

Japanese encephalitis in Australia, 2022

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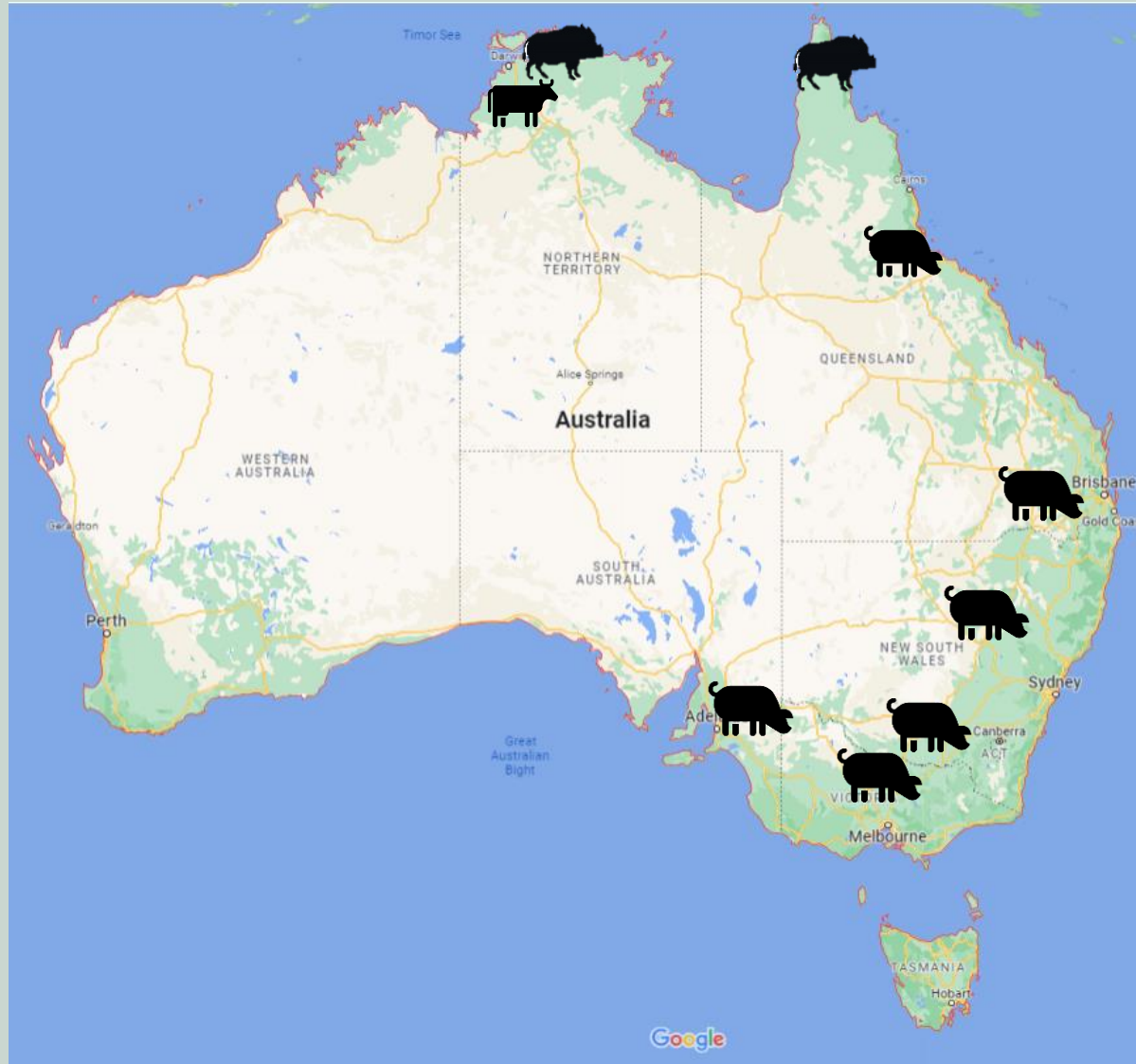
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AGRICULTURE VICTORIA



Australian Government
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Fisheries and Forestry

