

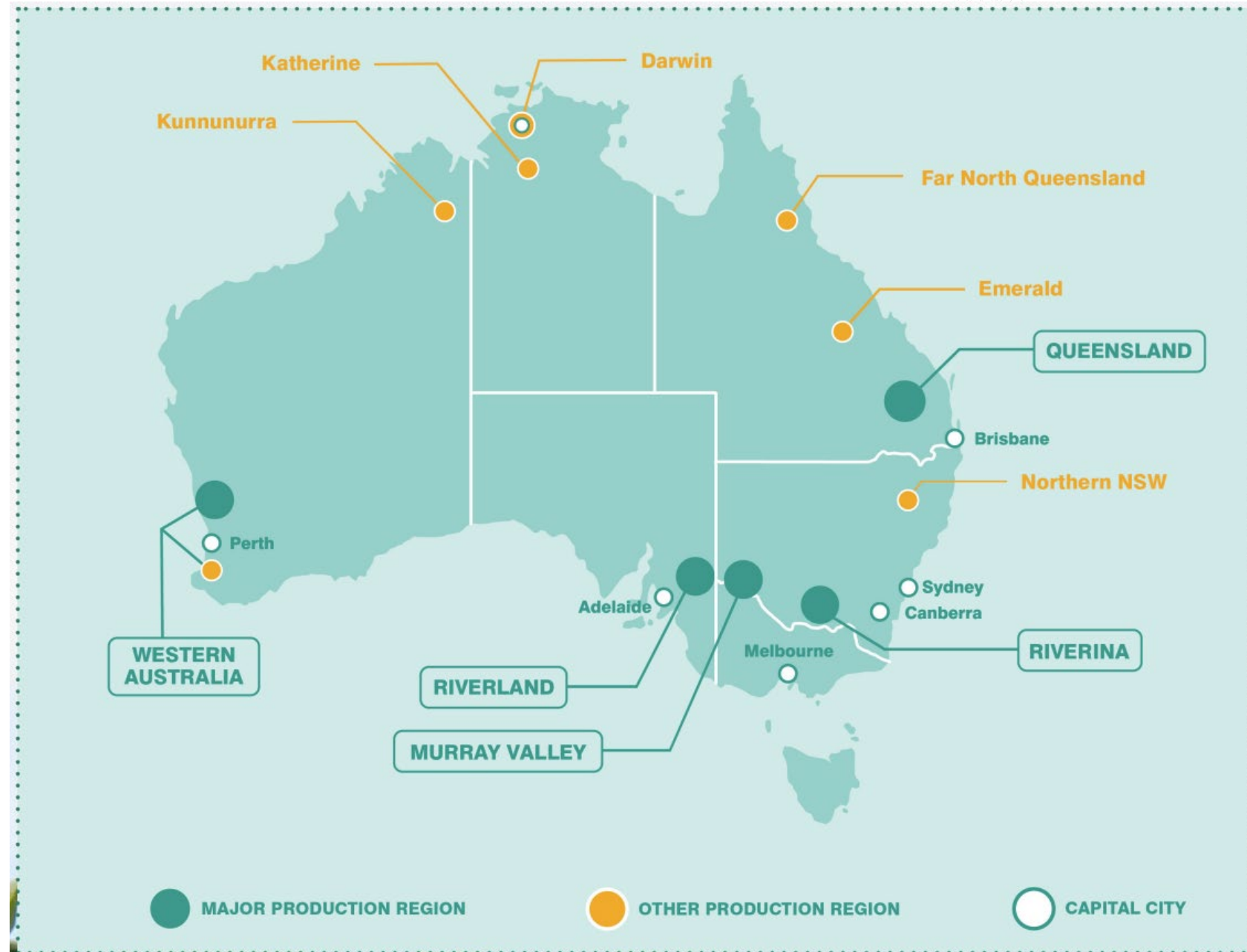
# CitrusWatch: Volunteer coordination & engagement

Jessica Lye, Citrus Australia



# The Australian Citrus Industry

- Production regions throughout Australia
- Approx 900,000 tonnes of fruit per annum
- Export to more than 50 overseas destinations
- 30% increase in new plantings over last decade





