

Biosecurity Australia



Import Risk Analysis (IRA) for sawn coniferous timber from Canada, New Zealand and the United States

IRA Issues Paper



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GLOSSARY OF TERMS AND ABBREVIATIONS

AFFA	Agriculture, Fisheries and Forestry Australia
AQIS	Australian Quarantine and Inspection Service
Area	officially defined country, part of a country or all or parts of several countries
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Endangered area	An area where ecological factors favour the establishment of a pest whose presence in the area will result in economically important loss
Entry (of a pest)	Movement of a pest into an area where it is not yet present, or present but not widely distributed and being officially controlled
Entry potential	Likelihood of the entry of a pest
Establishment potential	Likelihood of the establishment of a pest
Establishment	The perpetuation, for the foreseeable future, of a pest within an area after entry
GATT	General Agreement on Trade and Tariffs
Introduction potential	Likelihood of the introduction of a pest
Introduction	Entry of a pest resulting in its establishment
IPPC	International Plant Protection Convention, as deposited in 1951 with FAO in Rome and as subsequently amended
IRA	Import Risk Analysis
ISPM	International Standards for Phytosanitary Measures
Official	Established, authorised or performed by a National Plant Protection Organization
Pathogen	An agent capable of causing disease
Pest free area	An area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained
Pest risk analysis (PRA)	Pest risk assessment and pest risk management.
Pest risk assessment	Determination of whether a pest is a quarantine pest and evaluation of its introduction potential
Pest risk management	The decision-making process of reducing the risk of introduction of a quarantine pest
Pest	Any species, strain or biotype of plant or animal, or any pathogenic agent, injurious to plants or plant products. (Definition subject to formal amendment of the IPPC.)

Phytosanitary measure.....	Any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests
Phytosanitary regulation.....	Official rule to prevent the introduction and/or spread of quarantine pests, by regulating the production, movement or existence of commodities or other articles, or the normal activity of persons, and by establishing schemes for phytosanitary certification
PRA.....	Pest risk analysis
PRA area.....	Area in relation to which a pest risk analysis is conducted
Quarantine pest.....	A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled
RAP.....	Risk Analysis Panel
Spread potential.....	Likelihood of the spread of a pest
Spread.....	Expansion of the geographical distribution of a pest within an area
SPS.....	Sanitary and Phytosanitary
TWG.....	Technical Working Group
WTO.....	World Trade Organization

EXECUTIVE SUMMARY

In August 2000, there was a general restructure within the Department of Agriculture, Fisheries and Forestry - Australia (AFFA) to provide a sharper focus on the Department's major output areas. As a result of this restructuring, Plant Biosecurity, which is part of the recently established Biosecurity Australia, has taken over the functions of the former Plant Quarantine Policy Branch of AQIS.

This Issues Paper contains introductory discussions of the background to this import risk analysis (IRA), administration issues, the framework adopted by AFFA for quarantine policy and for import risk analysis, the international framework for trade in animal- and plant-derived products, and Australia's current policy for coniferous sawn timber.

BACKGROUND TO THIS IMPORT RISK ANALYSIS

New Zealand, Canada and United States are exporters of coniferous sawn timber to Australia. Trade from these countries has been continuing for at least 100 years, although records for the duration are difficult to find, and for nearly 150 years with the United States (Larsen 1999). The main coniferous species exported by these countries to Australia are Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco; also known as Oregon), radiata pine (*Pinus radiata* D. Don; also known as Monterey pine) and western red cedar (*Thuja plicata* D. Don). Other species exported in lesser amounts include coast redwood (*Sequoia sempervirens* Endl.) and western hemlock (*Tsuga heterophylla* (Raf.) Sarg.).

The volume and value of imports of coniferous timber to Australia changes according to demand and world prices, however these markets have always been an important source of coniferous timber for Australia. During the period 1998-99 the value of total Australian imports of forest products (excluding furniture) was \$2.87 billion. The value of sawn timber imports during 1998-99 was \$417 million. During the 1997/98 and 1998/99 financial years the volume of sawn coniferous timber imports averaged 670,000 cubic metres per annum. Of the total, New Zealand, Canada and the USA are the largest sources of Australian coniferous sawn timber imports. The volumes averaged 394,000, 184,000 and 69,5000 cubic metres *per annum*, respectively, during 1997-99. The New Zealand figure represents 61 per cent of total Australian sawn timber imports. During this time, radiata pine accounted for 40 percent of the total sawn timber imports to Australia and New Zealand supplied nearly all of this. Douglas-fir ranked second, accounting for 29 percent of imports, mainly from Canada and the United States. Western red cedar, accounting for 9 percent of imports, was mainly from Canada. [Figures from Australian Forest Products Statistics, September quarter 1999, (ABARE 2000)]

AQIS and Biosecurity Australia has been aware of the need to conduct a risk analysis of the timber trade into Australia for some time. This is due to a number of reasons including the need to protect Australia's own unique environment, native forests and timber industry, protection of urban amenity trees which are of social value, the volume of timber imported, and the records of interceptions of serious exotic timber pests on imports. To this end, the Timber Pest Coordination Unit of AQIS organised a national timber pest conference in April 1999 with the aims of facilitating interaction among stakeholders and to promote awareness associated with the Australian

imported timber trade. A limited number of copies of the Conference Proceedings are available on request from the Timber Pest Coordination Unit, AQIS. With this conference in mind, AQIS presented a scope and issues paper titled *Review of Risks Associated with the Importation of Forest Products* (AQIS, 1999 - Attachment I) at the conference and modified this in response to attendees comments. AQIS circulated this paper to stakeholders in April 1999 and invited further comment to assist in defining the scope of an intended IRA on coniferous timber.

On 21 June 1999 AQIS formally notified stakeholders of the identified need to undertake this IRA. On 24 August 1999, AQIS proposed that the IRA should be subject to the non-routine IRA process described in The AQIS Import Risk Analysis Process Handbook (Anon 1997). This was based on the consideration that the analysis is expected to be large and technically complex and will require the evaluation of potentially significant quarantine risks that have not been previously studied by AQIS. Stakeholders were invited to comment on the type of risk analysis proposed and all responses were supportive of the non-routine process. On 27 October 1999, AQIS invited stakeholders to comment on the scope, timing and proposed RAP membership for the IRA. Stakeholders responded favourably to the proposed membership but some suggested that the breadth of expertise would be further enhanced by the inclusion of a specialist forest pathologist. AQIS accordingly added a forest pathologist to the RAP and advised stakeholders of the finalised RAP membership on 24 January 2000. The first meeting of the RAP was held on 13 March.

Factors pertinent to the decision to carry out a non-routine PRA for this commodity

The scope and issues paper (AQIS, 1999 - Attachment I) discusses in detail the nature and magnitude of invertebrate pest risk associated with the import of forest products by assessing insect interceptions recorded by AQIS during border inspections.

To summarise this data, interceptions on coniferous sawn timber imported into Australia have included significant invertebrate pests of living trees in the past (Cerambycidae - longhorned beetles, Siricidae - wood wasps, Buprestidae - jewel beetles, and Curculionidae - weevils) and timber in service including furniture (Bostrichidae (Lyctinea) - powderpost beetles, Isoptera - termites, and Anobiidae - furniture beetles). Australia's forests, particularly coniferous plantation forests, would be at most risk from pest introductions via timber imports. The potential impact, if the more serious exotic pests of forests were introduced, could be the loss of decades of efforts and investment in plantations, and irreparable damage to native flora and timber resources. The large number of insect interceptions of potential quarantine concern on imported forest products (> 3,000 for the period 1986-1999) clearly show

that importing these commodities into Australia untreated poses a very high risk of introducing plant pests detrimental to agriculture and to natural, cultivated, and urban forest resources. It is therefore essential to employ effective inspection and treatment methods to manage the risk.

In 1999 AQIS initiated a 12 month breaking bundles survey to assess the efficacy of current inspection methods for imported green bulk timber. Randomly selected bundles of timber from Canada and USA were broken and the planks lain out for inspection of all surfaces for insect pests. Preliminary results from 6 months of the survey indicate that external inspection alone would not have detected 30% of bundles containing quarantine pest species. Final results of the survey are not yet available.

AQIS inspectors do not currently look for or treat symptoms of pathogen infection in timber imports, although inspection is, in part, to verify freedom from bark, which is a much greater quarantine risk for timber pests generally. About one third of the sawn timber imported by Australia is kiln dried or seasoned and this is considered by AQIS to have a low risk of infection by pathogens. However Australia imports larger quantities of green timber which could pose a greater pathogen risk.

Forest pathogens such as *Armillaria* spp. *Ganoderma* spp. *Heterobasidion annosum*, *Phellinus* spp. and *Trametes* spp. are capable of causing decay in standing timber. The fungus *Fusarium circinatum* (*F. subglutinans* f.sp. *pini*), the causal agent of pitch canker, may survive on sawn timber from infected trees. Fungal species of *Leptographium*, *Ceratocystis*, and *Ophiostoma* are pathogens of living trees. All of these pathogens could be carried on sawn timber.