Summary of JE exposure in animals 2020 - 2022



Evidence of JEV in northern Australia
Nov 2020 to July 2022

- Feral pigs (PCR, serology)
- Domestic pigs (PCR)
- Cattle (serology)



JEV Exposure ~**Sept 2021 to Jun 2022**

- Domestic pigs (PCR)



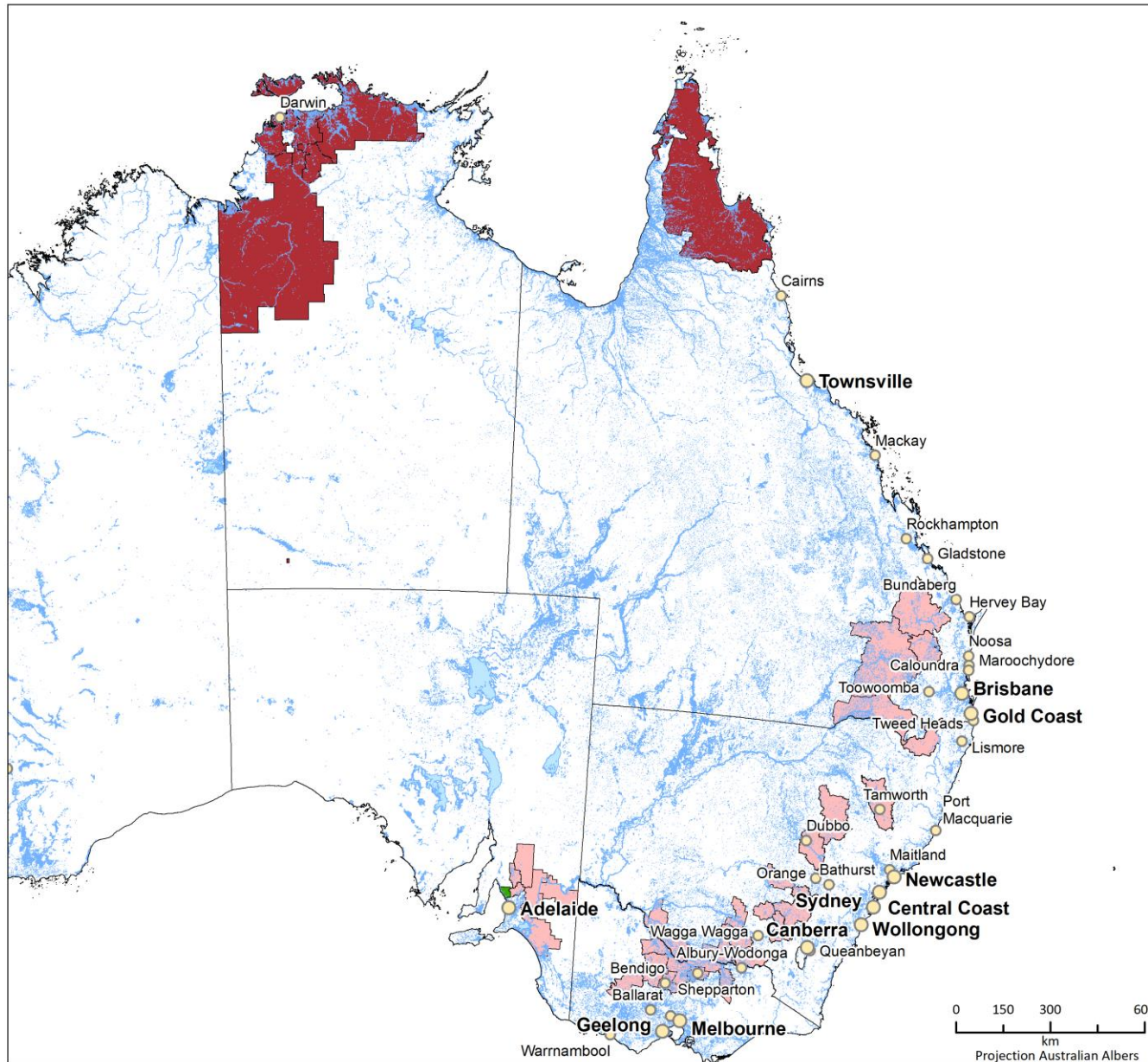
JEV exposure ~**Sept 2021 to Apr 2022**

- Domestic pigs (PCR)
- Alpaca (PCR, serology)
- Horses (serology)

Estimated exposure periods in the south-east aligns with months when mosquitos are expected to have been active.

