



Australian Government  
Department of Agriculture, Fisheries and Forestry



# Contingency Planning for pest incursions in Australia

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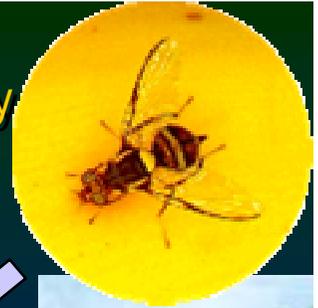
Office of the Chief Plant Protection  
Officer

Australian Government Department of  
Agriculture, Fisheries and Forestry



# Incursion Management

papaya fruit fly



sugarcane smut

Since 1995:

- 900 exotic pest incursion/barrier incidents
- 84 of these required further response action
- over \$200 million have been spent managing incursions of pests



Siam weed



Fire ant



pine nematode



fireblight



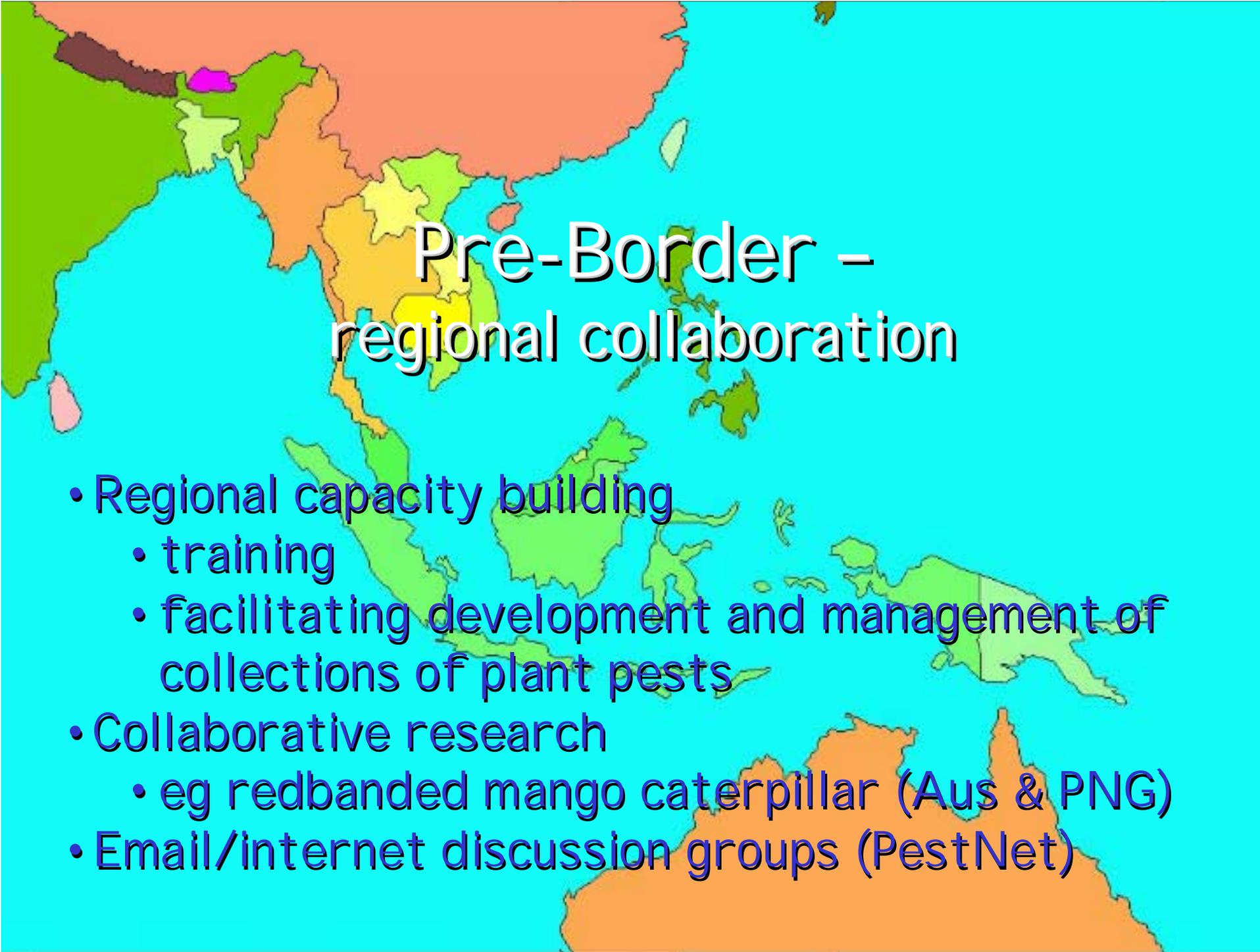
broomrape



Kochia

# Key Points

- Identify pest threats
- Quarantine and offshore activities
- Surveillance
- Diagnostics
- Biology, Ecology and Control
- Roles and Responsibilities
- Legislative Authority
- Funding and Compensation
- Defined endpoint and monitoring
- Increase preparedness and response planning
- Case Studies



## Pre-Border - regional collaboration

- Regional capacity building
  - training
  - facilitating development and management of collections of plant pests
- Collaborative research
  - eg redbanded mango caterpillar (Aus & PNG)
- Email/internet discussion groups (PestNet)

# Surveillance

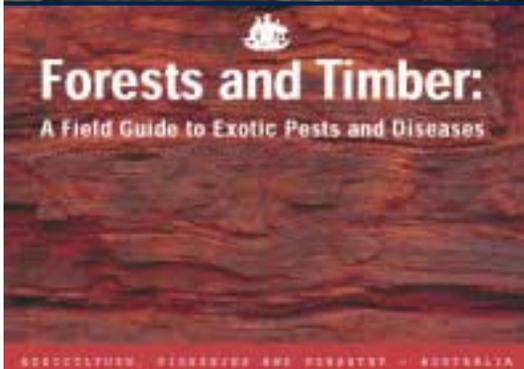
- Specific Surveys

- Northern Australia Quarantine Strategy (NAQS)
- National Asian Gypsy Moth and fruit fly trapping program
- Port Environ Survey (QLD, TAS)
- State Forest Surveillance programs