Another consideration concerns the efficacy of AQIS's main treatment tool (fumigation with methyl bromide). The use of methyl bromide in managing the risk is uncertain, as the fumigant does not penetrate well through damp or green timber or across the grain of both hardwood and softwood (Banks 1999). The fumigant is also only weakly effective against pathogens of quarantine concern (Rhatigan *et al.* 1995). Additionally, alternative treatment options need to be developed because of uncertainty surrounding the continued availability of methyl bromide. Although the use of methyl bromide for quarantine purposes was exempt from the phaseout agreed in the Montreal Protocol on Substances that Deplete the Ozone Layer (1992), an agreement that has been signed by over 150 countries. It is expected that supply of this fumigant will be more difficult due to additional restrictions and cost. Manufacture of the fumigant may eventually cease because of insufficient demand.

These issues highlight the urgent need for a comprehensive timber IRA of green coniferous sawn timber imports from Canada, the USA and New Zealand.

ADMINISTRATION

Timetable

Due to the technical complexity of the analysis to be conducted, AFFA expects the draft IRA document to be released in late 2001. It is anticipated that public meetings will be held to discuss the findings at this time.

Scope

This IRA considers quarantine risks that may be associated with the importation to Australia of sawn coniferous timber from Canada, New Zealand and the United States of America. In this IRA, sawn coniferous timber is defined as logs and sawn timber (lumber) free from bark, roots, soil and foliage of coniferous species in the Pinaceae, Cupressaceae and Taxodiaceae which are exported to Australia. These are predominantly the following species: Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco; also known as Oregon), radiata pine (*Pinus radiata* D. Don; also known as Monterey pine), western red cedar (*Thuja plicata* D. Don), coast redwood (*Sequoia sempervirens* Endl.) and western hemlock (*Tsuga heterophylla* (Raf.) Sarg.).

The IRA will:

1. Analyse the pathways for entry of quarantine pests on sawn coniferous timber from Canada, New Zealand and the United States of America.
2. Identify quarantine pests associated with sawn coniferous timber from Canada, New Zealand and the United States of America.
3. Assess the impact of the exotic pests if introduced into Australia.
4. Evaluate the efficacy of inspection and treatment options (adequacy and effectiveness) including the current requirements for shipment within 21 days of treatment from Canada and the U.S., and within 3 months of treatment from New Zealand.
5. Investigate modern and novel technologies in treatment and detection (eg, kiln drying and X-rays). Some work has commenced on the use of Rapiscan machines for non-destructive sampling. More work is required on this and other non-destructive techniques including sniffer dogs, ultrasound and X-rays.

6. Make recommendations to AQIS on changes, if any, to AQIS requirements for sawn coniferous timber from Canada, New Zealand and the United States of America.

Risk Analysis Panel

In accordance with the non-routine IRA process, a RAP has been established. The RAP membership is listed below.

Bill Magee (Chair)	Senior Manager Plant Biosecurity Biosecurity Australia - AFFA
Paul Pheloung	Manager - Plant Health Programs Office of the Chief Plant Protection Officer AFFA
David Heinrich	Manager, Border Review Import Clearance Branch Quarantine Export and Operations Division Australian Quarantine and Inspection Service
Ross Wylie	Forest Entomologist Program Leader Forest Protection Queensland Forestry Research Institute
Jonathan Banks	Private consultant (formerly Senior Scientist, disinfection/fumigation treatments and protocols Stored Grain Research Laboratory CSIRO Entomology)
Jack Simpson	Senior Forest Pathologist NSW Forestry

Plant Biosecurity of Biosecurity Australia will provide a technical secretariat for the panel. The RAP will act as a steering committee, oversee the IRA process and make appropriate recommendations on the import proposal to the Deputy Secretary of AFFA, (formerly the Executive Director of AQIS.)

The RAP will not be responsible for addressing issues which fall outside the scope of the risk analysis, such as:

- the potential economic impact if quarantine risk management strategies were to involve increased quarantine related costs for importers; or

- the potential economic impact if quarantine risk management strategies were to result in individuals or corporations importing greater or lesser quantities of wooden packaging with resultant changes in market conditions for domestic producers and existing importers.

Other relevant areas of the Agriculture, Fisheries and Forestry-Australia (AFFA) will address these structural adjustment issues. They are not relevant to the Biosecurity Australia decision-making process and will not be considered by the RAP.

Technical Working Group(s)

The RAP has established a TWG to conduct the risk analysis and a RAP member is chairing the TWG. The RAP may alter the membership of the TWG if circumstances warrant such action, eg, when a member is unable to continue this work owing to other commitments, or if additional resources are required to undertake specific risk analysis activities. The RAP will decide on a needs basis the timing and duration of the TWG's work on this project. The TWG will consult with specialists with relevant expertise as needed.

QUARANTINE FRAMEWORK IN AUSTRALIA

Legislative and conceptual framework

AFFA's objective is to adopt quarantine policies that provide the health safeguards required by government policy in the least trade-restrictive way and that are, wherever appropriate, based on international standards. In developing and reviewing quarantine policies, pest risks associated with importations are analysed using IRA, a structured, transparent and science-based process.

The *Quarantine Act 1908*¹ and its subordinate legislation, including Quarantine Proclamation 1998 (QP 1998)², are the legislative basis of human, animal and plant quarantine in Australia. The Quarantine Amendment Act 1999, which commenced in June/July 2000, is a major revision to the Quarantine Act.

Section 4 of the Quarantine Act defines the scope of quarantine as follows:

*In this Act, **quarantine** includes, but is not limited to, measures:*

¹ Available at <http://scaletext.law.gov.au/html/pasteact/0/71/top.htm>

² Available at <http://scaleplus.law.gov.au/html/instruments/0/3/0/IN000020.htm>

- (a) *for, or in relation to, the examination, exclusion, detention, observation, segregation, isolation, protection, treatment and regulation of vessels, installations, human beings, animals, plants or other goods or things; and*
- (b) *having as their object the prevention or control of the introduction, establishment or spread of diseases or pests that will or could cause significant damage to human beings, animals, plants, other aspects of the environment or economic activities.*

Subsection 13(1) of the Quarantine Act provides, among other things, that the Governor-General in Executive Council may, by proclamation, prohibit the importation into Australia of any articles or things likely to introduce, establish or spread any disease or pest affecting persons, animals or plants. The Governor-General may apply this power of prohibition generally or subject to any specified conditions or restrictions.

For articles or things prohibited by proclamation, the Director of Animal and Plant Quarantine may permit entry of products on an unrestricted basis or subject to compliance with conditions, which are normally specified on a permit. An IRA provides the scientific and technical basis for quarantine policies that determine whether an import may be permitted and, if so, the conditions to be applied.

The matters to be considered when deciding whether to issue a permit are set out in section 70 of QP 1998 and include the quarantine risk, whether the imposition of conditions would be necessary to limit the quarantine risk to a level that would be acceptably low, and anything else that is considered relevant. 'Quarantine risk' means the likelihood of the importation leading to the introduction, establishment or spread of a disease or a pest in Australia, the likelihood that harm will result (to humans, animals, plants, the environment or economic activities) and the likely extent of any such harm.

The actions of the Director of Animal and Plant Quarantine or his delegate in reaching a decision under the Quarantine Act takes into account the risk of significant harm to the environment. The recent amendments to the Quarantine Act introduced new procedures for decisions affecting the environment and clarified arrangements between quarantine decision-making and environment protection legislation, in particular the *Environment Protection and Biodiversity Conservation Act 1999*.

The new procedures will formalise the existing consultation processes with Environment Australia (EA). They include formal notification of the Environment Minister that consideration is being given to making a decision (the implementation of

which is likely to result in significant harm to the environment) and the risk assessment process to be followed. Preliminary findings of the risk assessment will also be notified to the Environment Minister. Any advice received from the Environment Minister will be considered in making a decision and the Environment Minister will be informed of how the advice was taken into account.

In consultation with EA, AFFA is also developing guidelines to assist quarantine officers when making decisions to ensure that the likely effects on the environment are taken into account. Decisions made by AQIS to permit the entry of plant products, made under the Quarantine Act and consistent with Australia's conservative approach to risk, are unlikely to lead to significant adverse effects on the environment. As a routine, EA has been given the opportunity to comment on proposals to develop new quarantine policies.

IRA provides the basis for consideration of import applications in relation to the importation of sawn coniferous timber. In keeping with the scope of the Quarantine Act, only factors relevant to the evaluation of quarantine risk (ie the risk associated with the entry, establishment and spread of unwanted pests and diseases) are considered in the IRA. Questions related to the potential consequences of importation (other than the impact of a pest or disease incursion) are not part of AFFA's process of evaluation.