# Quarantine pests & diseases (Extreme Impact)

*Candidatus liberibacter asiaticus*

Entry potential: High

Est. potential: High

Spread potential: High

Economic impact: Extreme



*Diaphorina citri*

Entry potential: High

Est. potential: High

Spread potential: High

Economic impact: Extreme



# The CitrusWatch team

**Project:** CitrusWatch

**Funding:** Hort Innovation  
citrus R&D levy / Plant  
Health Australia levy

**Project lead:** Rohan Burgess,  
Plant Health Australia



Rohan Burgess



Yvonne Ogaji



Nathan Hancock



Jessica Lye



Jacqui Mitchell



Ben Burchett

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*Plant Health Australia*

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*Citrus Australia*

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*NT Gov*



**Department of Primary Industries**  
Department of Regional NSW

Disease diagnostics are undertaken by the Citrus Pathology team at EMAI



Cesar Australia



# CitrusWatch Surveillance Activities

CitrusWatch maintains a volunteer-based trapping network across Australia, with a focus on urban areas and undertakes targeted surveys across Australia each year.



**African citrus psyllid**  
*Trioza erytreae*



**Citrus variegated chlorosis**  
*Xylella fastidiosa*

## Surveillance targets

- Priority exotic citrus pests identified in the Aust Citrus Industry Biosecurity Plan
- Over 20 species identified with threat levels of HIGH or EXTREME
- Six are key targets of the program activities



**The Asian citrus psyllid**  
*Diaphorina citri*



**Huánglóngbing disease**  
*Candidatus liberibacter asiaticus / africanus*



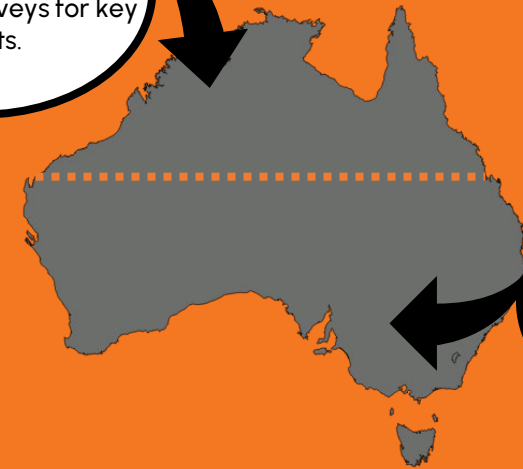
**Citrus canker disease**  
*Xanthomonas citri*



**Glassy-winged sharpshooter**  
*Homalodisca vitripennis*

There is a split of responsibilities between program partners in Northern and Southern Australia.