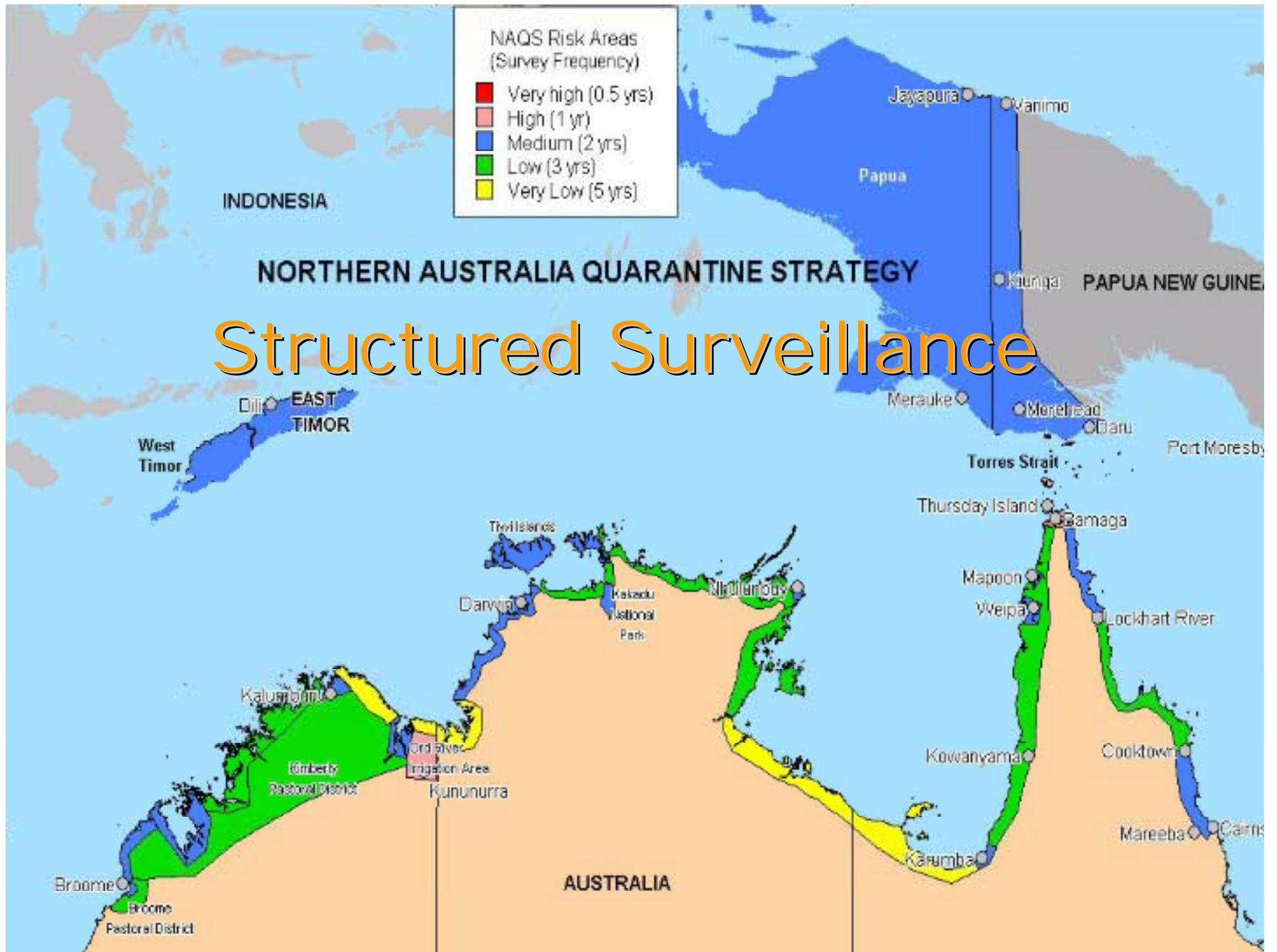
- General

- NAQS, Australian Quarantine & Inspection Service (AQIS), Industry
- Pest Awareness (guides)
- Website, e-communications (Discussion groups, e-newsletters, subscription lists etc)
- Weed spotters
- National Plant Pest Hotline

- Surveillance Network System



# Structured Surveillance



# Structured Surveillance

Merauke

Morohhead

New Guinea

Daru

**Torres Strait**

Thursday Island

Bamaga

Mapoon

Australia



Saibai I



# Torres Strait Quarantine Zones

Map 2. Cape York, Torres Strait with Quarantine and Livestock Buffer zones marked.

# NAQS Weed Target List

Family	Species	Family	Species
Amaranthaceae	<b>Amaranthus dubius</b>	Poaceae	Brachiaria paspaloides
Asteraceae	Austroeupatorium inulaefolium		Coix aquatica
	<b>Chromolaena odorata</b>		Digitaria fuscescens
	Mikania cordata		Digitaria insularis
	<b>Mikania micrantha</b>		Echinochloa glabrescens
Capparaceae	<b>Cleome rutidosperma</b>		Echinochloa stagnina
Cyperaceae	Fimbristylis umbellaris		Eriochloa polystachya
