

# **Hazard site surveillance in Australia and the South Pacific – it never rains but it pours**

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**IUFRO**

**Alien Invasive Species in International Trade**

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# Established exotic insects

Native insects and diseases which are destructive pests of healthy trees and sound, seasoned timber – wood moths, leaf-feeding moths and beetles, termites

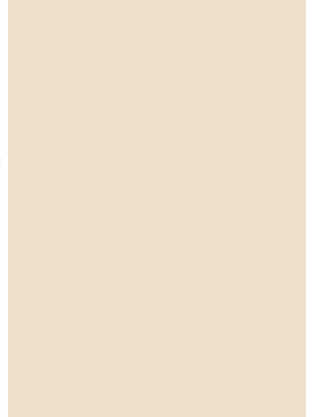
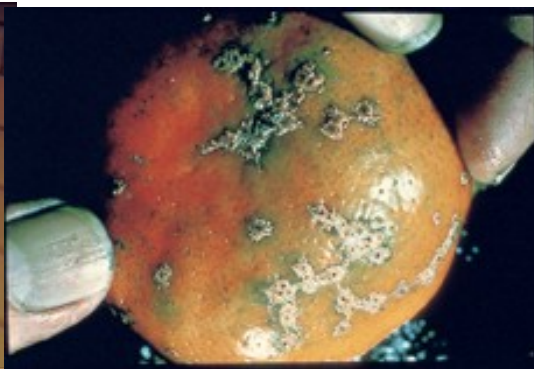
Established destructive exotics being managed

- West Indian drywood termite, *Cryptotermes brevis*
  - Sirex wood wasp, *Sirex noctilio*
  - Five-spined bark beetle, *Ips grandicollis*
  - European house borer, *Hylotrupes bejalus*
  - Elm leaf beetle
  - Dothistroma
- 
- Serious pests in the region and beyond which threaten our clean green image, industries and trade

# Threats

- Growth in global trade, rapid travel
- Size of country and small, concentrated population
- Length of coastline, majority of north uninhabited
- Proximity to Indonesia, PNG, strong cultural and family ties between PNG, the Islands, northern Australia
- Increasing concern about incursions - increasing cooperation between the Federal and the State and Territory governments
- NAQS, Northwatch

# NAQS and Northwatch



# Forestry Emergency Pests List

- 7 insect pests of timber in service
- 5 for angiosperm trees
- 10 insects, 1 nematode for gymnosperms
- 7 angiosperm pathogens
- 7 gymnosperm pathogens
- **GIMP – Generic Incursion Management Plan.**