IRA framework

In 1996, the Quarantine Review Committee, chaired by Professor Malcolm E. Nairn, conducted a detailed independent review³ and, *inter alia*, made recommendations on the process of carrying out import risk analyses (IRAs). The Government's response⁴ (DPIE 1997) noted that 'risk analysis is the foundation stone on which all quarantine policy and action must be built' and agreed with the Review Committee's six principles that should apply to IRA, as it relates to the formulation of quarantine policy.

The Committee recommended that IRA should be:

- *Conducted in a consultative framework*
- *A scientific process and therefore politically independent*

³ Nairn, ME, Allen, PG, Inglis, AR and Tanner, C (1996). *Australian Quarantine: A Shared Responsibility*. Department of Primary Industries and Energy, Canberra, Australia

⁴ *Australian Quarantine: A Shared Responsibility - The Australian Government Response*. Department of Primary Industries and Energy, Canberra, Australia

- *A transparent and open process*
- *Consistent with both government policy and Australia's international obligations*
- *Harmonised through taking account of international standards and guidelines*
- *Subject to appeal on the process*

In order to achieve a consistently objective and defensible method, import risk analyses carried out by AFFA follow the principles laid out in the publication, *The AQIS Import Risk Analysis Process: A Handbook* (AQIS 1998). This process is consistent with Australia's obligations under the SPS Agreement, and relevant recommendations of the International Plant Protection Convention (IPPC). Copies of the Handbook may be obtained from AFFA, or viewed on the AQIS homepage⁵.

Proposals requiring an IRA - those involving significant variations in established policy - are addressed via either the routine or non-routine process. Less complex changes to or reviews of established policy are handled through the former process while the non-routine process is applied where there are potentially significant quarantine risks to be evaluated (not previously studied by AFFA) and where the analysis is likely to be large and technically complex.

INTERNATIONAL FRAMEWORK

World Trade Organization

As a member of the World Trade Organization (WTO), Australia has certain rights and obligations under the WTO Agreement, including the Agreement on the Application of Sanitary and Phytosanitary Measures - the so-called 'SPS Agreement'. The SPS Agreement recognises the standards, guidelines and recommendations developed by the IPPC, the world organisation for plant health, as the relevant international benchmark. Under the SPS Agreement, measures put in place by a country must be based either on an international standard or upon a scientific risk analysis. A risk analysis must:

- Identify the pests whose entry, establishment or spread within its territory a WTO member wants to prevent, as well as the potential biological and economic consequences associated with the entry, establishment or spread of these pests
- Evaluate the likelihood of entry, establishment or spread of these pests, as well as the associated potential biological and economic consequences
- Evaluate the likelihood of entry, establishment or spread of these pests according

⁵ Available at <http://www.aqis.gov.au>

to the SPS measures that might be applied

The SPS Agreement defines ‘appropriate level of sanitary or phytosanitary protection’ as the level of protection deemed appropriate by the member country establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory. This is termed ‘appropriate level of protection’ (ALOP) in Australia. Further information on Australia’s rights and obligations arising from the SPS Agreement may be found in the report National Risk Management and the SPS Agreement (Wilson and Gascoine, 1999)⁶.

International Plant Protection Convention

Australia is a contracting party to the IPPC and actively contributes to the development of International Standards for Phytosanitary Measures (ISPMs). Of particular relevance to the present IRA are *ISPM No. 2: Guidelines for Pest Risk Analysis* (this publication is currently under international review, and is due for re-release as an international standard in May 2001); *ISPM No. 10: Requirements for the Establishment of Pest Free Places of Production and Pest Free Production Sites* and the draft ISPM titled *Pest Risk Analysis for a Quarantine Pest*. The technical component of this IRA conforms to the guidelines provided in these ISPMs.

CURRENT QUARANTINE POLICY

International quarantine policy

The complete AQIS import conditions for imported forest products can be found on the AQIS Import Conditions (ICON) Database on the Internet at <http://www.aqis.gov.au/icon/>. In summary, AQIS requires that imported forest products are free from plant material, animal residues, seeds, soil and bark because of the relatively high pest and pathogen risk associated with this material. If these contaminants are found on inspection, the contaminated timber must be thoroughly cleaned by washing, scraping and/or sweeping as appropriate. Inspection for insects under bark is carried out during bark removal.

AQIS’s primary tool in managing the risk of introduction of quarantine pests is inspection to test for the presence of bark or invertebrates. Containerised timber requires a full unpack and inspection unless covered by a valid treatment certificate, break bulk timber requires mandatory inspection if not covered by a valid treatment

⁶ Available at <http://www.aqis.gov.au>

certificate. Treatment certificates from New Zealand must state that the treatment was applied within 3 months of shipment/containerisation, certificates from Canada and the U.S. must state that the treatment was applied within 21 days of shipment/containerisation. Consignments are released from quarantine on the basis of acceptable documentation or after inspection. Acceptable treatments applied to AQIS specified standards include the following: methyl bromide fumigation, sulphuryl fluoride fumigation, heat treatment, ethylene oxide fumigation, gamma irradiation, or permanent timber preservative treatment applied in accordance to Appendix 1 of the Cargo Containers - Quarantine Aspects and Procedures publication (available on the Internet at <http://www.aqis.gov.au/docs/border/cargo.doc>). Quarantine treatments applied offshore have to be undertaken by an acceptable treatment provider

Timber must be allowed to stand for 24 hours prior to inspection to allow frass to develop. This aids in the detection of insect pests. Similarly, wet timber is allowed to stand for 24 hours after rain has ceased as frass is removed by rain. AQIS inspects approximately 1-2% of the external surfaces of timber bundles for invertebrates. This inspection rate has been progressively reduced from the preferred rate of 5% due to a reduction in wharf space and resource limitations for both AQIS and industry. If invertebrates are detected the entire line/mark/consignment requires treatment and for convenience this is usually by fumigation with methyl bromide. Currently AQIS does not look for or treat fungal infection. However, where a serious risk is established, such as Dutch elm disease (caused by *Ophiostoma ulmi*), import of the affected species is prohibited.

AQIS formed a Fumigation Working Party to review offshore fumigation issues and quality assurance arrangements for fumigation on arrival. The working party developed a document specifying appropriate fumigation rates for generic commodity types. The document, titled *AQIS quarantine treatments - aspects and procedures*, was supplied to the WTO secretariat on 5 June 2000, with comments from WTO member States requested by 1 August 2000. Under the notification, AQIS has stated that it intends to adopt the document into its operating processes in 2001, subject to consideration of comments obtained both internationally and through consultation with Australian industry. The document is available at the AQIS web address (<http://www.aqis.gov.au/docs/border/aqtapnet.pdf>).

An additional requirement for timber from New Zealand occurs during the flight season of burnt pine longicorn, *Arhopalus ferus* (Fabricius, 1787) (= *Arhopalus tristis* (Fabricius, 1787)). The burnt pine longicorn is a hitch hiker pest which lands on timber and other goods while being loaded in New Zealand, especially at night when it is attracted to lights. Pre-shipment methyl bromide fumigation and a verification inspection by AQIS are required prior to the quarantine release of any consignment.

Domestic arrangements

While the Commonwealth Government is responsible for regulating the movement of plants and their products into and out of Australia, the State/Territory Governments have primary responsibility for plant health controls within Australia. Legislation relating to resource management or plant health may be used by State/Territory Government agencies to control interstate movement of plants and their products.

There are currently no interstate restrictions on the movement of imported timber between states in Australia.

RELEVANT AUSTRALIAN PLANT-BASED INDUSTRIES

A discussion of relevant Australian plant-based industries requires the definition of ‘primary’ and ‘secondary’ at-risk species. The *primary* at-risk species is that which is to be imported, or from which the commodity is derived. In this IRA, the primary at-risk species are coniferous species, both native to Australia and introduced. *Secondary* at-risk species are those which may be directly or indirectly effected by the identified quarantine pests.

Pertinent characteristics of industries associated with the primary at-risk species are described below. Given the range of pests examined in this IRA, an *a priori* discussion of secondary at-risk species is not practical. Secondary at-risk species will be discussed in the risk assessment.

The forests of Australia have considerable economic, environmental, conservation and recreational value. Australia has 155.8 million hectares of native forest, which include eucalyptus (124.5 million hectares), native pine (0.8 million hectares), rainforests and mangroves (4.6 million hectares) and acacia (12.2 million hectares). In addition, at least 1.2 million hectares of plantations have been established. These plantations are predominantly exotic softwood (consisting mainly of radiata pine) but also including eucalypts (ABARE 2000). Of the native forest:

- 112.6 million hectares is classed as “State forest” (13.3 million hectares of which is available for sustainable timber production (logging) and regeneration);
- 66.1 million hectares is crown land mostly leased for cattle grazing with limited timber production.
- 17.5 million hectares is in permanent National Parks and other reserves; and
- 42 million hectares is privately owned forests.

