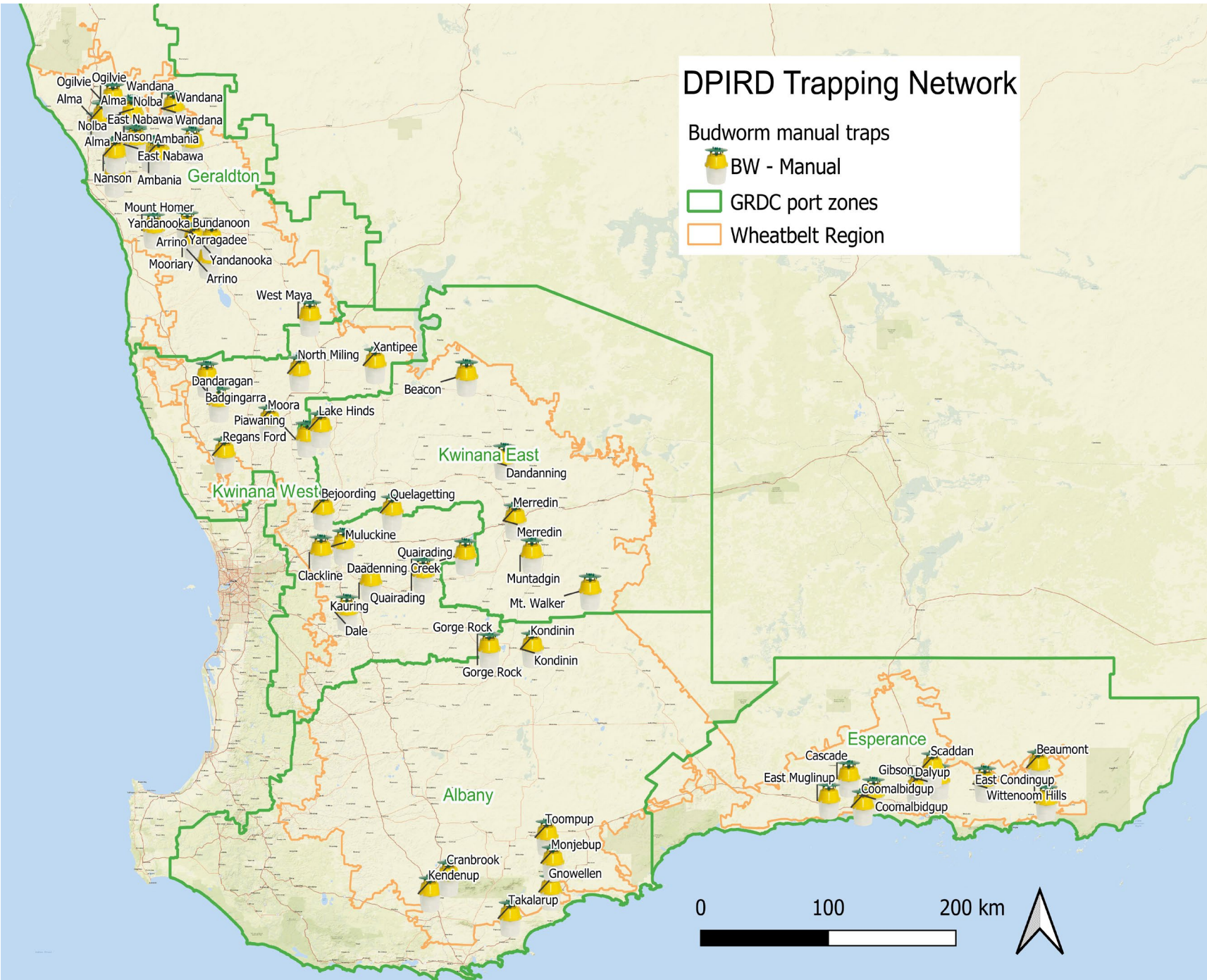


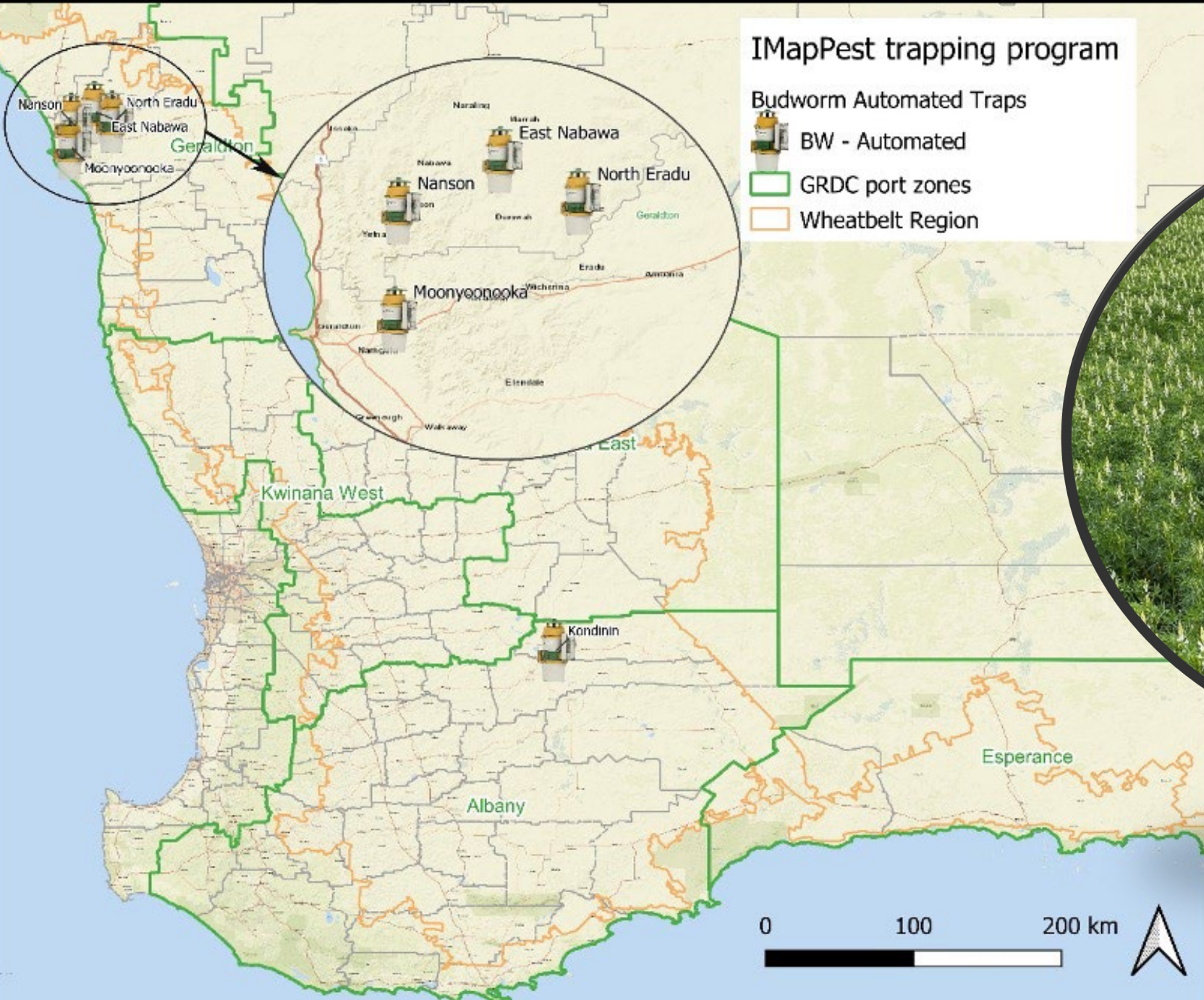


Surveillance update for Native Budworm, DBM and RLEM

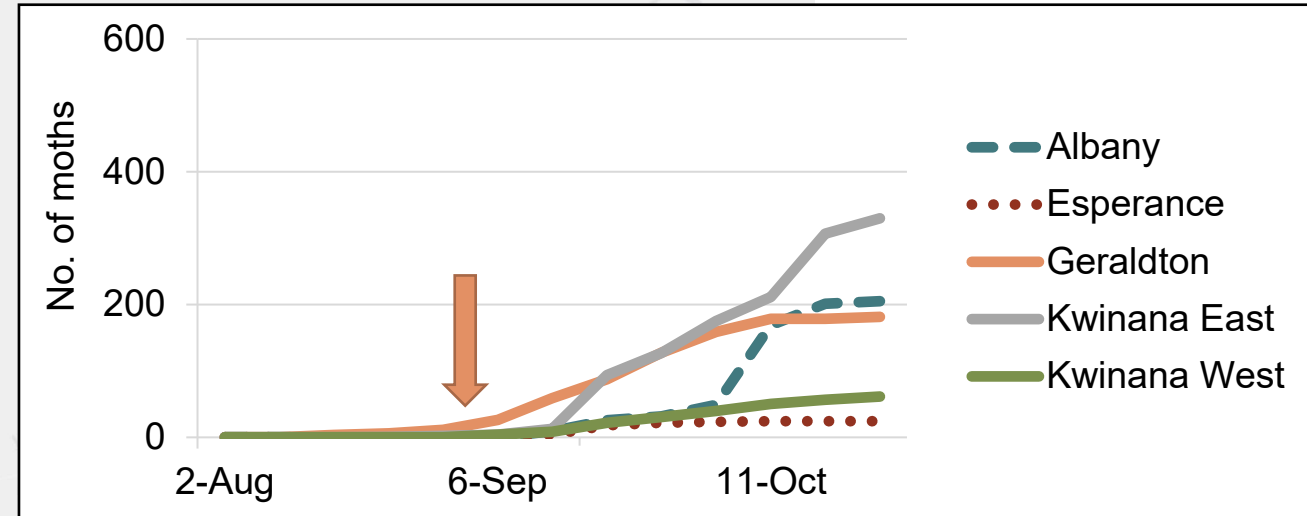
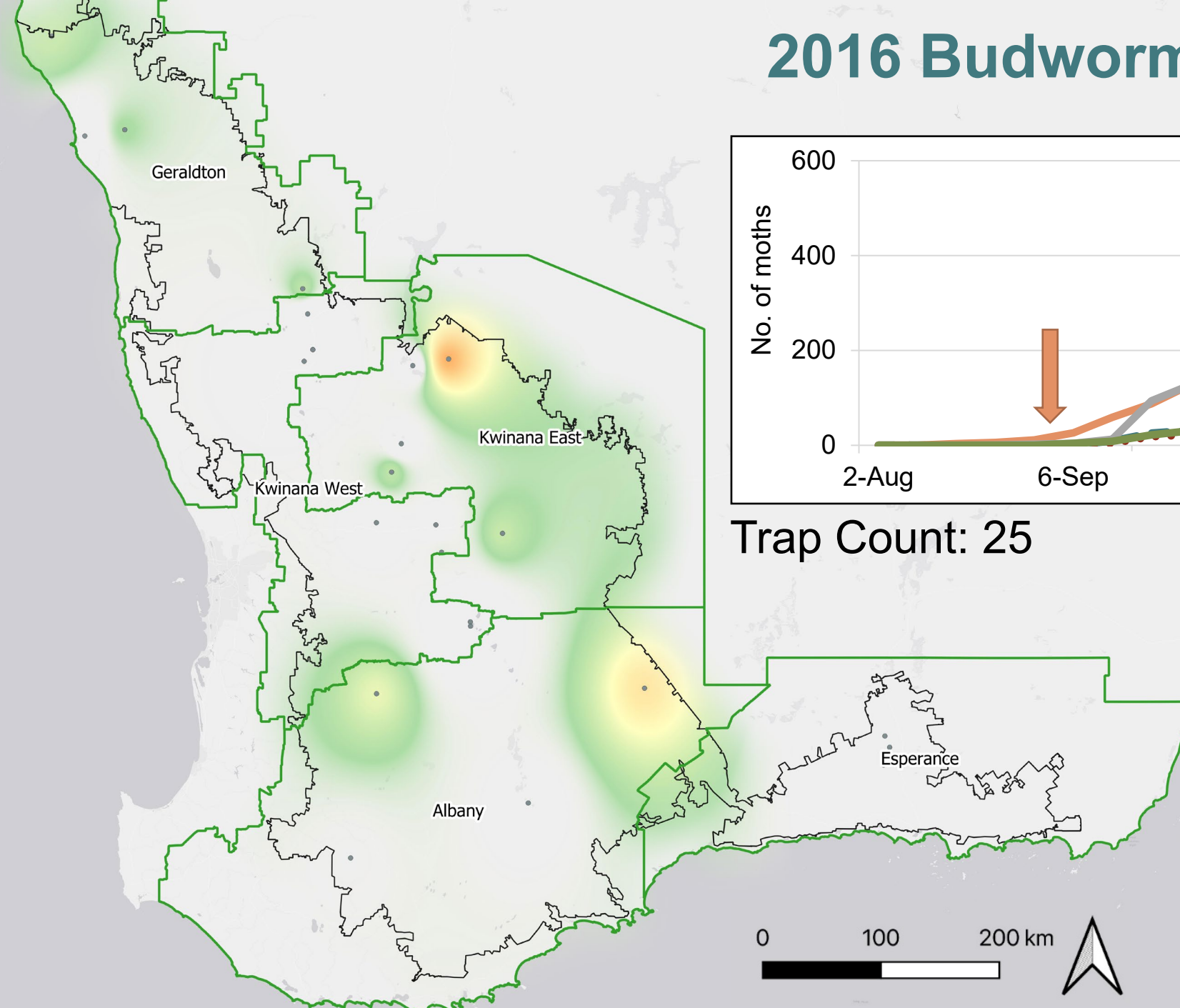
Native Budworm trapping network in 2022

- 108 pheromone traps
- Attract male moths only
- Time intensive

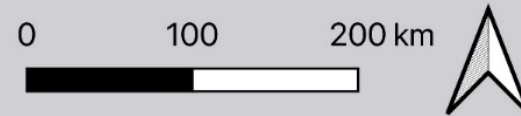
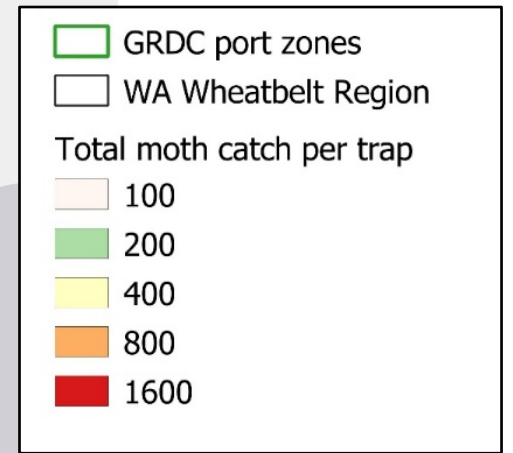