	Schoenoplectus juncooides		Ischaemum timorense
	Scirpus maritimus		Leptochloa chinensis
Equisetaceae	Equisetum ramosissimum		Leptochloa panicea
Eriocaulaceae	Eriocaulon truncatum		Sacciolepis interrupta
Euphorbiaceae	Croton hirtus	Rubiaceae	Diodia sarmentosa
Fabaceae	<b>Mucuna pruriens</b>		Paederia foetida
Haloragaceae	Myriophyllum spicatum		Spermacoce assurgens
Lamiaceae	Hyptis brevipes		Spermacoce mauritiana
Limncharitaceae	<b>Limnocharis flava</b>	Salviniaceae	Salvinia cucullata
Lythraceae	Rotala indica		Salvinia natans
Melastomaceae	<b>Clidemia hirta</b>	Scrophulariaceae	Striga angustifolia
Myrtaceae	<b>Rhodomyrtus tomentosa</b>		Striga asiatica
Nyctaginaceae	Boerhavia erecta	Violaceae	Hybanthus attenuatus
Piperaceae	Piper aduncum		

# Monitoring

## Traps:

- traps for lure responsive fruit flies, bees and screw worm flies maintained by NAQS
- fruit fly and Asian gypsy moth traps at ports of entry maintained by States
- traps maintained in export fruit producing districts to demonstrate regional absence of fruit flies



