all introductions of animals not presently found on the Island be subject to risk analysis from animal and plant health (weeds), and biodiversity impact perspectives. This risk analysis should be over and above any NSW NPWS licensing provisions.	Suggest this be cost recovered from users	High
49. That the LHIB seek advice on a specific case basis for the safe and humane transport of animals to the Island.	Suggest this be cost recovered from users	High
50. No straw, hay or green feed be imported to LHI	No cost	High
51. That NSW Agriculture (and Fisheries as appropriate) be asked to examine the issue of animal feedstuffs imported to the Island and controls that should be applied to such goods	Minimal	High
52. All animals to be imported in containers using clean sawdust and all waste to be appropriately destroyed on arrival	Minimal cost	High
<b>Cattle</b>		
53. That NSW Agriculture be requested to draw up a general set of health conditions for the importation to LHI and that this be supplemented by advice from the NSW Agriculture District Veterinarian and any market assurance programs that are relevant	No cost	Medium to high
<b>Plants</b>		
54. All plants be required to be imported bare rooted or in soil less medium or from an accredited supplier.	No direct costs	High
55. All plants to have identification labels	No direct cost	High
56. A holding compound to be built at the airport and seaport and all plants beheld in this area until cleared by LHIB staff	\$1,000 plus Officer costs for inspection	High
57. All plant imports be subject to permit	A cost recovered permit system is envisaged	High

<b>Weeds</b>		
58. That specialist advice be sought on the survivability of weed seeds in the VCU and that current compost distribution be amended as appropriate	Minimal if obtained through a State agency	Medium to high
<b>Timber and building materials</b>		
59. All second-hand and untreated timber be prohibited unless accompanied by a current fumigation certificate	Costs to be borne by importers if applicable	High
60. No bark on timber to be imported to LHI	No cost	High
61. If at all practical pallets used for Norfolk Island and LHI should be segregated	Minimal costs	Medium to high depending on comparative status of the two islands
62. Hardwood pallets and other dunnage should be the subject of regular inspection both at Goodwood Island and Lord Howe wharf.	Officer cost involved	High
63. All pavers and the like are subject to inspection prior to boarding at Goodwood Island.	Minimal cost if personnel at the wharf are able to be used	Medium to high
<b>Gas bottles</b>		
64. That gas depots be requested to inspect and only supply bottles with clean undersides to LHI	Possible increase in cost of gas	Medium to high
65. That inspection and knock down treatment be encouraged at each point in the delivery chain.	Minimal cost	Medium to high
<b>Waste</b>		
66. That the LHIB consider the use of oil fired incinerator	Unknown but probably in excess of \$30,000 plus running costs	Medium to high from a quarantine perspective
<b>Road base</b>		
67. That contractual specifications include quarantine related considerations such as the inclusion of soil and extraneous matter. In addition consideration be given to the use of local materials where appropriate given broader environmental considerations.	Minimal	Medium to high

**ANNEX A****CONSULTANCY BRIEF  
FOR THE DEVELOPMENT OF A  
QUARANTINE STRATEGY FOR LORD HOWE ISLAND****1. Background**

Lord Howe Island is located approximately 760km north-east of Sydney. It is approximately 11 kilometres long and 2.8 kilometres wide at its widest point. Almost 80% of the Island is protected under the Permanent Park Preserve (with the similar status to a National Park). Lord Howe Island falls under the jurisdiction of the NSW state government. The Lord Howe Island Board is responsible for the care, control and management of Lord Howe Island, offshore islands and neighbouring coral reefs in accordance with the Lord Howe Island Act 1953. Board meetings are held 4 times per year.

Lord Howe Island contains a high level of species diversity for its small size. Lord Howe Island and neighbouring off-shore islands were recognised to be of global significance when the area was inscribed on the World Heritage list in 1982. The Island contains extraordinary terrestrial and marine ecosystems and varied landscapes. The listing acknowledges the large number of nesting seabirds, the variety of endangered species as well as the diversity of habitat types.

The management of species introduced by humans, both deliberately and accidentally, is currently a major management consideration on Lord Howe Island. Without the development of a quarantine system further species will continue to be introduced, increasing the level of resources required to manage these species and increasing the risk to the Island ecosystems.

Such colonisations of introduced invertebrates, vertebrates and plant species have the potential to negatively impact on the World Heritage values of the Island through introduction of disease, direct competition for food and nesting sites, predation and invasion of habitats. The development of appropriate quarantine controls will greatly assist in ensuring that future colonisation of the Island occurs only through natural processes.

In 2001, a feasibility study on the potential to eradicate rodents from Lord Howe Island was undertaken. The New Zealand Department of Conservation has had success at eradicating rodents from small islands. If the rodent eradication proposal is implemented, strict Quarantine controls will be needed to stop new introductions of rodents to the Island in the future.