Distribution of JEV detections in animals Jan-June 2022

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Water bodies

2022 Positive PCR Results by species

Alpaca

Feral Pig

Domestic Pig

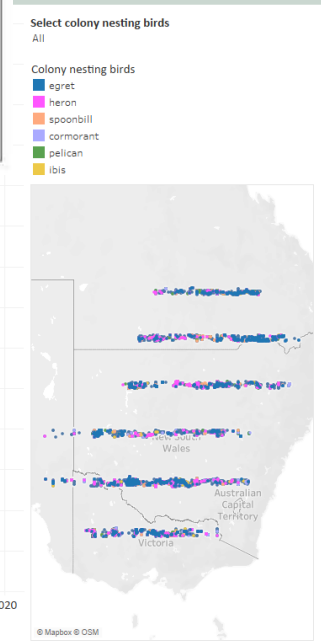
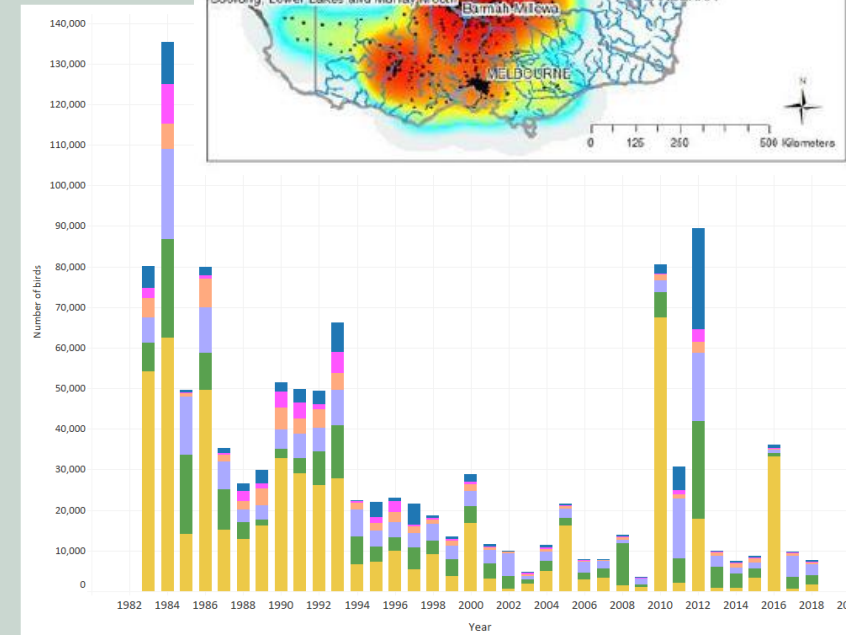
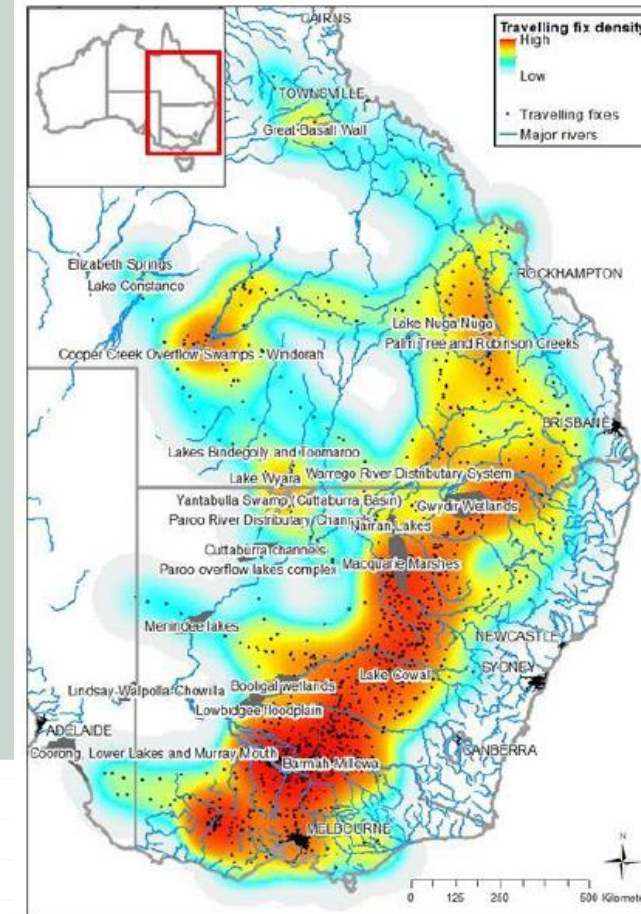
Surveillance, animal vaccines