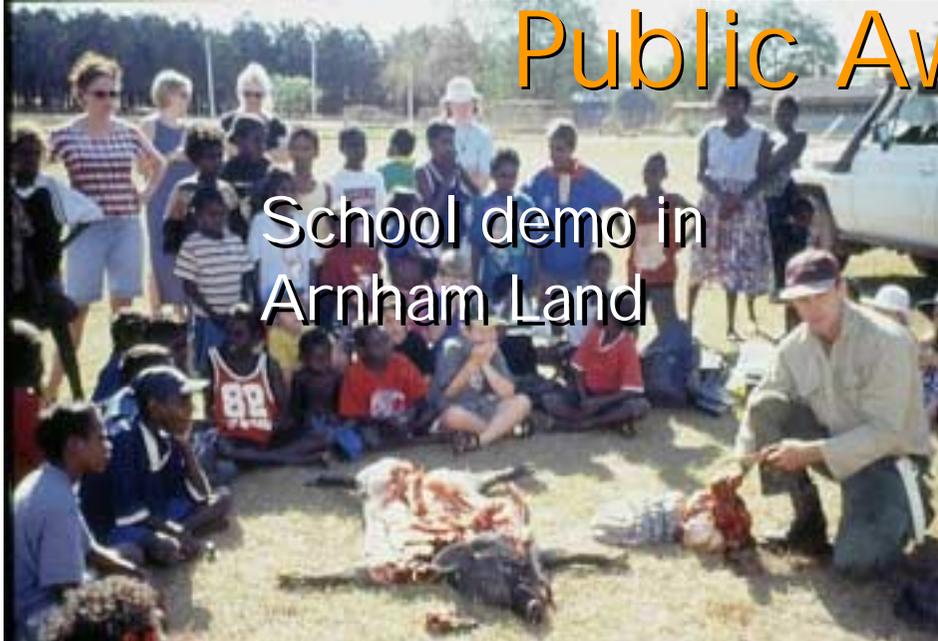


Island traders



Topwatch  
Calendar

# NAQS General surveillance: Communication & Public Awareness



School demo in  
Arnham Land



Talking to  
landholders



# Diagnostics

- Need to be correct and timely
- Three stages for diagnostic protocols:
  - Initial Detection
  - Intermediate Diagnosis – “filters” to confirm tentative diagnosis
  - Specialist Diagnosis – agreed reference lab verifies diagnosis
- New Initiatives
  - National Diagnostic Network
  - Development of key protocols (fruit flies, Pine Pitch Canker, Lymantrids)



# Biology, Ecology and Control

- Is there a pest here?
    - Ability to accurately assess, describe and report on current plant health status (Australian Pest and Disease Database (APPD), Virtual Herbarium)
  - Is the pest likely to arrive and how does it spread?
    - Epidemiology, invasiveness (risk assessment)
  - What will the pest do when it arrives and what is the cost-benefit analysis of taking actions?
    - Host status/impact
    - Control options
    - Trade impact
    - (Australia/NZ cooperative host testing of native flora for AGM)
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# The Australian Plant Pest Database (APPD)