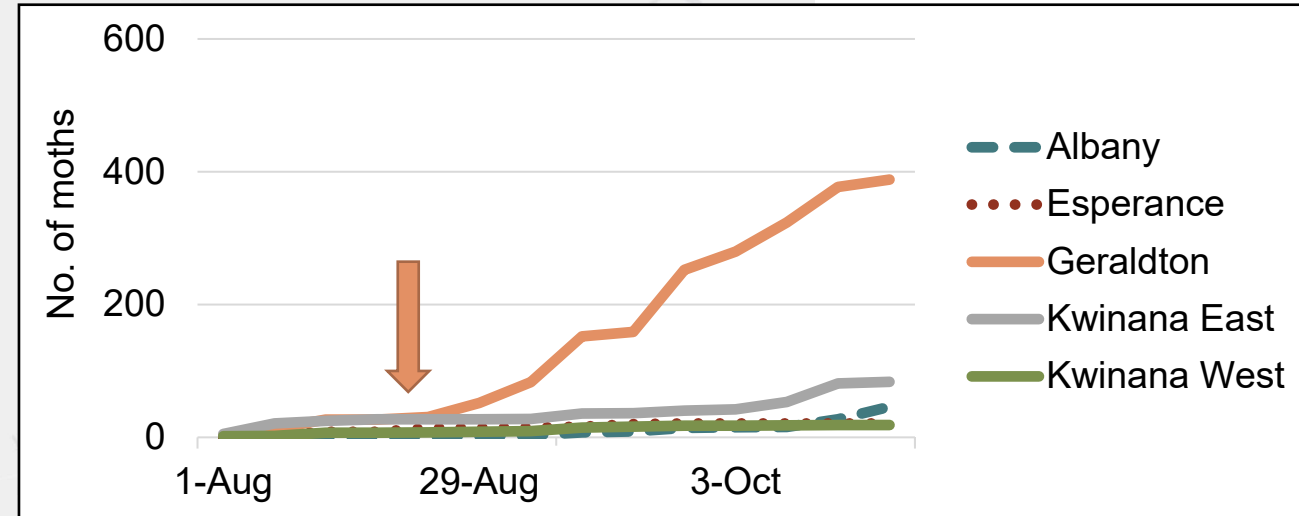
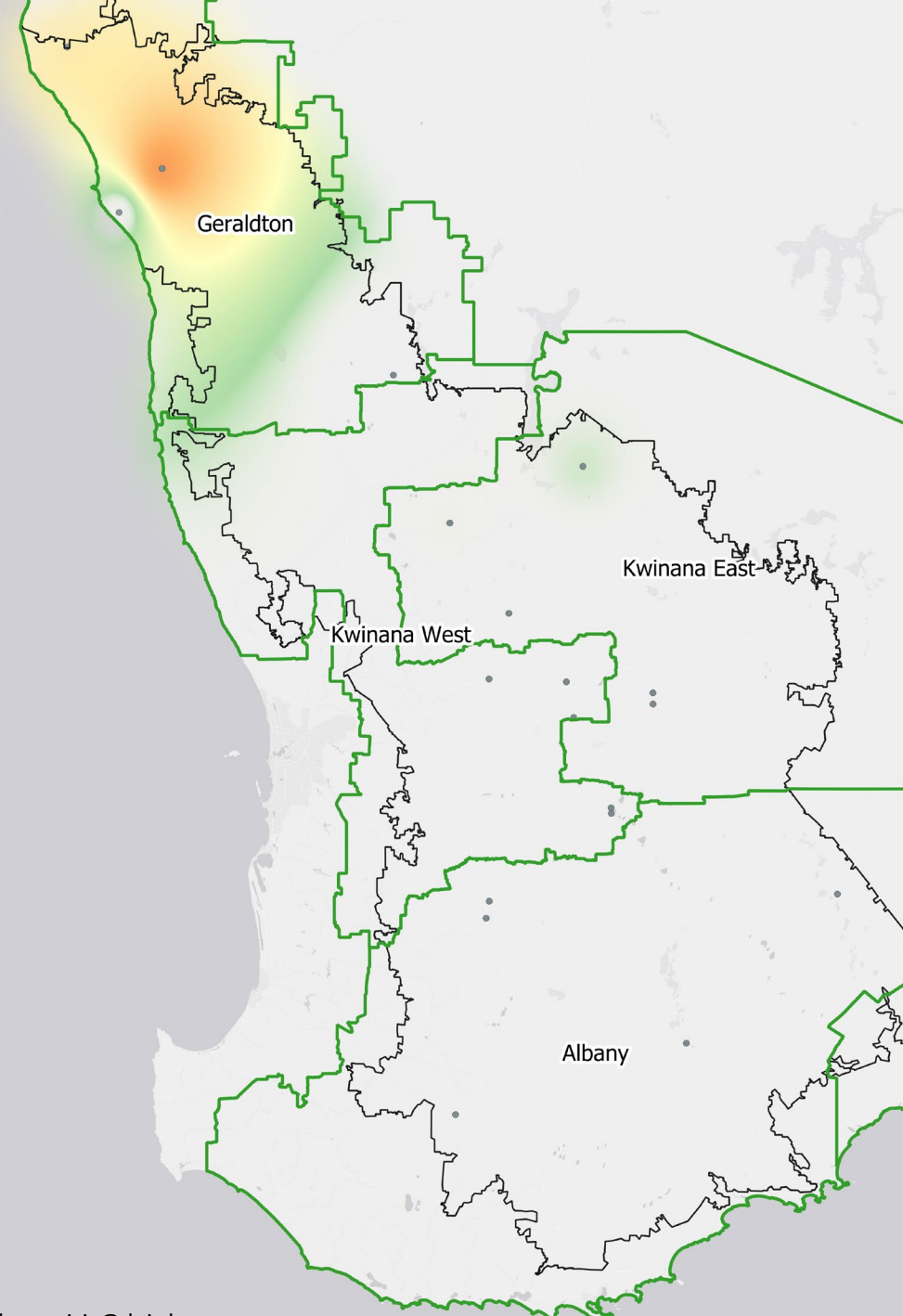
2016 Budworm trap results



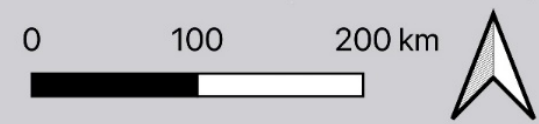
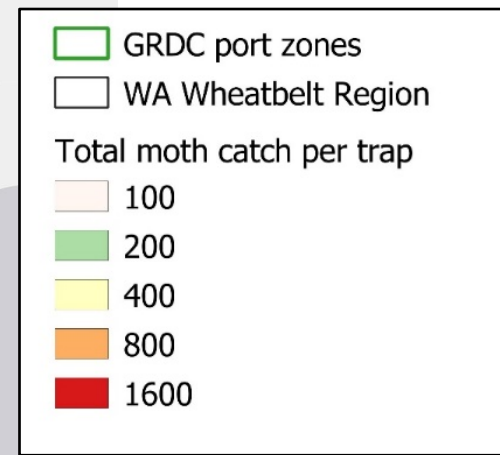
Trap Count: 25