Production of sawn coniferous timber in Australia

Australia has 948 000 hectares of coniferous plantations. These are mainly *Pinus radiata* (radiata pine), but significant areas of other coniferous species such as *P. ellioti* (slash pine) and *P. caribaea* (Caribbean pine), including species native to Australia, exist. Production of coniferous sawnwood in 1998-99 was 2.33 million cubic metres. Australia coniferous timber is also used for woodchips, roundwood, paper and paperboard and wood based panel products for domestic use and export (ABARE 2000).

Monetary value of relevant industries

The Australian forest industry forms one of the country's largest resource industries, directly employing about 63,000 people. The value of exports of forest products from Australia was \$1.29 billion in 1998-99 (ABARE 2000).

Characteristics of domestic trade

Australian consumption of sawn timber reached 4.35 million cubic metres in 1998-1999, with 1.5 million cubic metres of wood-based panel products, 1.18 million tonnes of pulp and 3.49 million tonnes of paper and paperboard. Production of coniferous sawnwood is steadily rising but routinely meets only two thirds of the domestic demand (ABARE 2000).

Characteristics of international trade

Australian production of sawn timber reached 3.62 million cubic metres in 1998-99, of which 2.33 million cubic metres was coniferous timber. As well as domestic use, this included Australian exports of coniferous roughsawn timber (\$5 million), dressed timber (\$9.8 million), logs (\$36 million), pulpwood (\$4.5 million) and coniferous woodchips (\$152 million) (ABARE 2000).

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**REVIEW OF RISKS ASSOCIATED WITH THE
IMPORTATION OF FOREST PRODUCTS**



SCOPE AND ISSUES PAPER

(APRIL 1999)

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1. INTRODUCTION

AQIS has identified a need to review quarantine risks associated with forest product imports, and protocols to manage the risks. This paper

1. sets out a preliminary evaluation of the types and sources of forest product imports that present the greatest risk and
2. proposes discrete Import Risk Analyses (IRAs) for the high risk commodity/source combinations identified.

2. BACKGROUND

Terminology

In this report, forest products refers to sawn timber, logs, wooden dunnage and packaging, furniture, wooden articles, railway sleepers and other wood products such as plywood, veneers, particle boards, wood chips, pulp and paper. For convenience, cane and bamboo furniture are included in this term. A plant pest includes pathogenic organisms such as fungi, nematodes, viruses and mycoplasma-like organisms. These and other terms are defined in the glossary.

Trade Statistics

New Zealand, Canada and United States are exporters of coniferous sawn timber to Australia. The main coniferous species exported by these countries are Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco; also known as Oregon), radiata pine (*Pinus radiata* D. Don; also known as Monterey pine) and western red cedar (*Thuja plicata* D. Don). Other species include coast redwood (*Sequoia sempervirens* Endl.) and western hemlock (*Tsuga heterophylla* (Raf.) Sarg.).

Broadleaved sawn timber imports are mainly from Malaysia, Indonesia and USA. Papua New Guinea, Brazil, Fiji, New Zealand, and Solomon Islands also export small volumes of broadleaved sawn timber into Australia. Broadleaved sawn timber imports include kapur (*Dryobalanops* spp.), keruing (*Dipterocarpus* spp.), merbau (*Intsia* spp.), meranti/lauan/ seraya (*Shorea* and *Parashorea* spp.), nyatoh (*Paraquium* spp.), ramin (*Gonystylus* spp.), beech (*Fagus/Nothofagus* spp), and oak (*Quercus* spp).

During the period 1997-98 the value of Australian imports of forest products (excluding furniture) was \$2.71 billion. The value of sawn timber imports during 1997-98 was \$423 million. Figure 1a shows the volume of sawn timber imports to Australia for the 1996/97 and 1997/98 financial years. During these two years, the volume averaged 750,000 cubic metres per annum. Timber species imported in small volumes (minor species) are not included in these figures but total imports are estimated to reach 25 000 cubic metres *per annum*.

New Zealand, Canada and the USA are the largest sources of Australian sawn timber imports. The volumes averaged 350,000, 180,000 and 120,000 cubic metres *per annum*, respectively, during 1996-98. The New Zealand figure represents 40 per cent of total Australian sawn timber imports.

During this time, radiata pine accounted for 40 percent of the total sawn timber imports to Australia and New Zealand supplied nearly all of this. Douglas-fir ranked

second, accounting for 29 percent of imports, mainly from Canada and United States. Western red cedar imports, accounting for 9 percent of imports, were mainly from Canada. Imports of tropical (broadleaved) timber, mainly from Malaysia, accounted for 12 percent of imports. Indonesia, Papua New Guinea and Fiji are small but significant sources of broadleaved sawn timber imports.

Trade statistics on other wood products, including cane and bamboo, have not been analysed in this report. This type of trade is fundamentally different from trade in sawn timber because of the highly varied range of commodity types that usually arrive in LCL containers. In the case of dunnage and wood packing material, it is difficult to estimate a meaningful volume entering Australia. However, it is possible to estimate the greatest geographical source of risk for exotic pest and disease introduction from these categories. Insect and disease interception data on wood articles are often used to identify and rank countries of greatest source of risk.

Australian Forest Resources

The forests of Australia have considerable economic, conservation and recreational value. Australia has 43 million hectares of native forest, which include eucalyptus (60%), native pine and open forest (32%), rainforests and mangroves (8%) and 112 million hectares of woodlands. In addition, at least 1.2 million hectares of plantations have been established. These plantations are predominantly exotic softwood (consisting mainly of radiata pine) but also including eucalypts (ABARE, 1998). Of the native forest

- 11.5 million hectares is classed as “State forest” (7.1 million hectares of which is available for sustainable timber production (logging) and regeneration);
- 10.6 million hectares is crown land mostly leased for cattle grazing with limited timber production.
- 9.8 million hectares is in permanent National Parks and other reserves; and
- 11.3 million hectares is privately owned forests.

The Australian forest industry forms one of the country’s largest resource industries, directly employing about 85,000 people. The value of exports of forest products from Australia was \$1.25 billion in 1997-98. Australian production of sawn timber reached 3.66 million cubic metres in 1997-98. This included Australian exports of logs (\$38 million) and sawn timber (\$28 million), broadleaved woodchips (\$502 million) and coniferous woodchips (\$142 million). (ABARE, 1998).

Strategic assessment of future trade

Imports

Figure 3 shows trends in Australian sawn timber imports since 1989. During this period, imports in North America and Asia have fallen to about 60 percent of the volume imported in 1989. Total sawn timber imports from the USA and Canada fell by 80 and 40 per cent, respectively, during this period. There was no overall trend in imports from New Zealand.

Figure 3 suggests that import volumes have stopped declining in Canada and Asia but further falls in sawn timber imports from USA are likely.

Exports

In contrast to declining imports of sawn timber from the USA, Australian exports of sawn timber to United States rose in 1997-98.

The Chinese Government decision to ban logging in all State-owned native forests following the recent devastating floods, combined with its commitment to developing the housing sector, means that global demand for forest products in construction, furniture and interiors will surge. Also, China's growing pulp and paper industry may provide opportunities for Australian pulpwood exports.

Current Australian operational procedures for import of forest products

AQIS requires that imported forest products are free of bark because of the high pest and pathogen risk associated with this material. AQIS may issue a permit to import a product containing bark subject to heat treatment (min 85°C and 8 hours) or irradiation, on a case by case basis.

AQIS's primary tool in managing the risk of introduction of quarantine pests is inspection to test for the presence of bark or invertebrates. If invertebrates are detected, treatment, mainly by fumigation with methyl bromide, is required. AQIS inspects about 1-2% of the external surfaces of timber bundles for invertebrates. Currently AQIS does not look for or treat fungal infection. However, where a serious risk is established, such as Dutch elm disease (caused by *Ophiostoma ulmi*), import of the affected species is prohibited.

Airfreight, break bulk and less than a container lot (LCL) of sawn timber from southeast Asia and Africa require quarantine inspection and mandatory treatment (fumigation with methyl bromide).

When treatment is carried out prior to export the consignment must be accompanied by a certificate, from a company accredited by AQIS, stating that a treatment meeting the requirements of AQIS was applied within 21 days of shipment. Consignments are released from quarantine on the basis of acceptable documentation.

3. ISSUES

Risk posed by imports of forest products

An indication of the nature and magnitude of invertebrate pest risk associated with the import of forest products can be assessed from invertebrate interceptions recorded by AQIS during border inspections. Inspections were undertaken as part of an operational protocol to manage quarantine risk, rather than for the purpose of gathering information on the nature of the risk. For example, full identification of invertebrate pests is not essential from an operational perspective since AQIS requires that consignments are pest free and treatment is initiated on any evidence of infestation. While interception records are useful and indicative of quarantine risk, the results are not necessarily representative of the complete spectrum and magnitude of pest infestation associated with forest products imports. Consequently, it is important to ensure that all interceptions are identified to species level.