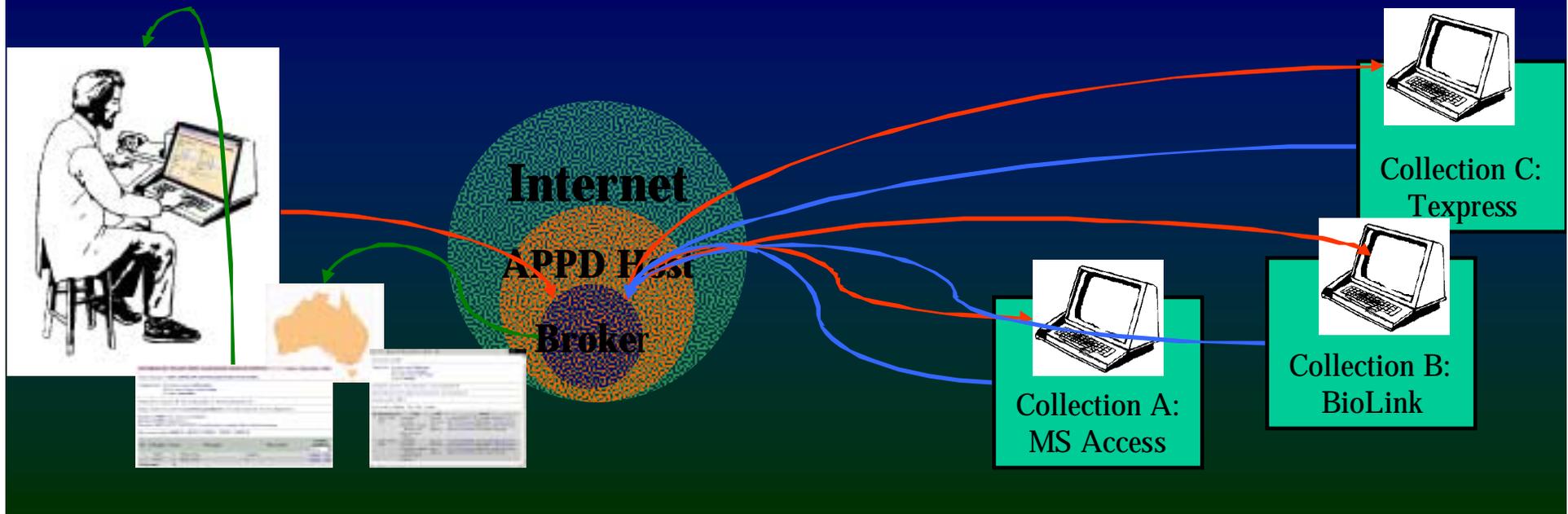
## What is it?

- An internet based access and search tool for plant pest records residing in discrete collections

– Consistent with ISPM

– 1,000 000 mite, nematode, insect & pathogen records by mid 2004

## How does it work?





- About us
- News/Events
- Research areas
- Documents
- Links
- Interact
- Contact us

## Our Projects

Achieving Outcomes Through Partnerships...

- Preparedness & Prevention
- Emergency Response System
- Plant Health Service Capability
- Plant Health Information System



[home](#) > [our projects](#) > [information systems](#) > [appd](#) > search the Australian plant pest database

## APPD - query form

This form allows users to search for records from one or more collection databases at once. A number of [help](#) pages are available to assist users with their search queries.

Frequent users can click here to [bookmark this page](#)

### Select data source:

Arthropods:  ANIC  ARCU^  FCNI^  ICDB  NTEIC\*  ODPI^  TFC  VAIG  WING

Microorganisms:  APDD  SCDB

^will not return results pending IT changes by relevant data contributor.  
\* deployed in Canberra.

### Arthropod/nematode/pathogen information:

Scientific name:\*

Order: equals

Family: equals

Genus: equals

Species: equals

Intraspecific taxa: equals

Common name:\* equals

### Host information:

Scientific name:\*

Family: equals

Genus: equals

Species: equals

Intraspecific taxa: equals

Common name:\* equals

Substrate:\* equals

### Coordinates: [map input](#)

Latitude: Longitude:

Upper right:

Lower left:

### Location:

State:  Town: equals

### Collection date:

From:  (yyyy) - To:  (yyyy)

Map Search Interface - Microsoft Internet Explorer provided by AFFA

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address http://www.cpbr.gov.au/cgi-bin/avh.cgi Go Links



## Map Search Interface

Public Access Level



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Genus

Species

Salix

Search the Following [Herbaria](#)

Canberra

South Australia

Victoria

Western Australia

Turn On the Following Overlays

Terrain

States

Iبرا regions

Lat/Long Grid

Botanical subdivisions

Display [Options](#)

Show By Herbaria

Show By Species

Show By Precision

Do Not Separate

Use Cached Data as much as Possible ( = faster searches )

Submit Query

Note: The server caches maps for 15 minutes.  
AVH release = 2-1-0-a

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National Herbarium of  
New South Wales  
Royal Botanic  
Gardens Sydney