**2. Movement of goods and people to the Island**

Lord Howe Island is both a domestic and international port for private planes and boats. The regular movement of freight to service the local community on the Island is via domestic commercial sea freight. Only domestic commercial airlines visit the Island.

### Population

There are approximately 350 residents of Lord Howe Island. The Island population expands to approximately 1000 people during the summer period when tourist numbers are at their peak. Approximately 13,000 tourists visit Lord Howe Island every year.

### Commercial airlines

Qantas domestic travels from Sydney and Brisbane.  
Port Aero travels from Port Macquarie & Coffs Harbour

### Private airlines

A small number of private planes on a regular basis from domestic and international destinations.

### Commercial shipping

1 ship every fortnight travels from Yamba

### Recreational boats

A small number of boats visit the Island on a regular basis from domestic and international ports.

### Current importation restrictions:

The Lord Howe Island Act 1953 identifies a number of restrictions to importation of flora and fauna to the Island, including the following:

- Board approval is required to bring animals or birds onto the Island;
- No palm seed or palm plant can be brought to the Island;
- There is a Board policy relating to the importation of plants & seed to the Island;
- There are restrictions of the importation of declared noxious weeds to the Island.

The Board policies relating to the importation of flora and fauna should be reviewed as part of the Quarantine Strategy, in terms of the current effectiveness of Board policy to prevent the introduction of potential pest species.

## **3. Project description & expected outcomes**

The development of a Quarantine Strategy for Lord Howe Island will be the outcome of this contract. The strategy will provide a framework for a quarantine control system on Lord Howe Island and will recommend strategies, policies and on-ground works that will reduce the chances of the importation to the Island of potential pest species.

Due to the limited resources available to the Board the Quarantine Strategy needs to reflect a flexible staged approach with recommendations that can be acted on as and when resources become available. Recommendations should therefore be ranked accordingly to essential, highly desirable and

desirable actions, based on an agreed criteria. These criteria should be discussed with key stakeholders.

The Quarantine Strategy should include, but not be limited to the following key issues:

- Description of the current problem, including any significant opportunities or constraints;
- Relevant background information including examples of quarantine controls imposed on similar islands across the world, the effectiveness of these programs and domestic & international quarantine requirements in Australia;
- Education and awareness programs to provide low cost quarantine strategies;
- Options to prevent future introductions of rodents to the island;
- Options to reduce the introduction of new weed species;
- Options to reduce the introduction of fauna which are known pest species on small islands across the world;
- Review of current Board policy in relation to importation controls;
- Recommended actions for Quarantine controls, prioritised according to an agreed criteria of importance providing staged options to be undertaken as resources become available.
- The costs involved to implement the Strategy, including the training and resources required by the Board to implement the recommendations.

#### **4. Tasks to be completed**

As part of the development of the Strategy the consultant will undertake the following tasks:

##### Stage 1:

- (a) Undertake a site inspection of Lord Howe Island;
- (b) Liaise with stakeholders & hold a public meeting for local residents;
- (c) Complete a Draft Quarantine Strategy for Lord Howe Island. Provide the Board with 3 bound A4 copies of the Draft Quarantine Strategy and an electronic copy in WORD 6.0 format.

##### Stage 2:

- (a) Liaise with key stakeholders on the island and mainland to stimulate public comment on the Draft Strategy (including facilitating a public meeting);
- (b) Complete a 'Summary of public comments' of the Draft Quarantine Strategy to be presented at the Board meeting in early December 2002;

### Stage 3:

- (a) Complete the final Quarantine Strategy report. Provide the Board with 5 bound A4 copies of the Quarantine Strategy and an electronic copy of the entire report in WORD 6 format.

Throughout the contract the consultant will liaise closely with, and verbally report progress regularly to the Contact Officer appointed by the Board.

## **5. Assistance to be provided by the Lord Howe Island Board**

The Board will provide the following assistance to enable the consultant to provide the services required:

- (a) economy air travel between Sydney or Brisbane and Lord Howe Island (2 return trips for 1 consultant);
- (b) accommodation and meals for 1 consultant for up to 3 nights per trip;
- (c) transport and orientation as required while on Lord Howe Island
- (d) arrange meetings at suitable venues on the Island with Board members, staff, local residents and key stakeholders as required.

## **6. Liaison with key stakeholders**

To ensure the Quarantine Strategy is achievable, consultation with key stakeholders to identify operational policies and practices that are both appropriate and practical will be required.

The local resident population of Lord Howe Island is approximately 350 people. The involvement in and acceptance of the Quarantine Strategy by residents is an essential component of the development of this plan. A public meeting will be held at the consultant's first field visit to the Island and after the Draft Strategy is prepared.