**Northern Australia**  
400 sticky traps per year.  
Targeted surveys for key pests.

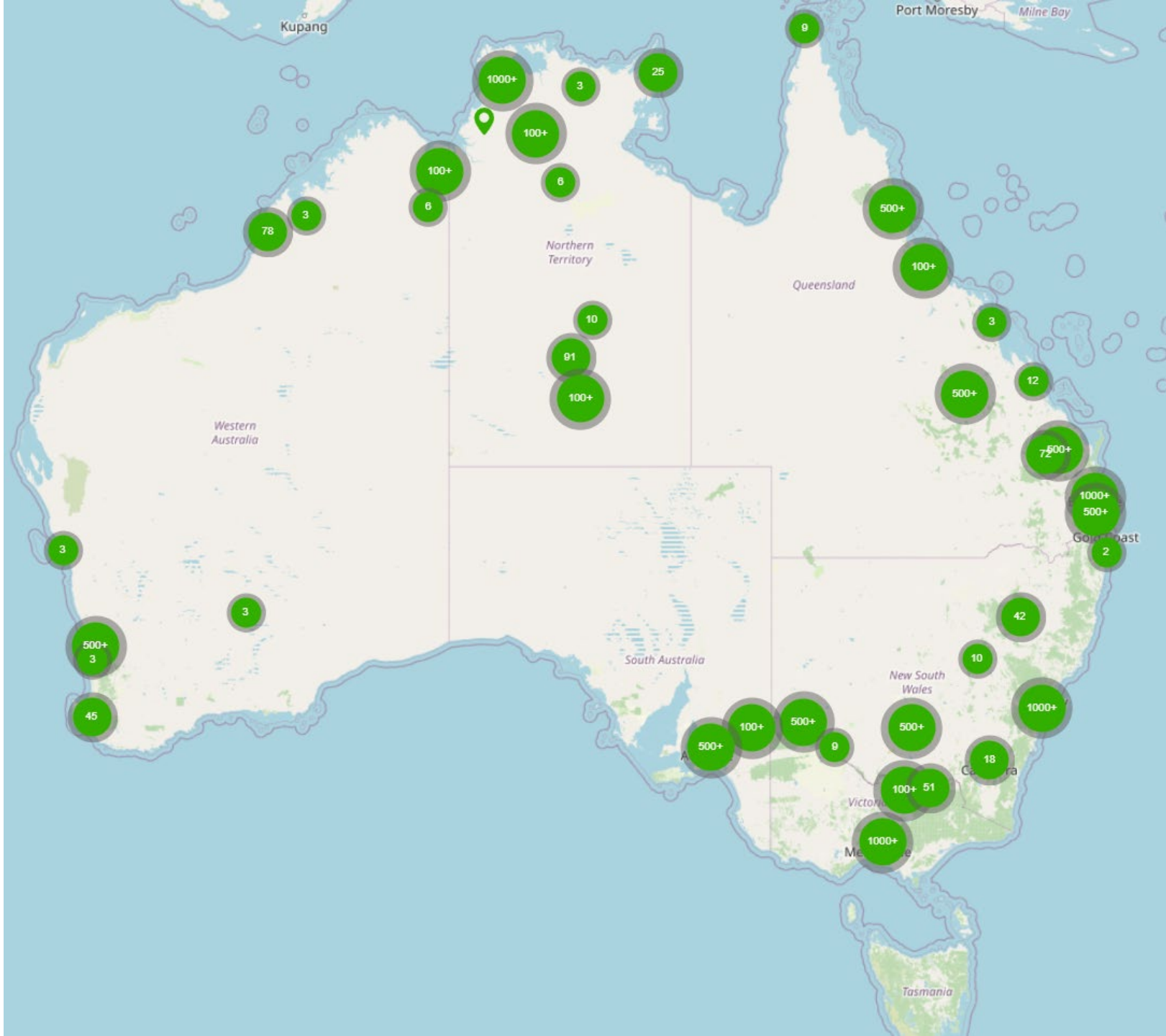


**Southern Australia**  
600 sticky traps per year.  
Targeted surveys for key pests.

## Quarantine pest & disease occurrence records

These records are the result of volunteer trapping and targeted surveys carried out by CitrusWatch (with diagnostics by EMAI) since mid 2021.

**13,025 Total Records in AusPestCheck**





# The Early Detector Network



## URBAN/RESIDENTIAL

NSW	ACT	QLD	VIC	WA	SA	NT	Total
34	5	142	63	65	15	53	<b>377</b>

## PRODUCTION

NSW	ACT	QLD	VIC	WA	SA	NT	Total
5	0	13	6	0	3	0	<b>27</b>





# The Early Detector Network

## Evolution of the EDN

- The EDN has been the main vehicle for urban stakeholder engagement and has evolved over time.
- 2021 and 2022: focus on attracting volunteers and testing how the trapping network would run.
- 2023: Increased efforts to develop communication channels to raise awareness among the EDN (and beyond).
- 2024 -2025: trying to create a community of learning that underpins the EDN.





# Early Detector Network trap flow



1.

Volunteers opt in. Receive trap kit & program information.

2.

Deploy according to instructions. MyPestGuide Reporter™ report



# Early Detector Network trap flow

**1.**

Volunteers opt in. Receive trap kit & program information.

**2.**

Deploy according to instructions. MyPestGuide Reporter™ report.

**3.**

Collect after 2 weeks and mail to industry entomologist.



**6.**

Coordinator collates all diagnostics reports & upload to APC.

**5.**

Traps screened and triaged. Suspect cases sent to DPI.

**4.**

Entomologist updates Coordinator on receipt.