  
Herbarium of the  
Northern Territory  
Parks & Wildlife  
Commission NT

  
Australian National  
Herbarium  
Centre for Plant  
Biodiversity Research

  
Queensland Herbarium  
Environmental  
Protection Agency

  
Western Australian  
Herbarium  
Conservation and  
Land Management

  
Tasmanian Herbarium  
Tasmanian Museum  
and Art Gallery

  
National Herbarium  
of Victoria  
Royal Botanic  
Gardens Melbourne

  
State Herbarium of  
South Australia  
Plant Biodiversity  
Centre

  
Australian Biological  
Resources Study

Done Internet Internet



# Funding and Compensation

- Commonwealth/State cost sharing
- Challenges
  - Debate on eradication v suppression
  - Funding is not guaranteed
  - Split between pests of commercial and conservation areas
- Agreed National position on funding and compensation
- Development of new cost sharing arrangements with Governments and industry through Plant Health Australia

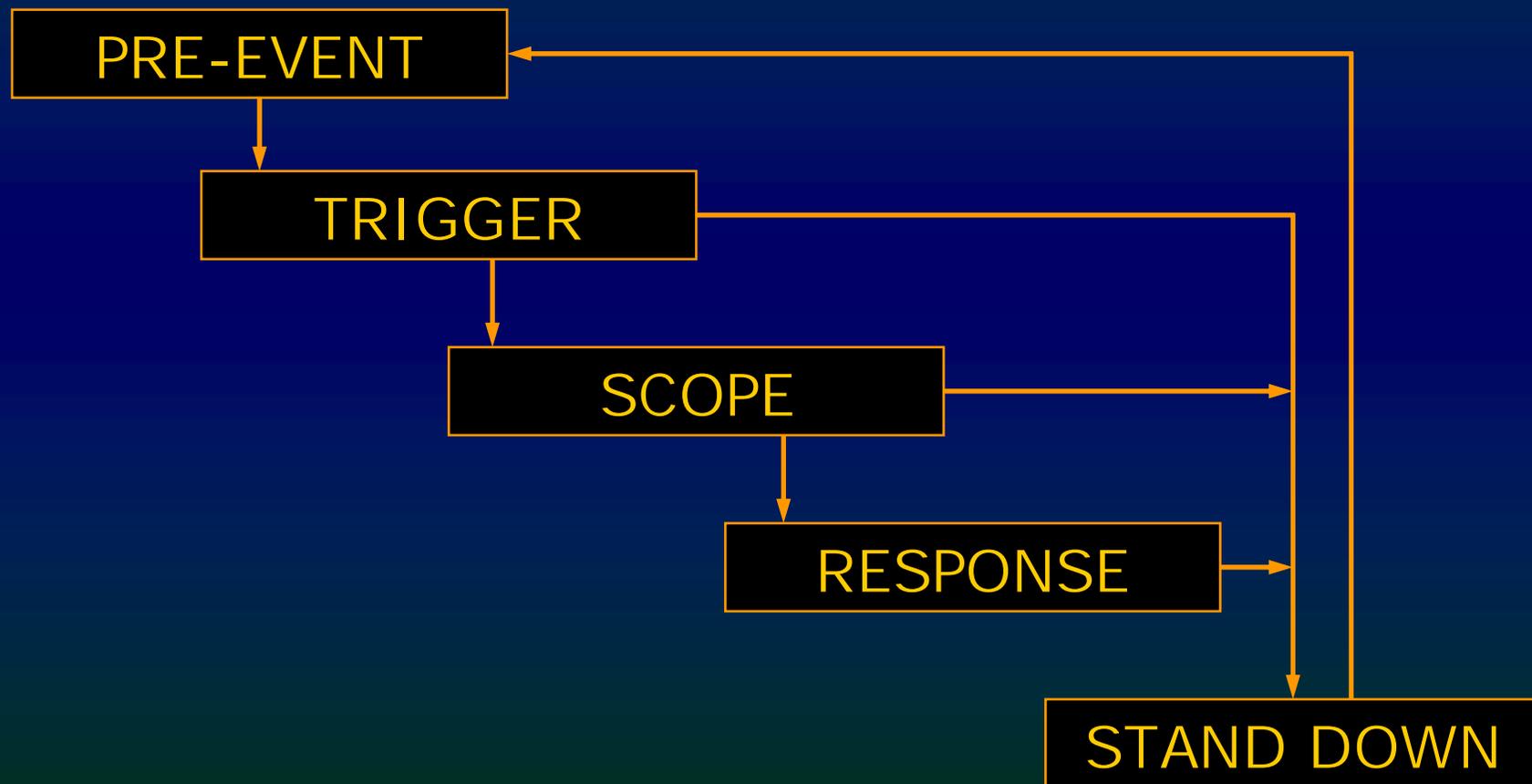




# Increasing preparedness and response planning

- Forest Generic IncurSION Management Plan (GIMP)
- Specific pest response plans
  - Papaya Fruit Fly
  - Pine pitch canker
  - Fire Blight
  - Dutch Elm disease
- Government and Industry Biosecurity planning

# Incursion Response Decision Making Process



# Papaya Fruit Fly Response

- Impact: \$100 million estimated  
(increased production costs and losses; reduced access to international markets for many horticultural products)
- Pathway: Smuggled fruit
- Detection: Late; by grower after pest had established (> 1 year after entry)
- Surveillance: Extensive lure trapping
- Diagnostics: World authority is Australian
- Quarantine: Strict controls on imported horticultural host commodities  
Strict internal controls on movement of product outside of infested area
- Eradication: Lure/insecticide treatments; \$35 million over 4 years

# Exotic Fruit Fly Preparedness

- Fruit fly target lists (eg NAQS)
  - National Fruit Fly Trapping Program
  - NAQS
    - surveys in Northern Australia
    - monitoring and eradication/containment program in Torres Strait
  - National Fruit Fly Trapping Program
  - Diagnostic and Response Planning