The Lord Howe Island Board is made up of 3 local community members and two representatives from the NSW National Parks & Wildlife Service. The consultant will be preparing the report for the Board's approval. The consultant will meet with the 3 Island members.

Key stakeholders, such as representatives from the commercial airline and shipping companies, the Island Customs and Port Operations officials should be consulted prior to the development of the Draft Strategy.

NSW Agriculture will be asked to review the domestic quarantine recommendations of the Draft Strategy.

AQIS will be asked to review the international quarantine recommendations of the Draft Strategy.

**ANNEX B**

## **Meetings and Inspections associated with the Development of Quarantine Strategy for Lord Howe Island**

### **23-26 September 2002 Lord Howe Island**

Esven Fenton	Board Member
Gower Wilson	Board Member
Murray Carter	Manager
Laurie Knight	Manager Business and Corporate Services
Greg Pierce	Manager Operations
Larry Wilson	Nursery Manager
Geoff Kelly	Manager LHI Marine Park
Jenny LeCussan	Botanist
Chris Murray	QantasLink Agent
Peter Hingston	LHI Central School Principal
Clive Wilson	Port Operations Manager
John Gerits	Police/Quarantine/Customs/Immigration Officer
John Green	Charter aircraft service and shop owner
Bill Shead	Lodge/restaurant owner (imports provisions by charter aircraft)
Samantha Olson	Environmental Unit
Julie Smith	Environmental Unit
Dean Hiscox,	Environmental Unit
Chris Haselden	Environmental Unit
Peter Riddle	LHI Sea Freight
Kevin Wilson	LHI Sea Freight
Ian Hutton	Naturalist
Tony Auld	NPWS
Winston Ponder	Australian Museum
Bruce McFayden	Pinetrees Resort

### **1 October AQIS Canberra**

Dr Andy Carroll, National Manager, Cargo Management and Rob Schwartz  
AQIS

### **10 October EA Canberra**

Alan Oldroyd and Darryl King, Environment Australia

### **14 October NSW Agriculture Orange**

Doug Hocking, Program Manager, Horticultural Products and Plant Protection,  
Richard Carter, Program Leader Weeds,

Bruce Christie Program Manager Quality Assurance and Chief Veterinary Officer for NSW,  
 Chris Weale, Program Manager Assets,  
 Graeme Eggleston, Vertebrate Pests Committee,  
 Michael Priest, Plant Pathologist, NSW Agriculture

### **16 October Yamba/Maclean**

Lindsay Bros Transport Pty Ltd  
 Island Trader, Lance Knight, captain, and crew

### **17 October Goodwood Island**

Ian McLaughlin, Port Operations Manager, Yamba  
 Roger Millard, Managing Director, Yamba Shipping

### **17 October Grafton**

Rod Ensbey, Regional Weed Control Coordinator, North Coast, NSW Agriculture

### **17 October Coffs Harbour**

John O’Gorman, Chairman Lord Howe Island Board and Director North Eastern Region, Parks NSW.

### **3 December Lord Howe Island**

Public Meeting

Katie Dignam	Resident
Barry Wise	Resident
Bruce McFadyen	Pinetrees Resort
David Priddel	NPWS
Laurie Knight	LHIB
Julie Smith	LHIB
Peter Riddle	Leanda Lei Resort, LHI Sea Freight
Judy Riddle	LHIB Member
Jacquelyn Landos	Minute taker

### **10 December Lord Howe Island**

Lord Howe Island Board Meeting – Open Session

## Annex C

### Additional Material Available

A large amount of documented material is available to support further development of this quarantine strategy including:

- One of the key documents that is a significant source of additional information is *“Invasive Alien Species, How to Address One of the Greatest Threats to Biodiversity: A Toolkit of Best Prevention and Management Practices”* Text prepared and edited by Rüdiger Wittenberg CABI Bioscience, based at the CSIRO European Laboratory, Montpellier, France and Matthew J.W. Cock CABI Bioscience Switzerland Centre, Delémont, Switzerland. This document was produced by the Global Alien Invasive Species program and is available at Pacific Islands Ecosystems at Risk (PIER) site [www.hear.org/pier](http://www.hear.org/pier) and contains a comprehensive data base of other web based material.
- The AQIS web site located within [www.affa.gov.au](http://www.affa.gov.au) provides a wide range of useful tools related to risk analysis and public awareness material including programs directed towards educating schoolchildren;
- The International Plant Protection Convention (IPPC) website at [www.ippc.org](http://www.ippc.org) has valuable resources in respect of plants;
- CABI at [www.cabi.org](http://www.cabi.org) has extensive material available that can assist with identification of material;
- Similarly the FAO Ecoport site provides extensive material to aid identification and can be found at [www.ecoport.org](http://www.ecoport.org)