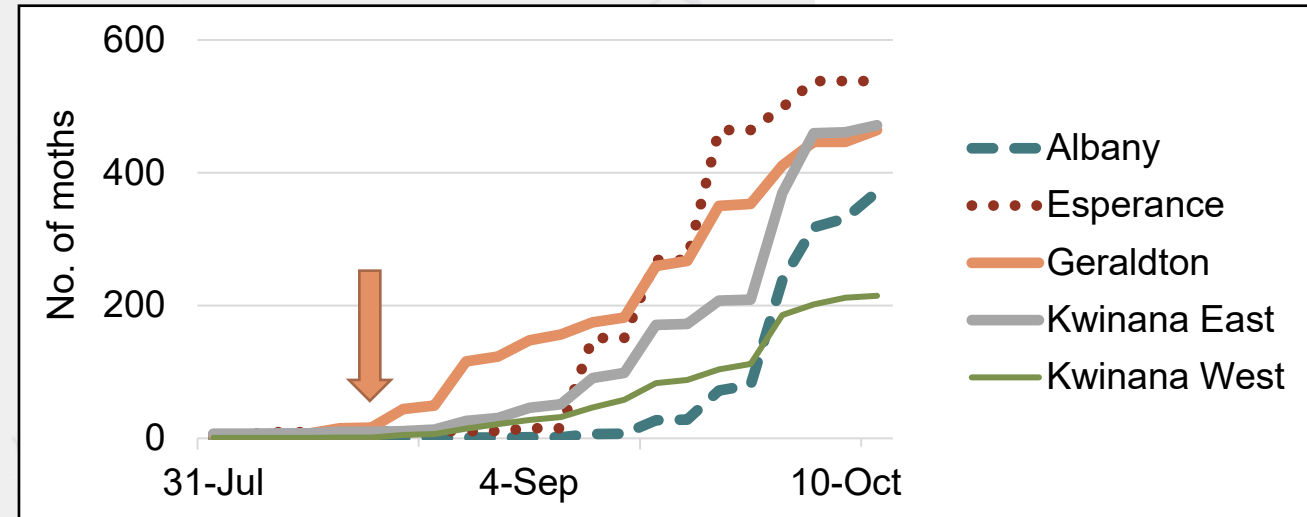
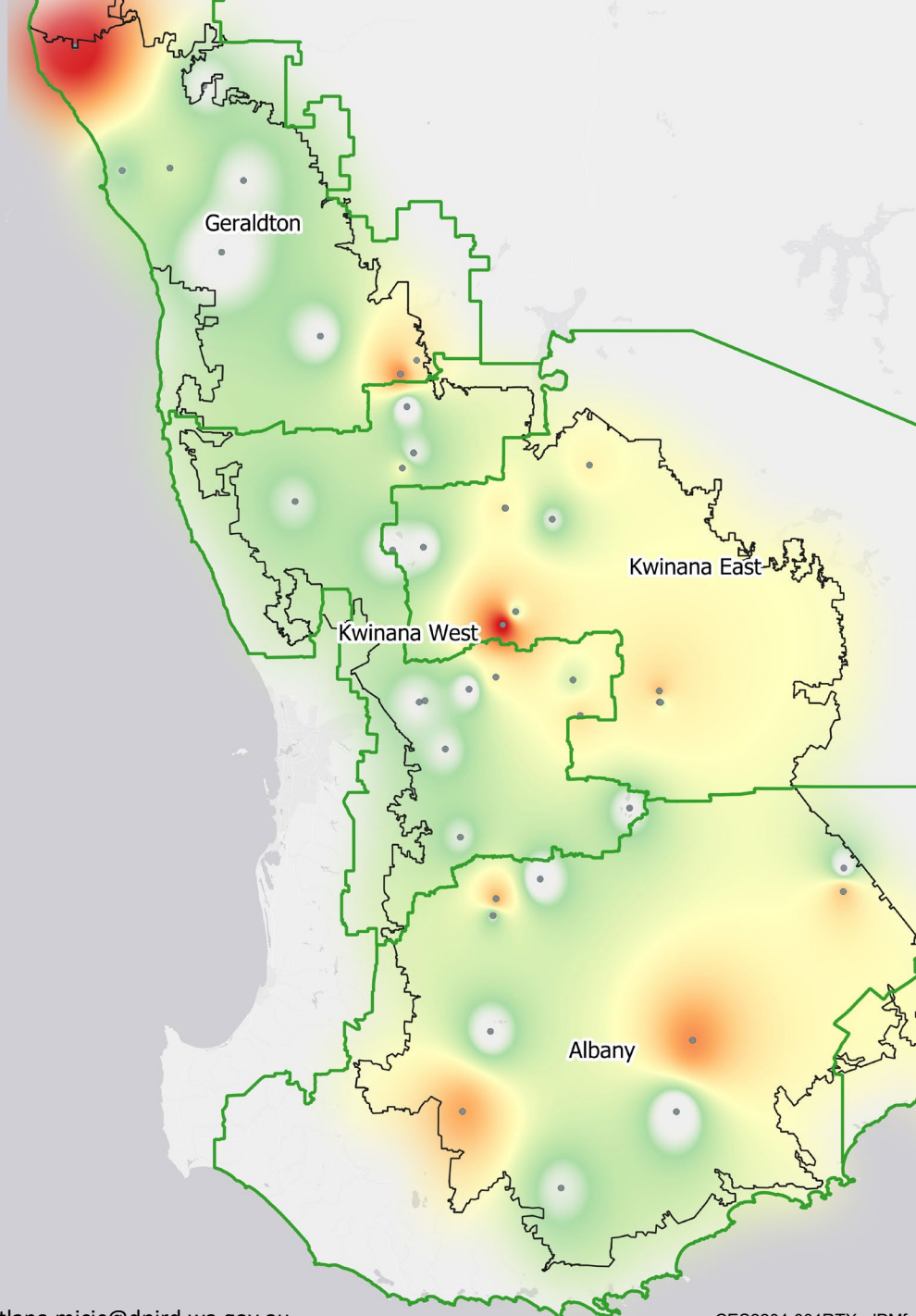
2017 Budworm trap results



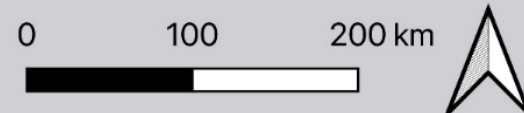
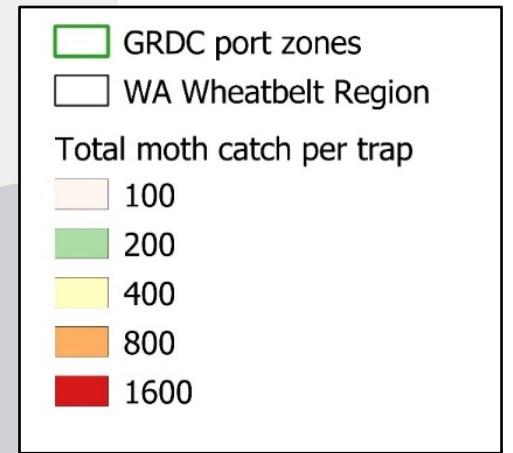
Trap Count: 22