    - National Fruit Fly Trapping Program
    - Diagnostic and Response Planning
- Philippine fruit fly in Darwin:**  
because of early detection and effective response preparedness and planning, eradication cost \$5 mil vs \$35 mil for PPF

# Red Imported Fire Ant Response



Impact: Potentially millions as well as social and environmental impact if established.

Pathway: ?

Detection: In Brisbane, February 2001. May have first arrived up to five years earlier, based on the size of the infested areas.

Surveillance: Delimiting surveys in Brisbane area, continuing surveillance program.

Diagnostics: CSIRO, confirmed early.

Quarantine: Strict controls and extensive public awareness campaign.

Eradication: Five-year \$140 million National Fire Ant Eradication Program.

# Research

- Improved understanding of 'weedy traits' (recognising the important weeds before they become weeds)
- Targeting surveillance:
  - identifying 'sentinel sites'
  - investigating the use of spatial analysis tools
- Efficacy and Cost/benefit analysis of surveillance strategies

Thank You

# Siam Weed

- Detected by NAQS botanist in 1994
- Ongoing surveillance revealed 780 sites within a 50 km radius of original detection
- Helicopter surveillance used because of access difficulties
- After 7 years infestation greatly reduced but 258 active spot sites remain because of a persistent seed bank



# Bassia scoparia

- Imported in 1990 as part of seed mix for rehabilitation of salt affected land & sown at 68 sites
- Naturalised and actively growing at 51 sites throughout southwest WA by 1992
- A search of the literature quickly showed this to be a major weed
- Accurate knowledge of location of infestations ensured that eradication could be achieved in 10 years



# Branched Broomrape Response

Impact: Millions (potential impact on international trade and loss of productivity in horticultural industry)

Pathway: ?

Detection: Incidentally noticed because of general awareness in region. Lack of accurate delimitation failed to reflect level.

Surveillance: Extensive survey program of quarantined and neighbouring properties and any properties with a link to infested property.