Since 1986, AQIS has recorded over 13,000 interceptions of pests on imports of timber and wood products. Figure 6 summarises the number of interceptions recorded

since 1986 on the various categories of forest products. The overall annual rate averaged about 900 interceptions/year until 1996 after which the rate increased to 1,500 interceptions/year. This probably reflects the increased effort following the review of AQIS by Nairn *et al.* (1996).

Figure 6 shows the profile of interceptions by source. The USA and Asia are the largest sources of pest interceptions although the profile differs. Most pests from the USA are associated with sawn timber while pests originating from Asia are found in significant numbers on all categories of wood imports.

These figures are for all interceptions regardless of the quarantine status. Less than 50% of interceptions were identified to genus level and 30% of these to species level. Consequently, it is unclear what proportion of these pests are quarantine pests, although at least 24% are not recorded in Australia and therefore are of potential quarantine concern.

There has not been a systematic survey of forest pests in Australia. Available data on forest pests established in Australia, commissioned by the Nairn Review Committee (cited in Nairn *et al.*, 1996), identified nine exotic pathogens on forest trees but only two species of exotic forest insect pests in forests between 1971 and 1995. For comparison, during 1988 to 1997, systematic surveillance has resulted in ninety-one new introductions of forest pests and pathogens recorded in New Zealand, and 84% of these were forest fungi.

Risks posed by sawn timber

Insect and fungal diseases of wood are major components of the quarantine risks posed by green sawn timber and log imports.

During 1998 there have been approximately 30 post barrier detections of significant timber pests, which include the family Cerambycidae and Siricidae (eg *Stromatium barbatum*, *Sirex cyaneus*). Bark contamination is being detected in timber in significant quantities by AQIS.

Figure 1b summarises pest interception data collected by AQIS officers during barrier inspections of sawn timber imports from USA, Canada, New Zealand, Malaysia and other regions during the 1996-97 and 1997-98 financial years. The greatest number of interceptions are from USA imports of sawn timber. Figure 2, the rate of such interceptions with trade volume, shows that this interception rate is disproportionately high. By contrast, New Zealand has a very low interception rate. This is probably because most of the green sawn timber imported by Australia is from North America.

Interceptions on sawn timber and logs declined steadily from 1989 to 1997. Figure 4 shows that this can largely be explained by a decline in sawn timber imports over this time. Nevertheless, the number of interceptions for every million m³ of sawn wood imported fell from 600 to 260 over this period. This probably reflects a decline in inspection effort, which has been reversed since additional resources were allocated following the review of Nairn *et al.* (1996). Although trade figures for 1998-99 are not yet available, interception figures for part of this period already exceed that of the previous three years.

Interceptions included significant pests of living trees (Cerambycidae, Siricidae, Buprestidae, Curculionidae) and timber in service including furniture (Bostrichidae (Lyctinea), Isoptera, Anobiidae) found on sawn timber. Australia's forests, particularly coniferous plantation forests, would be at most risk from pest and disease

introductions via timber imports. The potential impact, if the more serious exotic pests and diseases of forests were introduced, could be not just the loss of a few season's crop, but the loss of decades of efforts and investment in plantations, and irreparable damage to the native flora and timber resources.

Forest pathogens such as *Armillaria* spp. *Ganoderma* spp. *Heterobasidion annosum*, *Phellinus* spp. and *Trametes* spp. are capable of causing decay in standing timber. The fungus *Fusarium circinatum* (*F. subglutinans* f.sp. *pini*), the causal agent of pitch canker, may survive on sawn timber from infected trees. Fungal species of *Leptographium*, *Ceratocystis*, and *Ophiostoma* are pathogens of living trees. All of these pathogens could be carried on sawn timber.

AQIS inspectors do not look for or treat symptoms of pathogen infection in timber imports, although inspection is, in part, to verify freedom from bark, which is a much greater quarantine risk for timber pests generally. About one third of the sawn timber imported by Australia's is kiln dried or seasoned and are considered by AQIS to have a low risk of infection by pathogens. However Australia imports larger quantities of green timber which could pose a greater pathogen risk.

In 1992, the United States Department of Agriculture (USDA), Forest Service conducted a pest risk assessment of radiata pine and Douglas-fir logs from New Zealand. The assessment identified thirty microorganisms and sixteen insects as possible USA quarantine pests associated with imported radiata pine and Douglas-fir logs from New Zealand. The USA now requires heat treatment on green timber from New Zealand.

Risks posed by wood products associated with world trade

During 1997-98, AQIS made 441 interceptions of insects on dunnage; approximately 29% of these involved exotic timber borers and a further 21% involved possible exotic timber borers. Asia ranks first as the source for most of the insects intercepted on dunnage in Australia, with 70% of known exotic and possible exotic borers originating from this area.

Of other categories, cane and bamboo products are also significant sources of pest interceptions (Figures 3 and 4). Australian resources are less at risk from this category and not specifically included in the scope of this review.

AQIS commissioned a survey of the wooden components of empty sea cargo containers (Stanaway *et al.* 1996) to determine the risk of insect infestation. No live insect pests were in the wooden of 3000 containers examined. However, timber infesting insects, including one live scolytinae timber pest, were found in 3.5% of the 300 containers surveyed. Commonly found insects included bostrichids (*Heterobostrychus aequalis*) and Sirex wasps (*Sirex juvencus*).

Crating, dunnage and pallets are wood packing materials often associated with insect interceptions. The USDA Forest Service reported that from the 1985-1996 period, 49% of the 5885 interceptions occurred on crating, 36% on dunnage, and 6% on pallets. Together these three categories of wood articles represented 91% of the total pest interceptions made by United States quarantine authorities during this period on wood articles (APHIS, 1995).

This report stated that, during 1985-96, Europe ranked first as the source for most of the insects intercepted in the USA on wood packing materials (5885 exotic insects; 72% of all interceptions) with Asia second (16%) and South America third (5%). The

report also noted that pest interceptions from Asia were increasing and may overtake Europe in the near future.

Pathogens, such as the fungal diseases noted in the previous section, could also infect wood packaging materials, particularly on the low grade timber used for packing cases and dunnage. In July 1998 dunnage and other wood packing articles associated with cargo were found to be heavily infected with possible wood decay fungi at Port Botany, Sydney (E. Mireku, personal observation).

A disease with the potential for international implications is eucalyptus rust (guava rust) caused by *Puccinia psidii* Winter. *P. psidii* is considered to be a serious threat to *Eucalyptus* spp. Strict quarantine measures are necessary to prevent the entry of this virulent pathogen into Australia where epidemic losses of *Eucalyptus* spp. and other Myrtaceae could potentially be experienced. The fungus has an extremely wide host range amongst genera and species of the Myrtaceae family. A review is currently underway by the National Office of Animal, Plant and Fish Health examining the risks associated with seed imports of *Eucalyptus* spp. The potential for this pathogen to enter Australia on forest products should be determined.

Requirements for sawn timber and wood packing material imports in New Zealand, the USA and Canada

New Zealand treatment requirements for sawn timber imports are similar to Australia. Although New Zealand permits imports of untreated timber, they employ a strict inspection regime for these high risk commodities. New Zealand inspects all consignments of sawn timber on arrival for the presence of insects, pathogens and other contaminants, such as bark or soil. Consignments covered by valid documentation are audited by inspecting piece by piece (requiring breaking bundles) for 10% of the first and every fourth consignment of that importer. Where certified consignments are found infested or contaminated, the next three consignments of that importer are regarded as “untreated”. Untreated or “green” sawn timber consignments are inspected piece by piece for 10% of the consignment. New Zealand inspects all dunnage on board ship (excluding dunnage within containers, presumably) for pests before discharge is permitted. New Zealand inspectors look for and treat evidence of fungal infection.

USA and Canada have strict requirements for the importation of timber. They are not only concerned with insect pests, but with fungal pathogens as well. Consequently, these two countries do not allow imports of untreated high risk timber (eg siberian larch (*Larix sibirica* Led.))

On 6 January 1999, the World Trade Organisation (WTO) Committee on Sanitary and Phytosanitary Measures circulated communication by the United States regarding USDA Animal and Plant Health Inspection Service (APHIS's) addendum to the interim rule published in the Federal Register on 18 September 1998, and effective 17 December 1998. The rule amended the regulations for importing logs, lumber and other unmanufactured wood articles by adding treatment and documentation requirements for solid wood packing material imported from the People's Republic of China, including the Hong Kong Special Administrative Region. Specifically, the USA has added a third document, the importer statement, to the rule regarding two documents, the official certificate and the exporter statement.