- National surveillance WG formed under the CCEAD
 - Developed a national surveillance plan
- Work underway to make a vaccine available for horses under an emergency use permit
- Vaccine development and trials underway to make a vaccine available for pigs
 - Locally developed
 - Existing commercial



One health aspects

Human cases	Confirmed	Probable	Deaths
New South Wales	14	0	2
Northern Territory	2	0	1
Queensland	2	3	1
South Australia	6	4	2
Victoria	11	3	1
Total	35	10	7





Introduction

- Summary of events in 2022 in Victoria
- The response
- Outcomes
- Going forward



JE: Victoria Jan - June 2022



- **Mid-Feb:** Still births and weak piglets investigated by private vet; similar investigations occurring simultaneously in herds in New South Wales and Queensland
- **25 Feb:** Confirmed diagnosis of JE virus in northern Victoria pig herd. Same as Tiwi Islands in northern Australia (Genotype 4)
- **By 4 May: 23 infected piggeries identified across northern Victoria**
- All pig properties were satisfactorily resolved by **30 June 2022**
- During the outbreak, 93 equids (92 horses and 1 donkey) on 68 properties were investigated for JE.
 - **No confirmed cases of JE in horses in Victoria** but 10 horses were deemed to be 'probable' cases of JE and nine horses were deemed 'possible' cases of JE.
- **Fourteen confirmed or probable human cases of JE in Victoria from 2022 mosquito season**, one of which was fatal.