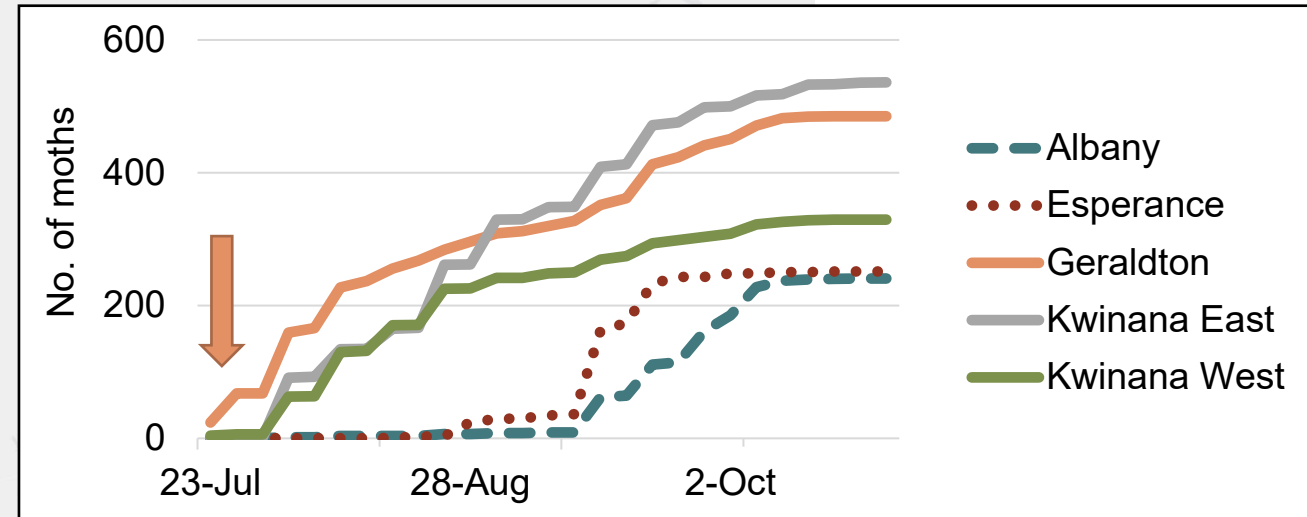
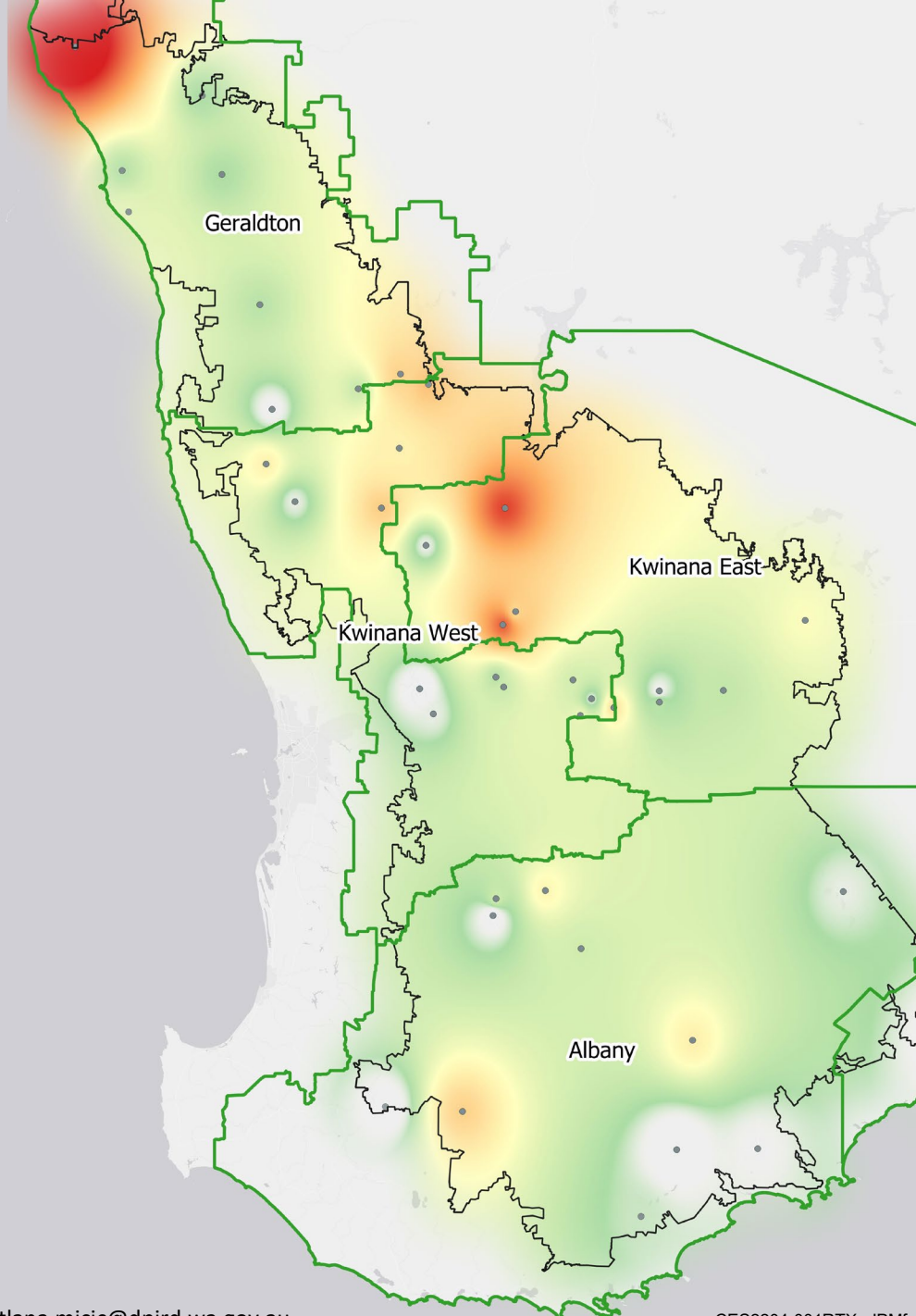
2018 Budworm trap results



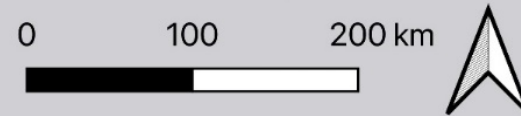
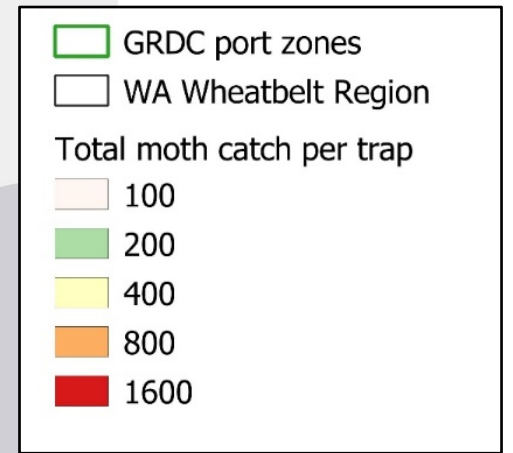
Trap Count: 47