Canada has also increased efforts to tighten regulations concerning imports of wooden packaging. On July 1998 Canada amended its import requirements for wood dunnage, pallets, crating and other packaging materials made from unmanufactured wood. The current Canadian directive outlines the treatment and disposal procedures for all regulated wood packaging articles not meeting entry requirements. The entry requirements are:

- All non-manufactured wood used as dunnage, pallets, crating or other packaging materials accompanying cargo from areas except the continental U.S. must be completely free of bark, visible pests, and signs of living pests; and
- No wood dunnage material can be removed from the designated sea port site for use within Canada without the written authorisation of the Canadian Food Inspection Agency (CFIA).

CFIA stated that in recent years, inspections of wood packaging materials associated with various cargo from areas other than the continental United States have identified the presence of several exotic pests of concern to Canada.

Comparison of AQIS's current import requirements for green sawn timber with those of USA, Canada and New Zealand

AQIS's primary tool in addressing the introduction of quarantine risks is inspection for invertebrate pests and bark and treatment (mainly fumigation with methyl bromide carried out offshore or in Australia) if necessary. AQIS currently inspects about 1-2% of the external surfaces of timber bundles for insects, compared to 10% inspection in New Zealand. Wharf constraints have restricted the capacity of inspectors to break bundles of sawn timber. Current AQIS treatment methods and inspection techniques may not be sufficient to achieve an appropriate level of protection for Australia. USA and Canada primarily require mandatory treatment of high risk commodities.

A number of insect detections at the Australian border has been attributed to offshore fumigation failures. Of the 30 post barrier detections of significant timber pests in 1998, which included the families Cerambycidae and Siricidae, 71% were traced back to inappropriately applied offshore fumigation treatments (Turner, 1998).

Comprehensive IRA for forest products have not previously been undertaken

No formal IRA of the importation of forest products has ever been undertaken. In the past, recommendations on the procedures to be adopted for the inspection and treatment of timber have been based on expert opinion and experimentation at the Plant Quarantine Research Station by entomologists experienced in timber pests and storage pests. Nevertheless, it is timely to review forest product imports given that trade has changed significantly. Current Australian phytosanitary procedures for the importation of timber and wood packing materials have not been developed on the basis of a IRA in accordance with current AQIS processes and International Standards for Phytosanitary Measures.

The large number of interceptions of potential quarantine concern on imported forest products (> 3,000 since 1986) clearly show that importing these commodities into Australia untreated poses a very high risk of introducing plant pests and diseases detrimental to agriculture and to natural, cultivated, and urban forest resources. It is therefore essential to employ effective inspection and treatment methods to manage the risk.

Many interceptions have not been identified beyond family in the past and consideration needs to be given to getting more specific identifications progressed on the adult specimens in the AQIS collection and in future interceptions. Information on post border breaches is also kept in State insect collections and pooling this information would contribute substantially to an assessment of the true quarantine risk.

The efficacy of AQIS's main treatment tool (fumigation with methyl bromide) used in managing the risk is uncertain, particularly for green sawn timber because of the lack of data on the effect of moisture content on penetration of the fumigant. This highlights the urgent need for comprehensive timber IRA (s) of green coniferous sawn timber imports from Canada, the USA and New Zealand, and wood packing materials from Asia.

Determination of review priorities

Sawn timber and logs

Of approximately 7000 interceptions on sawn timber imports, 60% were on timber from USA while only 3% originated from New Zealand. The review priorities should be based on product/area combinations with the highest risk. Although the greatest volume of sawn timber imports (40%) is from New Zealand (Figure 1a), on the basis of interception data, New Zealand does not pose the highest risk.

About 80% of all sawn timber interceptions since 1986 were on Douglas-fir. Interceptions on Douglas-fir from USA, Canada and New Zealand were 56%, 22% and 2% of the total Douglas-fir interceptions respectively. Interceptions were moderate on cedar imports (5% of total bulk timber interceptions since 1986). Approximately 27% and 68% of all cedar intercepts were from the USA and Canada, respectively (Figure 1b). In general interceptions were infrequent on radiata pine.

For comparison, in 1997-98 the volume of Douglas-fir sawn timber imports from USA, Canada and New Zealand were 209 000 (49% of total Douglas-fir import), 197 000 (43%) and 53 000 (11%) cubic metres respectively (Figure 1a). USA and Canada appear to be the areas with the highest risk (Figure 2).

Douglas-fir is therefore considered the most hazardous of all the timber species imported into Australia and should be a IRA priority.

The risks associated with sawn timber and logs from New Zealand are much lower, based on interception data, but the volume of radiata pine imports is very high. The quarantine risks associated with this trade should be analysed but given a lower priority.

Dunnage and wood packaging

Analysis of wood packaging material from Asia is complex (unknown wood source, unknown species, unknown treatment, exposure to reinfestation) but is often associated with pests of high quarantine significance to Australia and poor controls. Priority areas will be identified based on past experience with interceptions and border breaches in Australia and elsewhere, and further analysis of trade.

Dunnage and wood packaging from Asian countries can be sources of serious quarantine pests and should be another IRA priority, undertaken independently.

4. RESEARCH AND CONSULTATION

AQIS has a number of activities in progress to address quarantine risks associated with imports of forest products. A Timber Pest Coordination Unit has been established to facilitate interaction among stakeholders and promote awareness of quarantine risks associated with this trade. The Unit is running a National Timber Pest Conference to be held in April 1999.

Direct discussions with stakeholders and the proposed National Conference on timber pests in April 1999 should provide additional information and data on the direction of future timber trade and, consequently, provide a focus for the assessment of quarantine risks.

A number of surveillance and research activities relevant to this review, are planned or in progress.

- A pilot study is now underway to assess the quarantine significance of the fungal pathogens associated with green sawn timber imports from the USA and Canada into Australia. This study may be extended to wood packing materials, including dunnage.
- The National Office of Animal, Plant and Fish Health is planning to coordinate a survey of exotic pests and diseases in the vicinity of Australian ports.
- AQIS has initiated a survey of break bundles to gather information on the relationship between external and internal parts of the bundle surfaces with regard to wood quality and pest infestation/infection.
- AQIS is planning a study of packing arrangements in ports to assess options to improve the inspection proportion.
- CSIRO and State departments have research in progress on a number of relevant issues such as the efficacy of treatment options.
- AQIS will be running a timber pest diagnostic course to broaden the skill base in Australia.

5. SCOPE OF THE REVIEW

AQIS is proposing this review because of the number of pest interceptions arising from recent closer scrutiny of sawn timber and wood packing imports into Australia and increased stringency in the requirements of agencies responsible for quarantine in New Zealand, Canada and the USA on comparable trade.

Import risk analysis will be undertaken to:

1. Identify quarantine pests and pathogens associated with the importation of Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco), radiata pine (*Pinus radiata* D. Don) and western red cedar (*Thuja plicata* D. Don) from New Zealand, Canada and USA.
2. Identify quarantine pests and pathogens associated with wood packing materials and products from Asia, with particular emphasis on China, Malaysia and Indonesia. The species and source of timber used for wood packing articles is difficult to determine however insect and disease interception data can be useful for identifying the type and source of risk for timber pests and diseases.

In the context of this paper, packing materials include crating, dunnage, pallets and any other wood packing material. Highly processed wood products, such as panel products, compressed timber products, veneer and pulpwood, present lower risks that are managed by existing AQIS protocols and will not be a focus for this review.

3. Assess the impact of the exotic insects and pathogens if introduced into Australia.
4. Evaluate the efficacy of inspection and treatment options (adequacy and effectiveness). AQIS has formed a Fumigation Working Party to review offshore fumigation issues and quality assurance arrangements for fumigation on arrival. The working party has developed a revised fumigation standard specifying appropriate fumigation rates for generic commodity types.
5. Investigate modern technologies in treatment and detection (eg., kiln drying and X-rays). Some work has commenced on the use of Rapiscan machines for non-destructive sampling. More work is required on this and other non destructive techniques including sniffer dogs, ultrasound and X-rays.
6. Address the regulatory impacts, positive and negative aspects, affecting governments, industry, consumers and environment. AQIS is required, in the course of development of regulations suitable for adoption in Australia, to consider the impact of various options on all sectors of the community, including consumers, timber industry, government, and the environment. The regulatory impact statement will identify and evaluate, though not be limited to, the cost and benefits of the regulation, and its health, economic and social impacts.

6. CONCLUSIONS

- The review of timber should include several interlinked but discrete areas (logs, sawn timber, and wood packing materials including dunnage).
- The IRAs of timber should progress with Douglas-fir and western red cedar from USA and Canada, wood packing materials from Asia and radiata pine from New Zealand.
 - a pest list and risk assessment of Malaysian major timber species would form a basis for an IRA on wood packing articles, where timber species of wood packing material is unknown, and should precede the Asia/wood packing articles IRA.
 - arthropods, fungi, mycoplasma-like organisms, nematodes, viruses and bacteria should be considered.
 - the review should consider each species of timber and its insect pest and disease load and treatment requirements.
- Consideration needs to be given to getting more specific identifications progressed on the adult specimens in the AQIS collection. Increased emphasis by AQIS and State Forest Services on the taxonomy of indigenous and exotic insect pests and diseases of trees and timber in collection may enable the more rapid identification of future exotic pests.