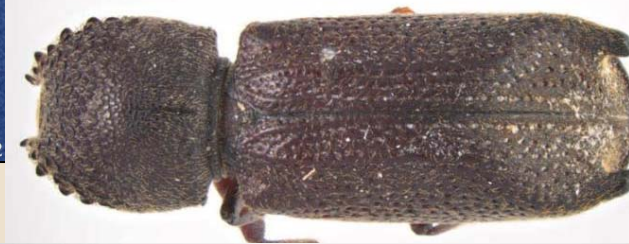


# Hazard Site Surveillance

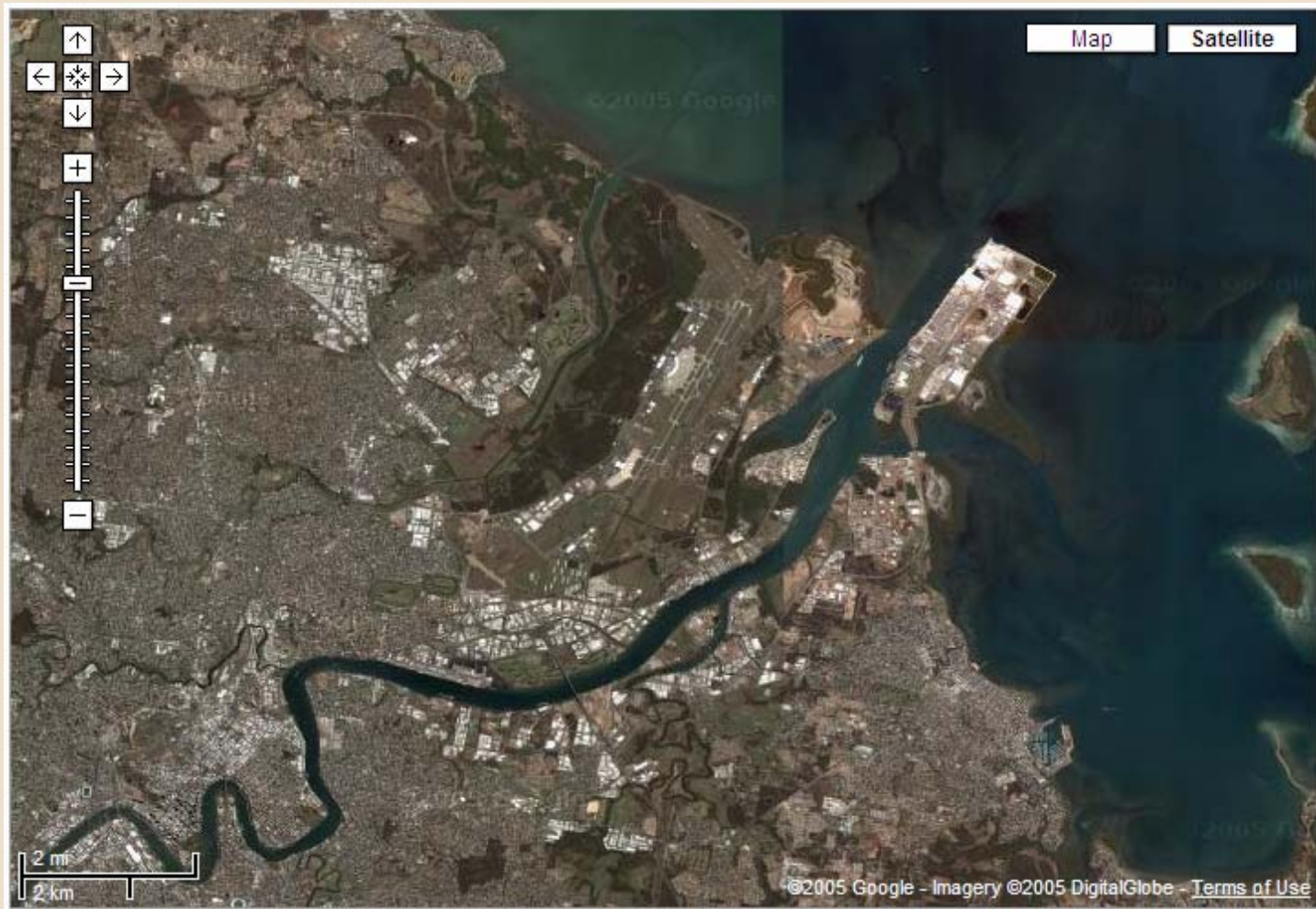
HSS - post-border detection of new pest incursions,  
Funded by Federal and State Governments

- Pilot projects in all 6 States
- Complements AQIS – Australian Quarantine Inspection Service
- Early detection of new incursions
- Trapping, plant inspection at selected sites with high risk of incursions– ports, airports, Quarantine-approved premises etc
- Different priority species in each State
- Only Queensland & Tasmania trapping for forest and timber pests

# HSS in Queensland - Priority taxa



# Main surveillance area



# Trapping sites



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# Trap types



Panel trap

- Used panel traps and delta traps
- Recently been trialing Lindgren funnel traps and cerambycid traps from Japan



Delta trap

# Trapping program

## 5 sites

Each site: 5 intercept traps 10m apart & lure/attractant,

- **ipsenol** (*Ips* bark beetles - some species)
  - **ipsdienol** (other *Ips*)
  - **frontalin** (some *Dendroctonus* & other bark beetles)
  - **exobrevicomin** (other *Dendroctonus*)
  - **alpha-pinene + ethanol** (general wood pests)
- 1 Delta trap with **dispalure**

1 control – trapping fluid only – recent trial addition

Traps emptied every 2 weeks, lure changed at 4 weeks

# Trap site near Port of Brisbane



# Results for HSS program

Feb. 2006 – current                      Extended?

- **86 species, > 7000 individual wood borers**
  - Scolytinae 31 species, Platypodinae 2
  - Cerambycidae 33
  - Bostrychidae 12
  - Anobiidae 4
  - Buprestidae 3
- Scolytinae most abundant taxon, 83% of catch
- 19 species, 60% of catch exotics already established in Australia
- **No new exotics trapped** - but range increased for several species - previously not recorded from SE Qld
- **No new diseases**

# Establishing Forest Health Surveillance systems in the Pacific

Early warning of forest invasive species in the Pacific

Collaborative projects funded by Australian Centre for International Agricultural Research (ACIAR)