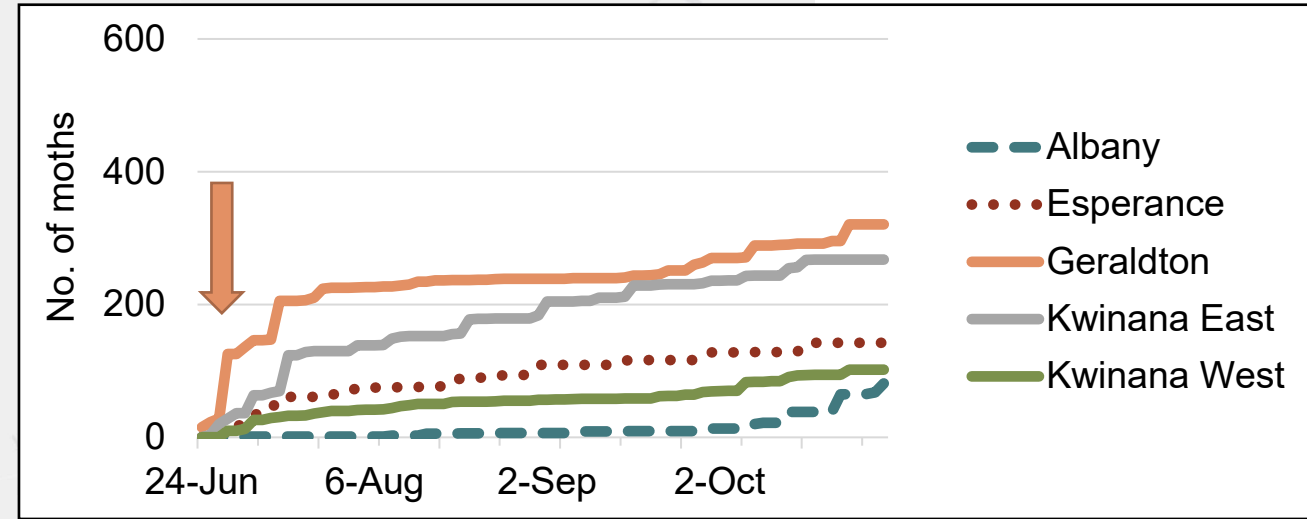
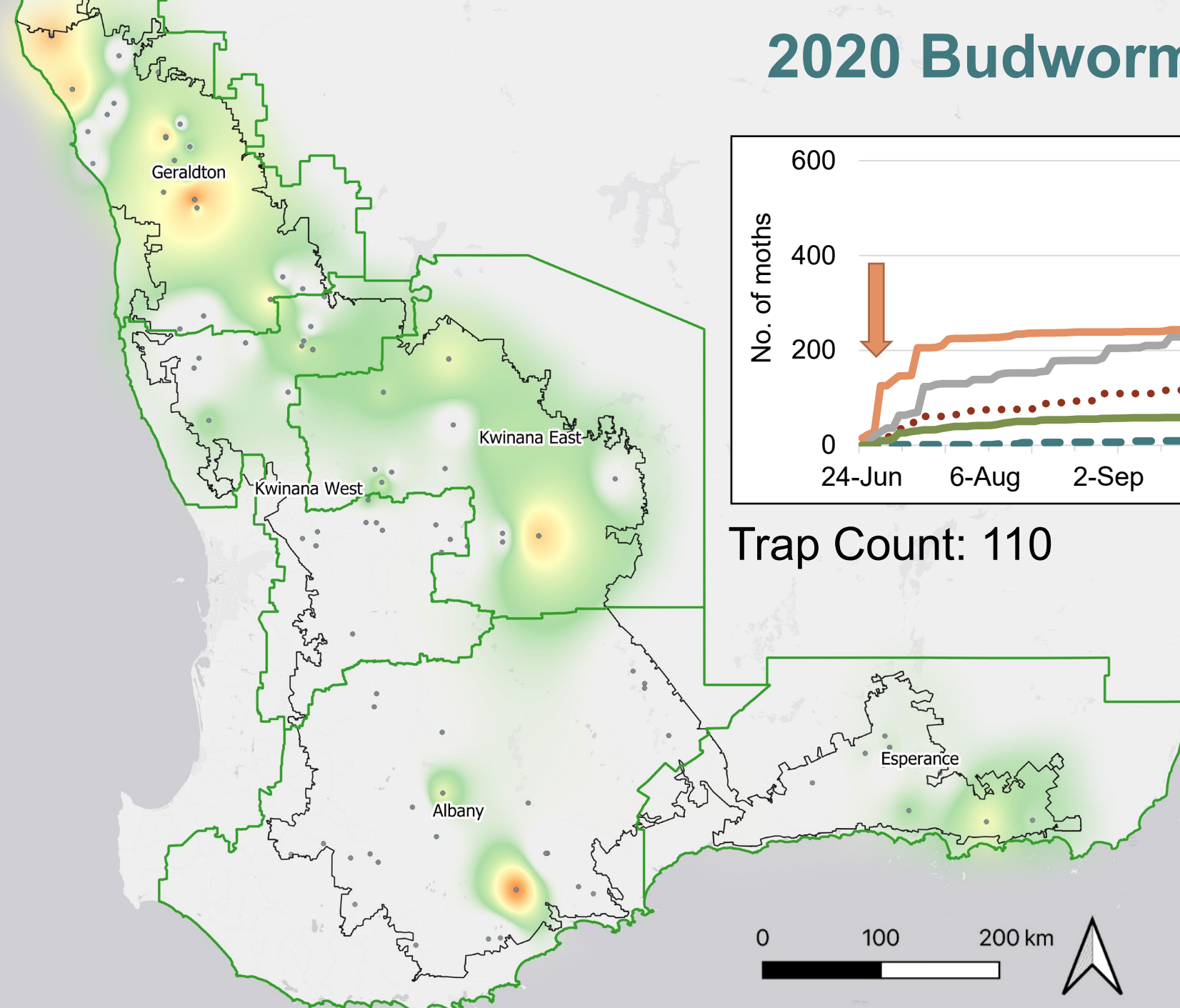
2019 Budworm trap results