The JE response in 2022

DETECT - UNDERSTAND - COMMUNICATE - COLLABORATE - PROTECT



RESPONSE STRUCTURE SET UP AND PLANS DRAFTED

- National consistency
- Remote working



INDUSTRY CONSULTATION AND COOPERATION

- Awareness
- Biosecurity
- Vaccination of staff and families



INVESTIGATION AND TESTING OF SUSPECTED CASES

- Encourage testing
- CSIRO and State lab



STAKEHOLDER ENGAGEMENT AND BRIEFING

- Pork is safe to eat

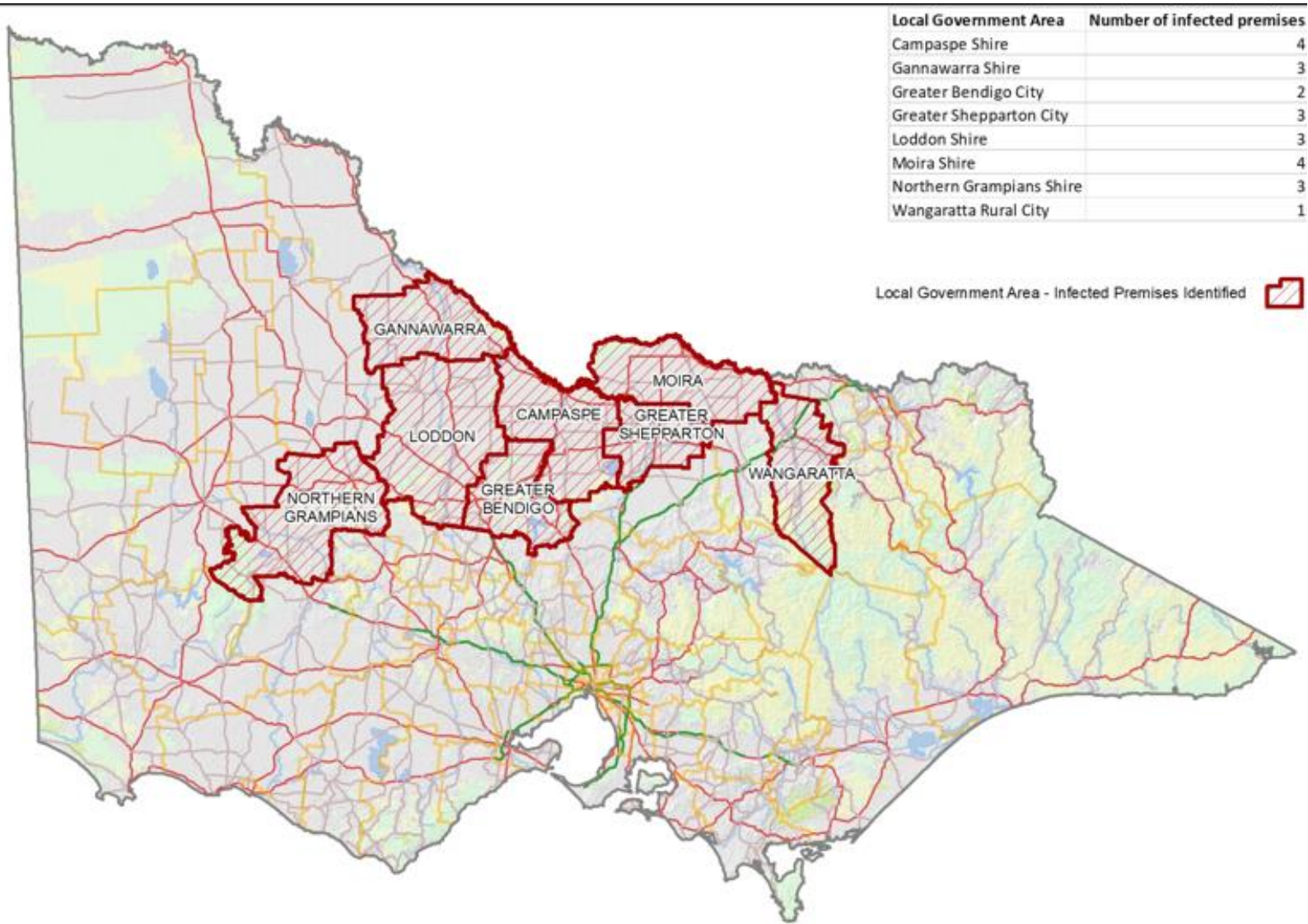


WORKING WITH HEALTH COLLEAGUES

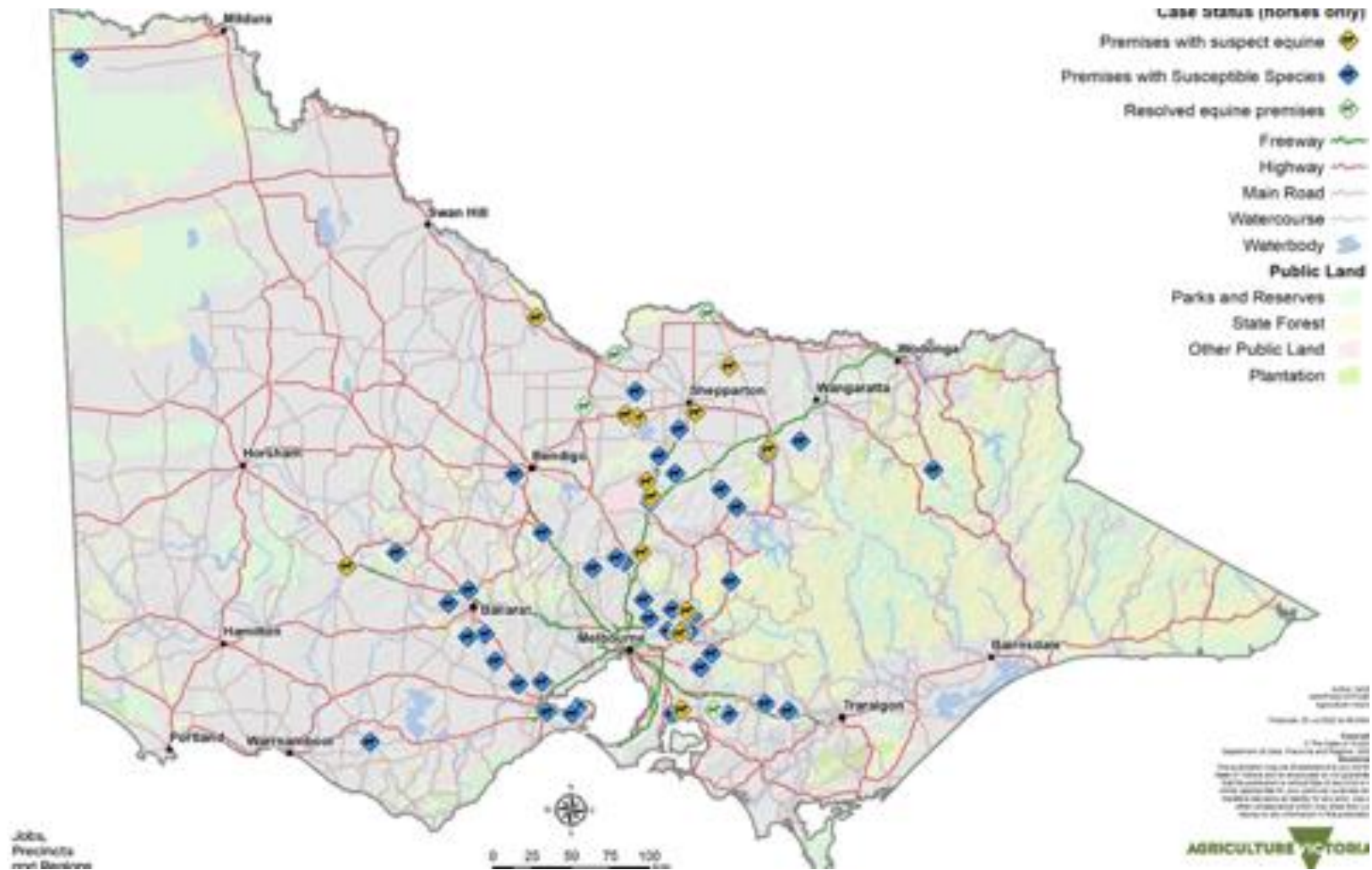
- Shared information
- Vector control
- Vaccination



PERMITS TO CONTROL PIG MOVEMENTS



Affected piggeries



Equid investigations

Going Forward

DETECT - UNDERSTAND - COMMUNICATE - COLLABORATE - PROTECT



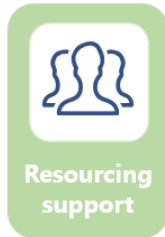
INVESTIGATION AND TESTING OF SUSPECTED CASES

- Encourage testing
- CSIRO and State lab
- Novel diagnostics



INDUSTRY CONSULTATION AND COOPERATION

- Awareness
- Biosecurity
- Vaccination of staff and families



WORKING WITH HEALTH COLLEAGUES

- Shared information
- Vector monitoring and control
- Vaccination



STAKEHOLDER ENGAGEMENT AND BRIEFING

- Pork is safe to eat
- Protect animals from mosquitoes

Aim is to identify cases; support producers and industry; support Dept of Health to manage public health risks



Conclusions

- Disease presented in unexpected ways and places which was challenging in the initial phases of the outbreak
- Infection is invisible in most host species; the outbreak in a naive pig population was “classic” and spectacular - allowed detection simultaneously in three jurisdictions.
- JE now considered endemic (or at least not exotic) in affected states
- One Health approach was important but took time to mature
- Vaccination for humans was important in supporting producers and local communities
- Diagnostics tests are difficult to interpret and take time – lag time to results

Recommendations

- EXPECT the unexpected
- Need to be agile in planning and responding
- Need to cultivate a One Health approach now
- Mosquito monitoring is a sensitive surveillance tool and can provide a source of virus for genomic analysis and improving understanding the disease epidemiology
- Better diagnostic tests urgently required
- In the meantime, vaccination is key