# Activities to retain & coordinate volunteers

- More regular (succinct) trapping season updates
- Improvements to guidelines/simplification
- Online training and 'How to trap' video
- Educational resources
  - E.g. fact sheets, showcasing online biosecurity resources – BOLT, Pest ID, MyPestGuide, UPHN
- Mid-season and end of season webinars (value adding), e.g. "Dr Bug-a-lugs" Darryl Hardie, Dr Nerida Donovan, Gary Eyles (Eyles Citrus)
- Trap kit gifts (e.g. gardening gloves, magnets, notepads) and prize draws





**CITRUSWATCH**  
Protecting Australian Citrus

**Early Detector Network update**  
**Southern Australia: Urban**  
**11 April 2024**

Our sixth season of exotic citrus pest trapping has begun. This Autumn we have mailed a total of 384 traps to volunteers and crop scouts across Southern Australia, with additional traps mailed to volunteers across Northern Australia by our project partners in the NT Government.



**Asian citrus psyllid (*Diaphorina citri*)**

At about 3mm in length the Asian citrus psyllid is very small!

On a recent visit to California we were again reminded how crucial early detection will be to ensure that Australia remains free from diseases like Huanglongbing (Citrus Greening), which the Asian citrus psyllid can transmit through feeding on citrus. California is currently spending USD45 million per year containing and eradicating Asian Citrus Psyllid and Huanglongbing disease in urban areas.

**Want to learn more about CitrusWatch?**  
PHA's Biosecurity Online Training (BOLT) platform provides e-learning courses related to plant biosecurity. Access is free and available to anyone with an interest in biosecurity.

The CitrusWatch course is targeted at those doing surveillance in southern Australia. Information regarding seasonal considerations and data on exotic citrus psyllid activity is relevant to southern Australia and will differ from the northern citrus growing regions. This course aims to upskill Early Detector Network volunteers in the monitoring and detection of harmful exotic citrus pest species.

Thank you to all participants in the network. Your contribution improves our chances of detecting harmful exotic species as early as possible.

**Start trapping now**

You can deploy your trap as soon as you receive it. If you are unsure how to deploy your trap or how to upload a MyPestGuide® report, remember to refer to your hard copy trapping instructions, [view them online](#), or watch our [How to Trap video](#).

**Biosecurity training**

Access PHA's biosecurity online training

[Click here](#)

For further information go to [citrusaustralia.com.au/citruswatch](https://citrusaustralia.com.au/citruswatch)

CitrusWatch has been funded by Hort Innovation, using the citrus research and development levy and contributions from the Australian Government. Hort Innovation is the grower owned, not-for-profit research and development corporation for Australian horticulture. Funding is also supplied by Plant Health Australia using the citrus plant health levy. Photos credits: ACP - David Hall, USDA; HLB - Tim Gottwald, USDA.

**CitrusWatch contact (Southern Australia)**  
Jacqui Mitchell, Urban Biosecurity Coordinator  
[jacqui.mitchell@citrusaustralia.com.au](mailto:jacqui.mitchell@citrusaustralia.com.au)












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Instructions	
	<b>1</b> Assemble your lure, sticky panel and cage, and attach to a citrus plant.
	<b>2</b> Submit a report to the MyPestGuide app (CitrusWatch program). Include the trap code, citrus type and a site description.
	<b>3</b> After 2 weeks, mail your sticky panel using the prepaid envelope provided.



Detailed .pdf Instructions

For detailed instructions, go to:  
[citrusaustralia.com.au/citruswatch](https://citrusaustralia.com.au/citruswatch)  
or scan the QR codes



Video Tutorial

**Need more guidance?** Contact [biosecurity@citrusaustralia.com.au](mailto:biosecurity@citrusaustralia.com.au) or call 0457 997 943



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## Types of pest surveillance

Pest surveillance looks for and records pest species' presence, absence, and population levels. Two types of surveillance are: **general surveillance** and **targeted surveillance**.

This module provides information on how to deploy and collect a sticky trap and lure system for exotic citrus psyllids as part of targeted surveillance.

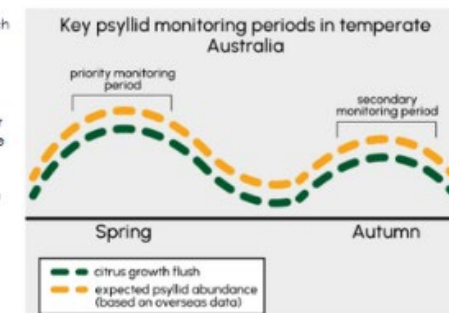
More information on how to identify exotic citrus psyllids, will be covered in module 2 'Identification of exotic citrus psyllids'.