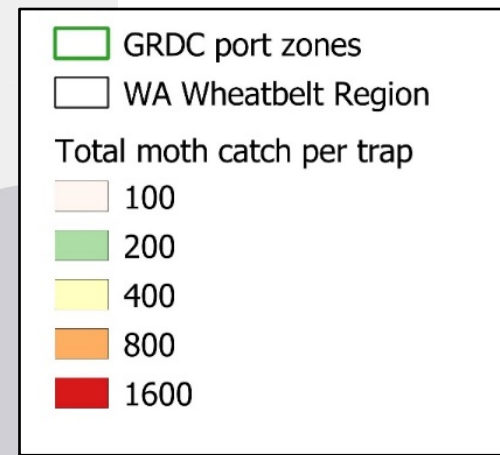
Trap Count: 45



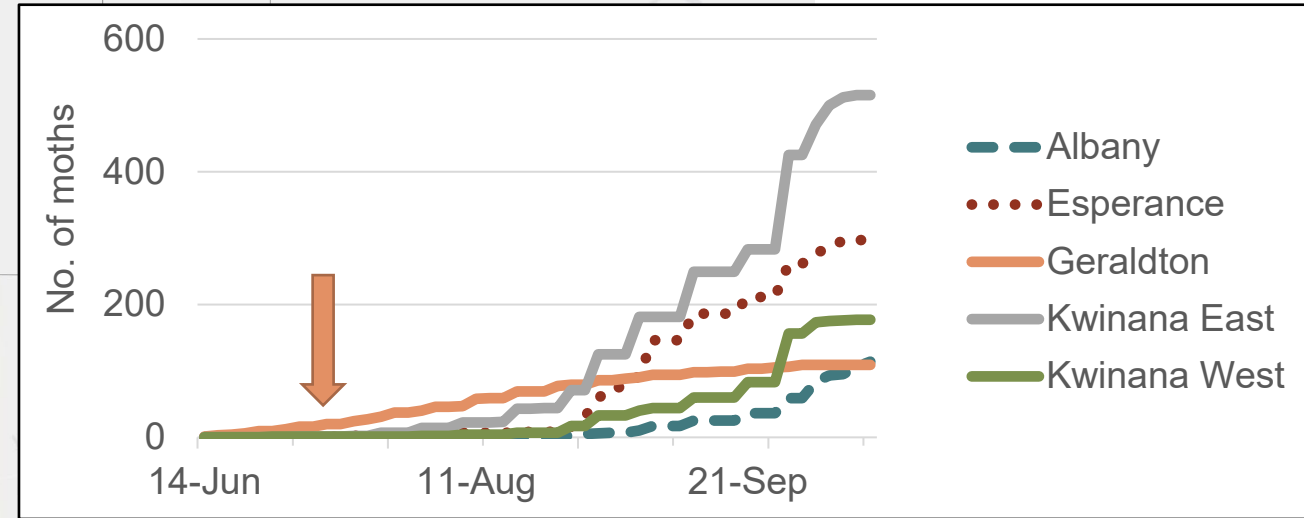
2020 Budworm trap results



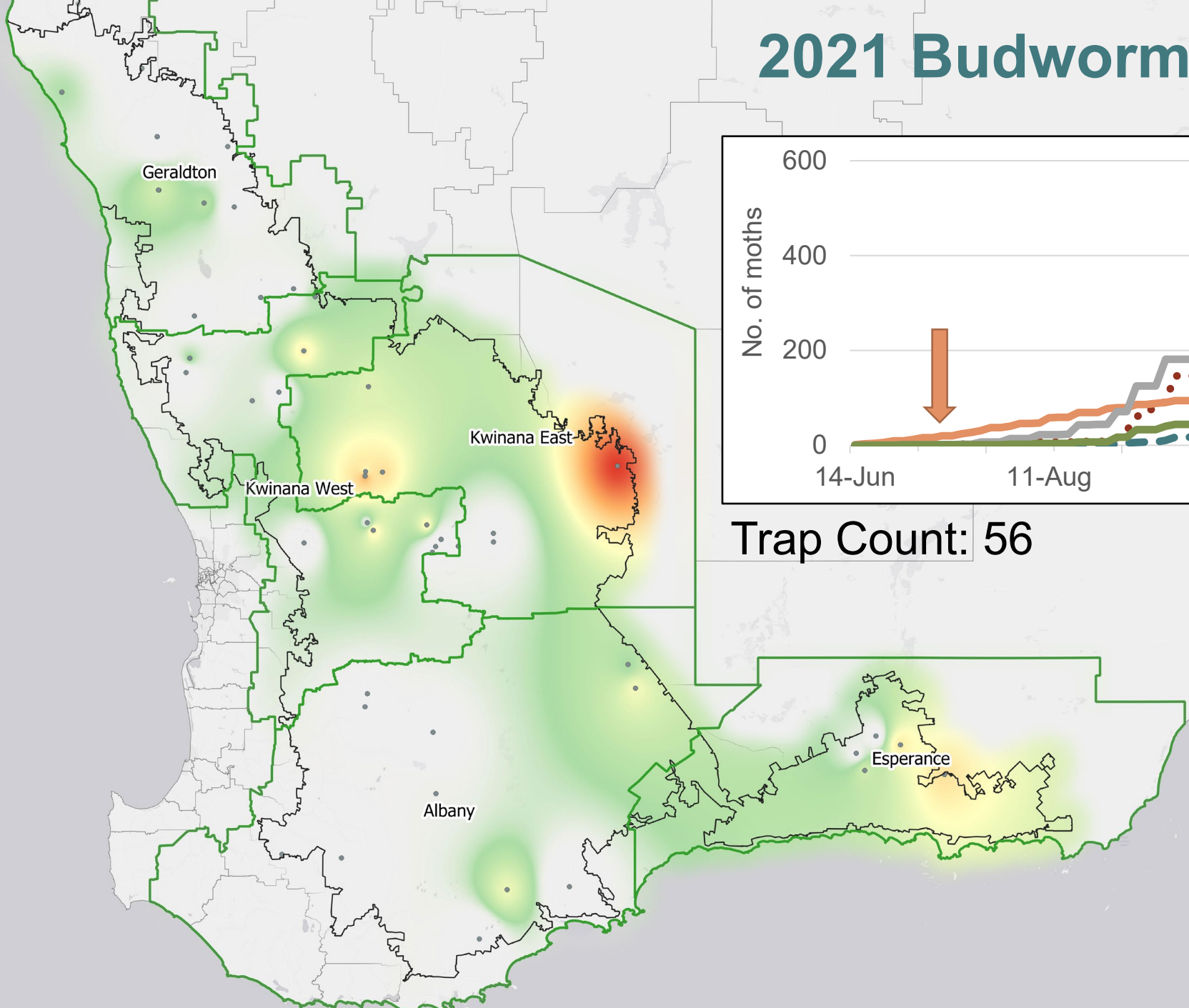
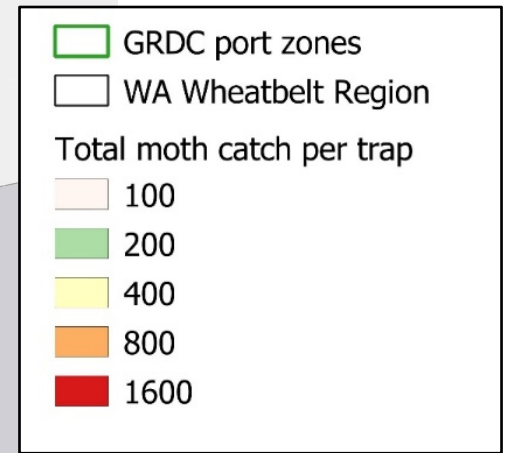
Trap Count: 110



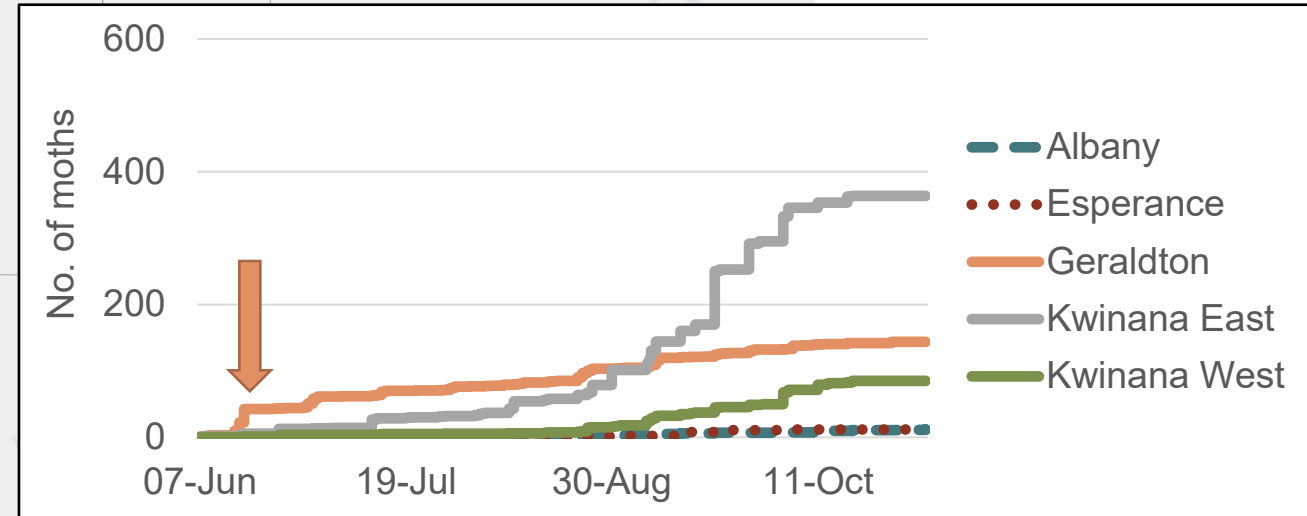
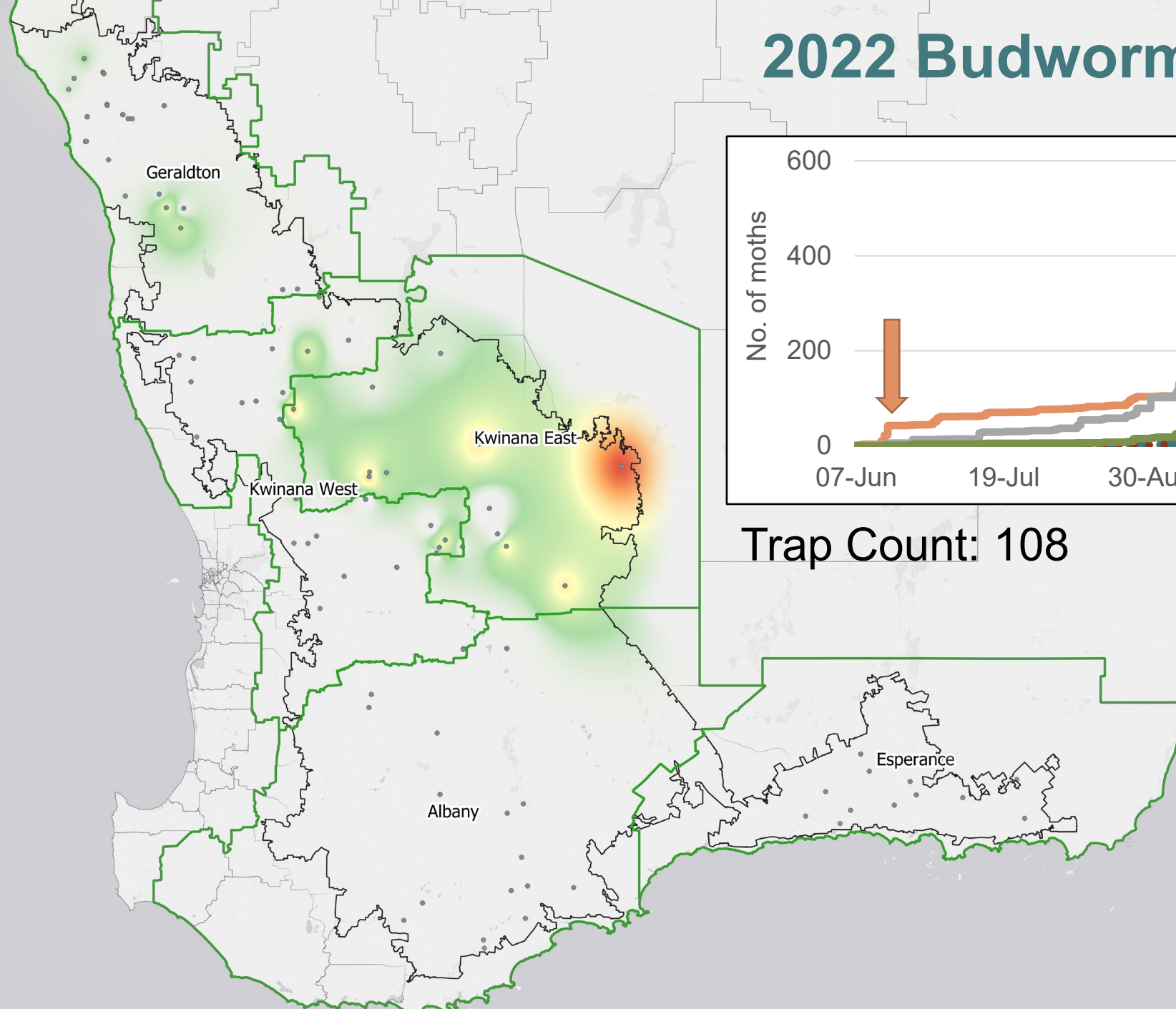
2021 Budworm trap results