7. PREVIOUS REVIEWS RELEVANT TO THIS PROPOSAL

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9. GLOSSARY

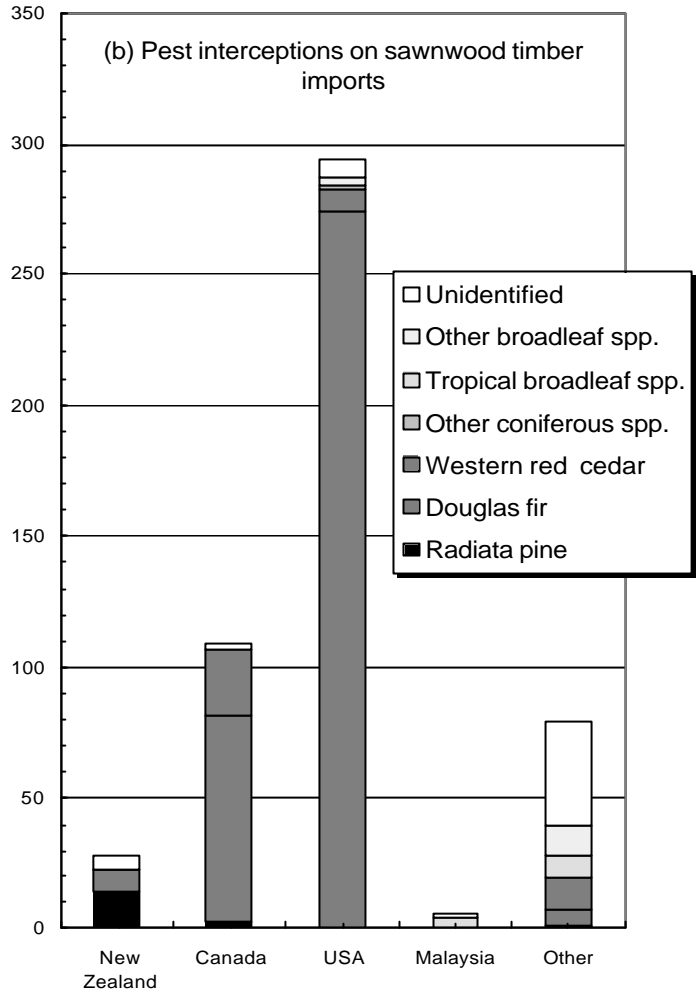
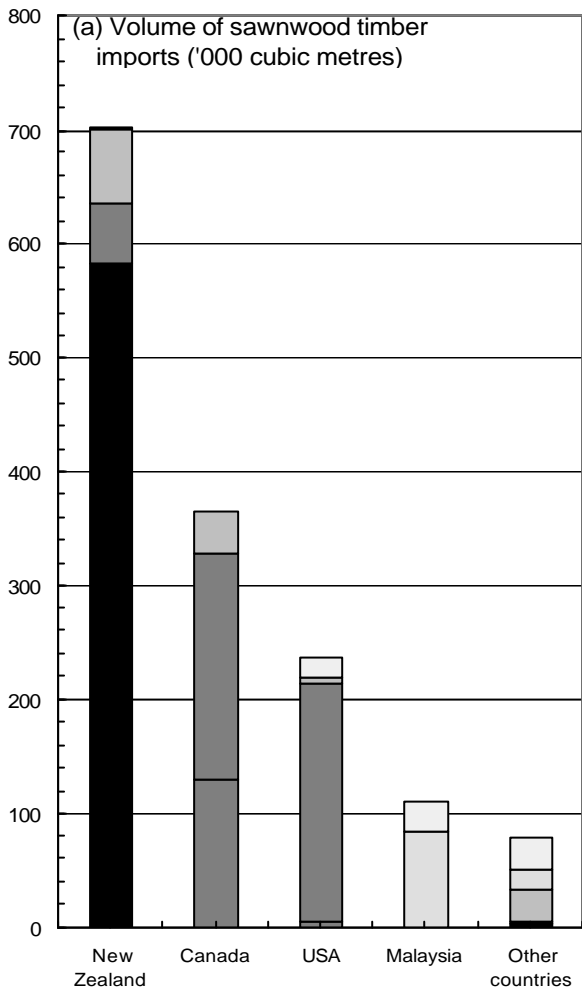
Plant Pest Any species, strain or biotype of plant or animal, or any pathogenic agent injurious to plants or plant products.

Dunnage The wood braces used to support or pack cargo. In this report dunnage does not include crating, and pallets.

Packaging Any wooden material used to pack imported products, such as crating, pallets, boxes, reels etc

Broadleaved Any of the generally broadleaved, angiosperm trees, most of which have hard wood, such as the eucalypts (as opposed to the gymnosperm conifers).

Forest products Sawn timber, logs, wooden dunnage and packaging, furniture, wooden articles, railway sleepers and other wood products such as plywood, veneers, particle boards, wood chips, pulp and paper.



Source: Forest Products Statistics: ABARE, 1998

Source: AQIS PDI Database

Figure 1: (a) Major species and source of Australian sawnwood imports during 1997-98 and 1996-97 ('000 cubic metres)
 (b) Source and frequency of pest interceptions on bulk timber imports during 1997-98 and 1996-97



Figure 2. Rate of pest interception on Australian sawnwood imports

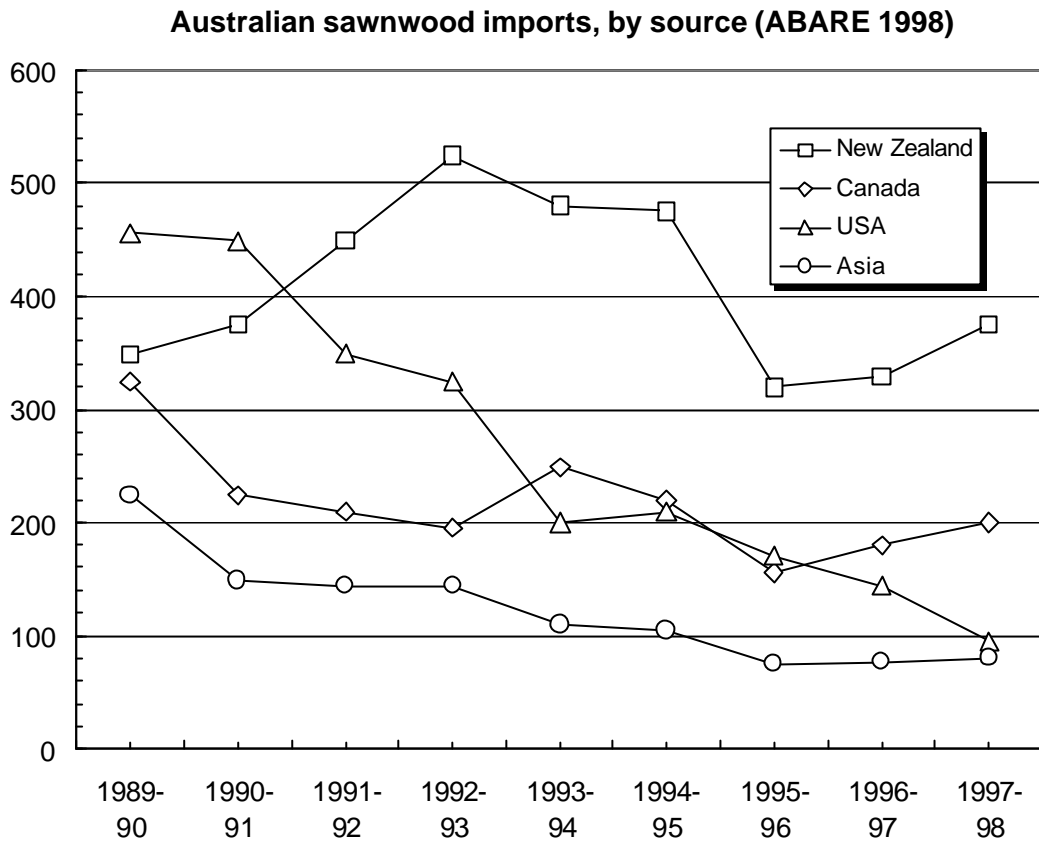


Figure 3. Sawn timber trade by source since 1989. (Forest Product Statistics. ABARE, 1998)