## Timing your trapping

Australia is a hotspot for psyllid diversity and there is still much that is not known about how many species we have, and how they live.

According to citizen science datasets most native psyllids across southern regions of Australia occur in August - November, with a major peak in October. While it is unclear at what time of the year exotic citrus psyllids would become active and abundant in Australian regions, overseas experiences suggests that mild climatic periods (autumn and spring) in combination with flushes of host plant growth is optimal for high citrus psyllid abundances.



# Activities to retain & coordinate volunteers

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**CITRUSWATCH**  
**WEBINAR**  
**MANAGING CITRUS WASP IN OUR GARDENS**

CitrusWatch aims to improve early detection of exotic citrus pests in Australia. An important part of early detection is understanding what is already impacting citrus in our gardens.

Dr Darryl Hardie joins us for a chat about managing Citrus Gall Wasp in our gardens.



# Extending awareness through strategic partnerships

## Engaging with 'Knowledge broker' organisations

- Expanding the word outside of the EDN involves relationship development with key organizations
- Focus on developing relationships with local councils to boost program communications
- Other key relationships include:
  - Zoos
  - Botanic gardens
  - Community houses
  - Community gardens
  - State biosecurity agencies



Ben Burchett discussing citrus biosecurity with council staff in Cairns.

# Awareness & recruitment

Activities are varied:

- Bunnings workshops
- Radio/podcast interviews
- Articles for local / regional newsletters & magazines
- Booths at festivals
- School visits

Examples of festival size:

- Melbourne International Flower & Garden Show: 107,500 (2024), 115,000 (2025)
- Perth Garden Show 2025: 11,000
- Kalamunda Garden Festival 2024: 5000
- QLD Garden Expo 2024: 40,000
- SA Autumn Garden Festival 2025: 3000
- National Insect Expo 2024: 7000





# Other educational activities

## Building a library of resources

- Urban fact sheet series under development (aimed at gardeners)
- Top citrus pest fact sheet translated into:
  - Thai
  - Khmer
  - Mandarin
  - Indonesian
  - Vietnamese

ឃើញមានអ្វីមួយដែលមិនធម្មតាឬ?  
រាយការណ៍ពីសត្វល្អិតចង្រៃមកពីក្រៅប្រទេសដែលយើងដំណាំត្រូពិក



**សត្វមាចលម្អង**

**តើសត្វនេះជាអ្វី?**  
វាជាសត្វល្អិតដែលចូលចិត្តបំប្លែងផ្លែឈើស្រូវដែលមានជាតិផ្អែម ហើយវាអាចចម្លងជំងឺ។ ជំងឺឈ្មោចស្លឹក (Huanglongbing) (គេស្គាល់ផងដែរថា citrus greening) តាមរយៈការស៊ីស្លឹក ចង និងមែកឈើស្រូវ (មើលទំព័រ 2)

**តើសត្វនេះមានរូបរាងដូចម្តេច?**  
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**តើវាជាតិណាខ្លះដែលវាផ្សព្វផ្សាយ?**  
គ្រប់ដំណាំត្រូពិកស្រូវប្រភេទដើមដូចជាដើមកាវែរ (Murraya spp.) និងដើមកន្ទ្រា។



**សត្វមាចលម្អងអាប្រ៊ីក**

**តើសត្វនេះជាអ្វី?**  
ដូចគ្នានឹងសត្វមាចលម្អង ACP សត្វនេះជាសត្វល្អិតដែលបំប្លែងផ្លែឈើស្រូវដែលមានជាតិផ្អែម ហើយវាអាចចម្លងជំងឺ។ ជំងឺឈ្មោចស្លឹក (Huanglongbing) (គេស្គាល់ផងដែរថា citrus greening) តាមរយៈការស៊ីស្លឹក ចង និងមែកឈើស្រូវ (មើលទំព័រ 2)។

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**ប្រភេទសត្វល្អិត Glassy-winged sharpshooter**

**តើសត្វនេះជាអ្វី?**  
ជាប្រភេទសត្វល្អិតដែលធ្វើឱ្យខូចខាតដោយផ្ទាល់តាមរយៈការស៊ីស្លឹក ចង និងមែកឈើស្រូវ។ សត្វនេះក៏ត្រូវបានចាត់ទុកថាជាសត្វល្អិតចង្រៃផងដែរ។