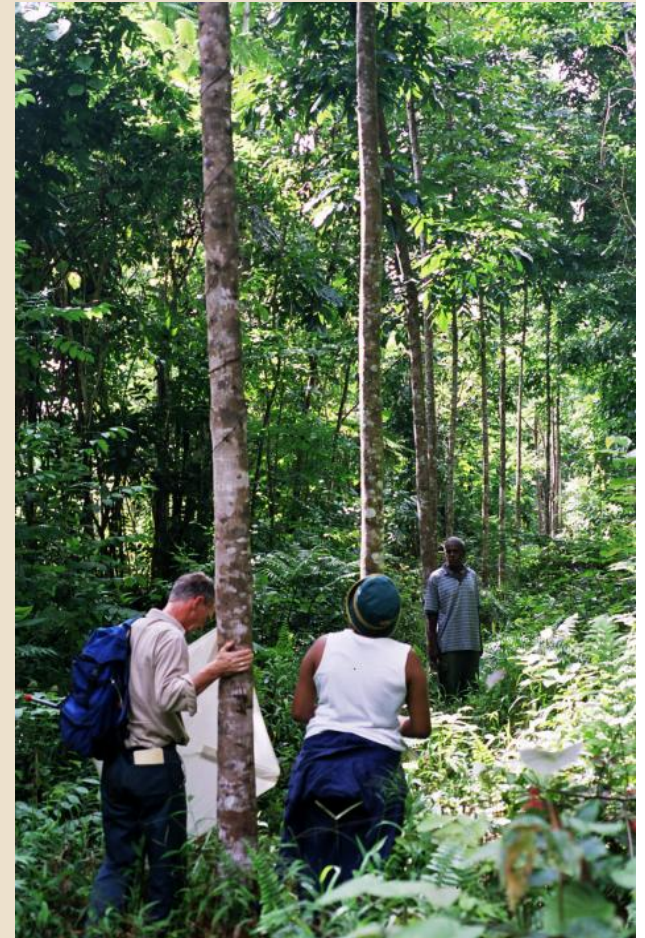
- 2003 – 2005: Fiji, Samoa, Vanuatu, Tonga
- 2006 – ongoing: Fiji and Vanuatu
  
- Important to Australia to know what pests are present and are potential threats
- Capacity building for local people, improves economy
- Forest surveillance in the Islands protects forest and timber industries, aids market access

# Establishing forest health surveillance systems in the Pacific

2003 – 05: Fiji, Samoa, Vanuatu, Tonga

**Object: Basic training in surveillance techniques**

- Workshops, field training in surveillance in Australia and locally
- Start or add to reference collection
- Database – pest lists
- Ongoing support from Oz
- Initial outcomes good
- Limited by funding



# Establishing Hazard Site Surveillance systems in the Pacific – Fiji and Vanuatu

Began May 2006

- Static trapping, sentinel plantings - international ports in Fiji (Suva) and Vanuatu (Port Vila) for target pests
- Static trapping - *Pinus*, *Swietenia*, *Endospermum* plantations and nurseries
- Tree inspections near ports

Late 2007-8

- Research in Australia- trap/lure combinations, trapping fluid



# Lures and Traps

Trap fluid: antifreeze 16%+water 84%

Lures: Alpha-pinene + ethanol, Ethanol, Dispalure for beetles, AGM

Sentinel plantings: Caribbean pine, Red cedar Mahogany, Whitewood, guava Sandalwood, eucalypts, Coral tree

Targets

Erythrina gall wasp *Quadrastichus erythrinae*

Mahogany shoot borer *Hypsipyla robusta*

Eucalyptus rust *Puccinia psidii*



# Trapping program so far – mixed results

**From Fiji:** Scolytinae 19 spp., Cerambycidae 10, Bostrychidae 4, Platypodinae 2

Major problems:

- Traps and catch affected by weather.
- Sample storage problems – samples severely decayed
- Sentinel plants died due to harsh conditions

**2 new exotics from Fiji- *Xylosandrus crassiusculus*  
*Sinoxylon* sp.**

**From Vanuatu:** - nothing so far

all stored samples lost – Forestry Office burned down!

# Issues - Trap methodology

Trapping fluid – significant weather-related problems in tropics and sub-tropics– reflects the seasons

- Hot and dry –evaporates rapidly - trap ineffective
- Hot and wet –diluted by rain, catch decays in warm water
- Flooding rains – trap overflows, lose catch and/or catch rots in warm water
- Cyclone- traps blow away!

Answer?

- Redesign traps to reduce rain entry
- Alternative fluid/ service traps more often – extra cost

# Issues

In Brisbane testing:

- Longevity of lures
- Trap effectiveness – comparing different types

Diagnostic limitations



Japanese cerambycid trap

Panel trap



Lindgren funnel



# The Future

- Continue Fiji and Vanuatu project
- New project in Vietnam late 2008 - Forest Health Surveillance, pest lists

Will build into the developing Asia Pacific Forestry Invasive Species Network