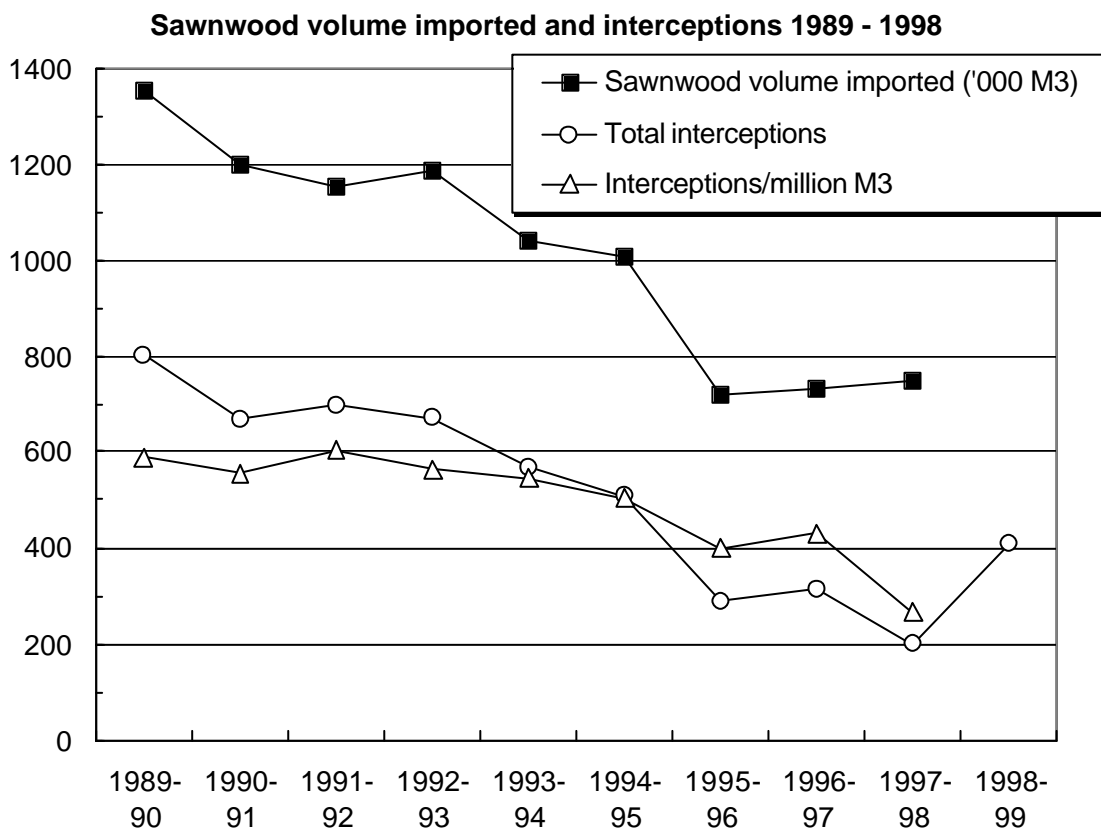


Figure 4. Comprison of sawn timber imports and pest interceptions since 1989. (ABARE 1998, AQIS)

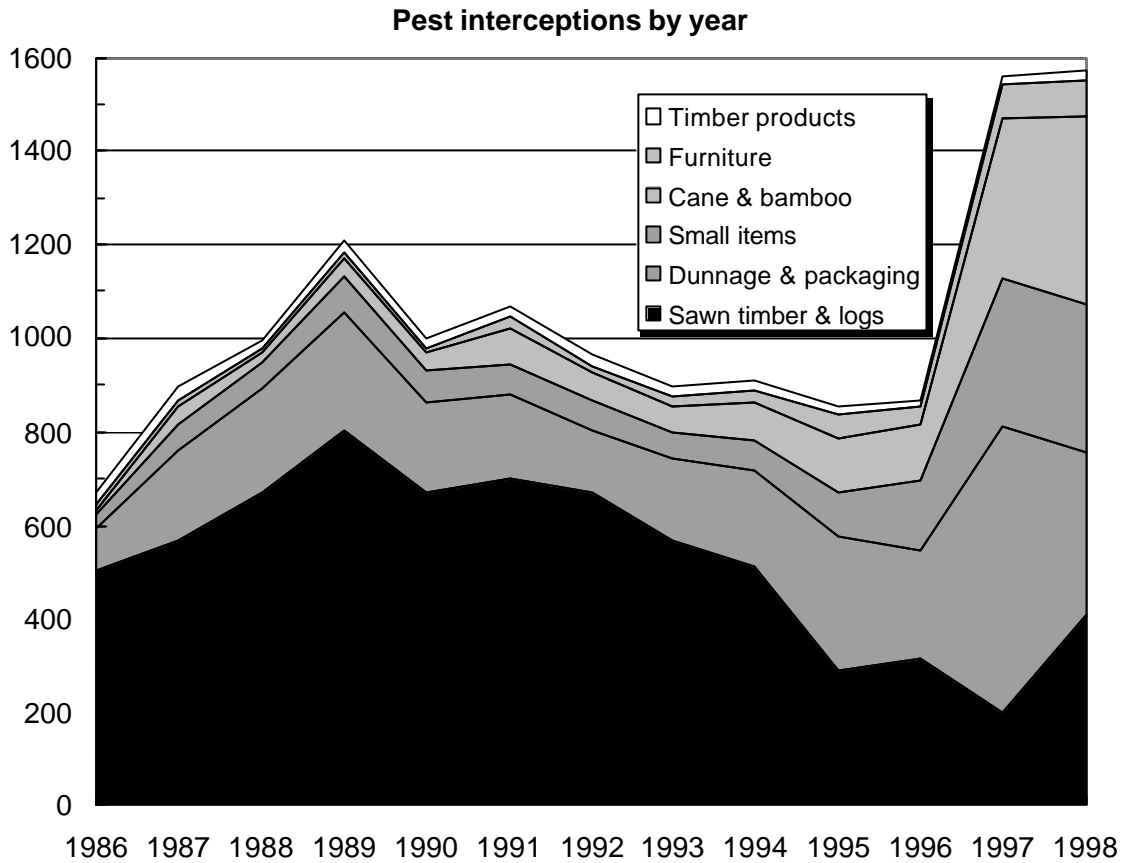


Figure 5. Cummulative area chart of pest interceptions for Australian imports of forest products since 1986.

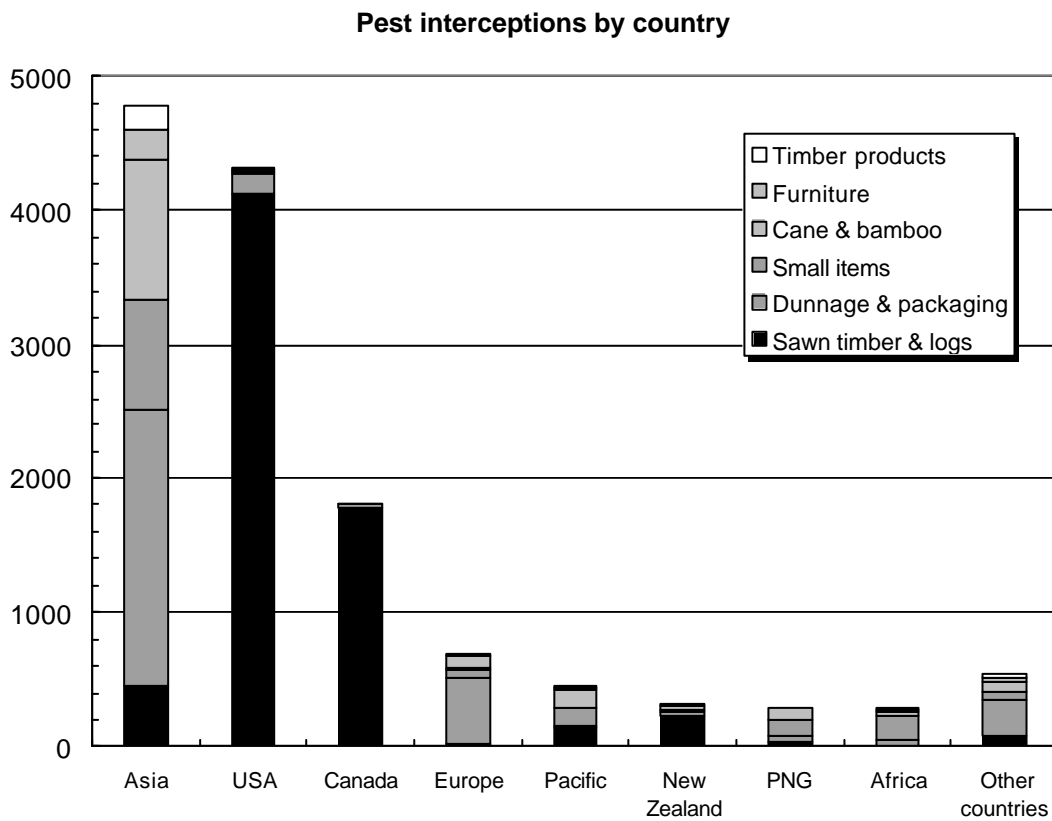


Figure 6. Pest interceptions for Australian imports of forest products by source, shown cummulatively.