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**តើវាជាតិណាខ្លះដែលវាផ្សព្វផ្សាយ?**  
វាជាតិជាង 100 ប្រភេទដើមដូចជាដើមកាវែរ (Murraya spp.) និងដើមកន្ទ្រា។

ឃើញមានអ្វីមួយដែលមិនធម្មតាឬ?  
ធ្វើសេចក្តីរាយការណ៍ទៅកាន់មន្ត្រីណែនាំអំពីសត្វល្អិតចង្រៃ  
(MyPestGuide Reporter)។

CITRUSWATCH *Urban*  
LOOK OUT FOR EXOTIC CITRUS PESTS

**Asian Citrus Psyllid**  
*Diaphorina citri*

**Lifecycle**  
Asian citrus psyllid (ACP) matures via multiple stages from egg, through 5 nymph instar phases, and adult. Eggs are laid on young parts of citrus plants such as folded leaves, buds, and flushes, requiring 3-10 days to hatch. The 5 nymph instars take 11-40 days for completion. First and second-instar nymphs mainly remain stationary around buds and folded leaves, only moving when disturbed. Adults are often found on leaves with their head toward the leaf surface and body at a 40° angle to feed. ACP can overwinter as an adult, surviving up to 6 months.

**Identification**  
Egg  

- 0.31mm, laid upright
- Yellow to orange coloured

Nymph  



- 0.3 - 1mm, oval shaped
- Light pink to orange with maturity, may be blue or green
- Red eyes always visible
- Secretes long strands of honeydew

Adult  


- 2-4mm long
- Brown and white mottled wings
- Body brown, legs grey/brown

**Damage**  


- Feeds on plant phloem, deforming and stunting growth
- Honeydew secretion which may develop sooty mould
- Carrier of *Candidatus liberibacter* spp. causing citrus greening disease which leads to bitter, asymmetrical fruit


d. damage, nymphs and honeydew      e. nymphs and honeydew



a. Asian citrus psyllid eggs




b. Asian citrus psyllid nymphs



c. Adult Asian citrus psyllid

Image credits  
a. Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Services, Bugwood.org  
b. USGS Bee Inventory and Monitoring Lab  
c. David Hall, USDA Agricultural Research Service, Bugwood.org  
d. Heli-Bonheur, Institut National de la Recherche Agronomique, Bugwood.org  
e.

If you see anything unusual, contact the  
Exotic Plant Pest Hotline on 1800 084 881





# Awareness & recruitment

## Social media

- Instagram @CitrusWatchProgram
- Calendar of campaigns developed
- Campaigns are designed to improve general knowledge of both exotic and endemic citrus pests and diseases
- Improving knowledge about growing high health citrus is also a central focus





# What have we learnt?

- Attracting and retaining volunteers is resource intensive and is an evolving process
- There is a high level and goodwill and interest among the general (non-farming) public when it comes to supporting biosecurity activities
- The EDN benefits have been multi-pronged:
  - Growing occurrence record dataset
  - A body of interested individuals from across Australia who are willing to learn more (Community of Knowledge)
  - A network of people who can help spread messages in the event of an incursion



# Acknowledgements

## CitrusWatch Project Team

Rohan Burgess, (PHA, Project Lead)  
Yvonne Ogaji, (PHA)  
Nathan Hancock (Citrus Australia)  
Jacqui Mitchell (Citrus Australia)  
Ben Burchett (NT DITT)  
Andie Wong (Citrus Australia - previous)  
Andrea Sinclair (Nt DITT – previous)

## Also thanks to:

Steering Group/CPDPC Members  
Early Detector Network volunteers  
Urban Plant Health Network  
(DEECA)  
WA DPIRD  
PIRSA  
NAQS/DAWE  
Citrus WA  
Auscitrus  
Andrew Beattie

Riverina IPM  
BugLuke  
Citrus Monitoring Services  
CitriCare  
Dr Francesco Martoni  
Michael Edwards  
Dr Greg Chandler  
Dr Sharyn Taylor



Department of Primary Industries  
Department of Regional NSW

Disease diagnostics are undertaken by the Citrus Pathology team at EMAI



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Opt in to the Early Detector Network  
at

[citrusaustralia.com.au/citruswatch](http://citrusaustralia.com.au/citruswatch)