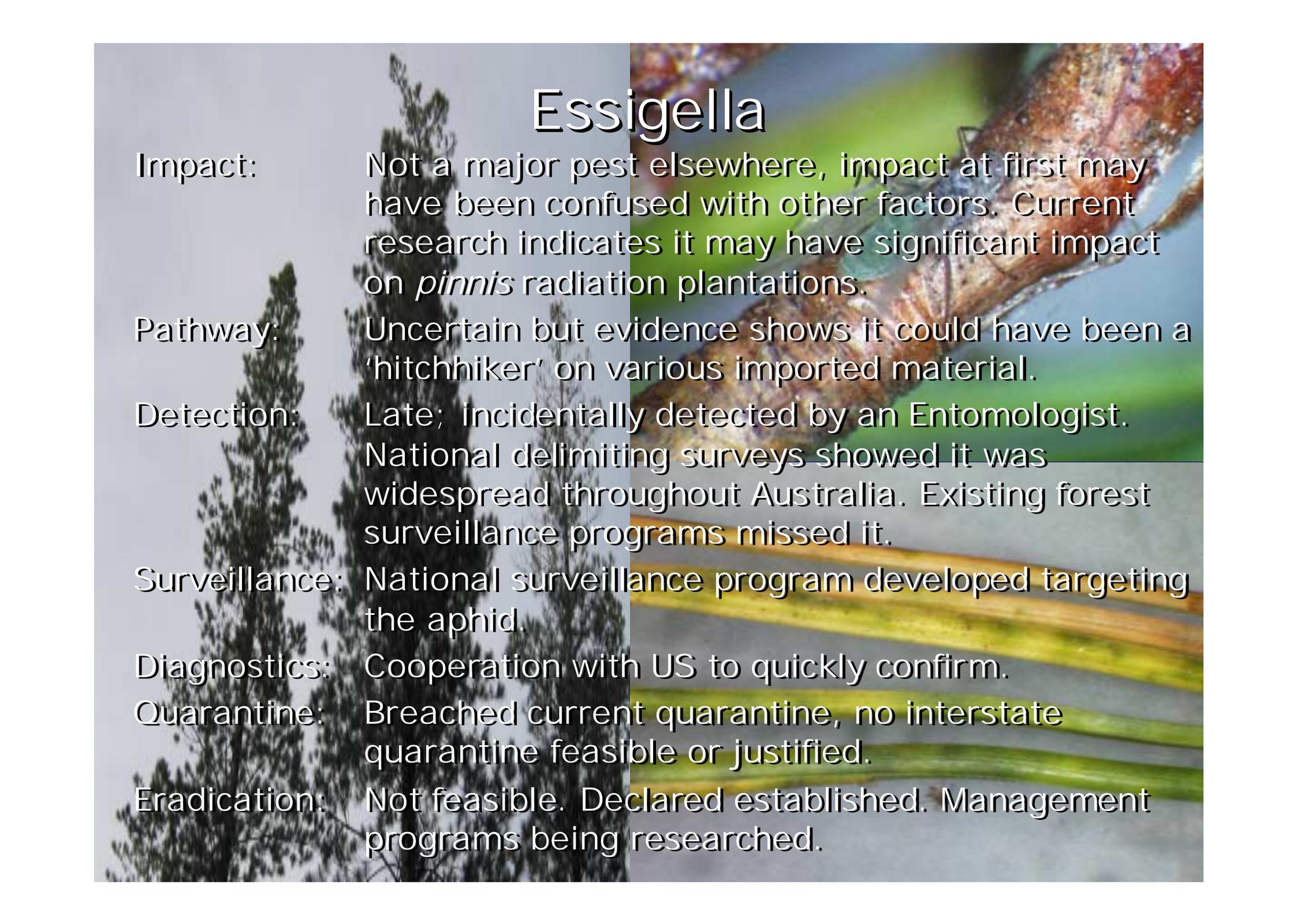
Diagnostics: Confirmed early

Quarantine: Containment within the 70 x 70 km infestation.

Eradication: 15-20 years from commencement of eradication, approx \$4 million to date.



# Essigella



- Impact:** Not a major pest elsewhere, impact at first may have been confused with other factors. Current research indicates it may have significant impact on *pinnis* radiation plantations.
- Pathway:** Uncertain but evidence shows it could have been a 'hitchhiker' on various imported material.
- Detection:** Late; incidentally detected by an Entomologist. National delimiting surveys showed it was widespread throughout Australia. Existing forest surveillance programs missed it.
- Surveillance:** National surveillance program developed targeting the aphid.
- Diagnostics:** Cooperation with US to quickly confirm.
- Quarantine:** Breached current quarantine, no interstate quarantine feasible or justified.
- Eradication:** Not feasible. Declared established. Management programs being researched.

# Legislative Authority

## Consultative Committee