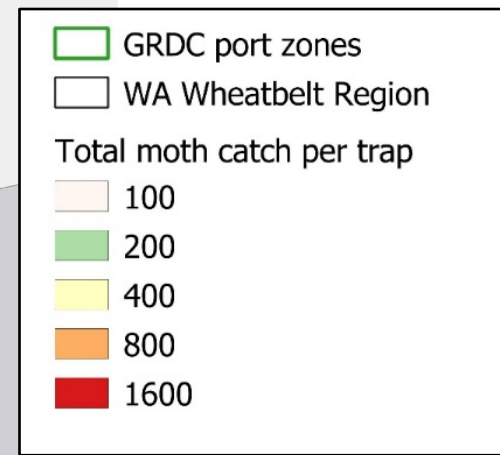
Trap Count: 56



2022 Budworm trap results



Trap Count: 108



What does it mean for you?

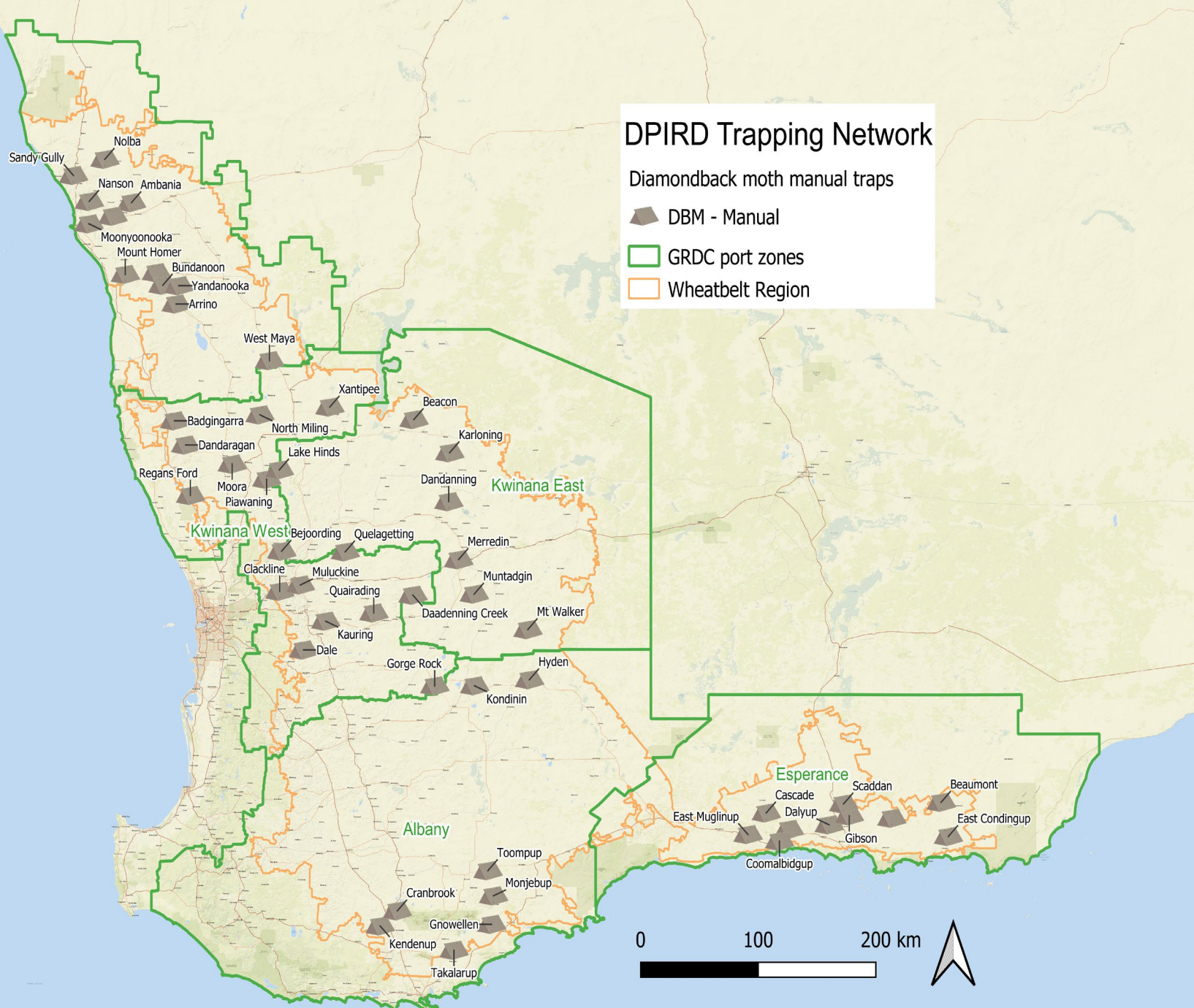
- In Geraldton? If traps are out by June, watch the trap numbers
- Located elsewhere? Look at trap catches at Geraldton
- Why early flights? Summer/Autumn rainfall in rangelands



Native budworm

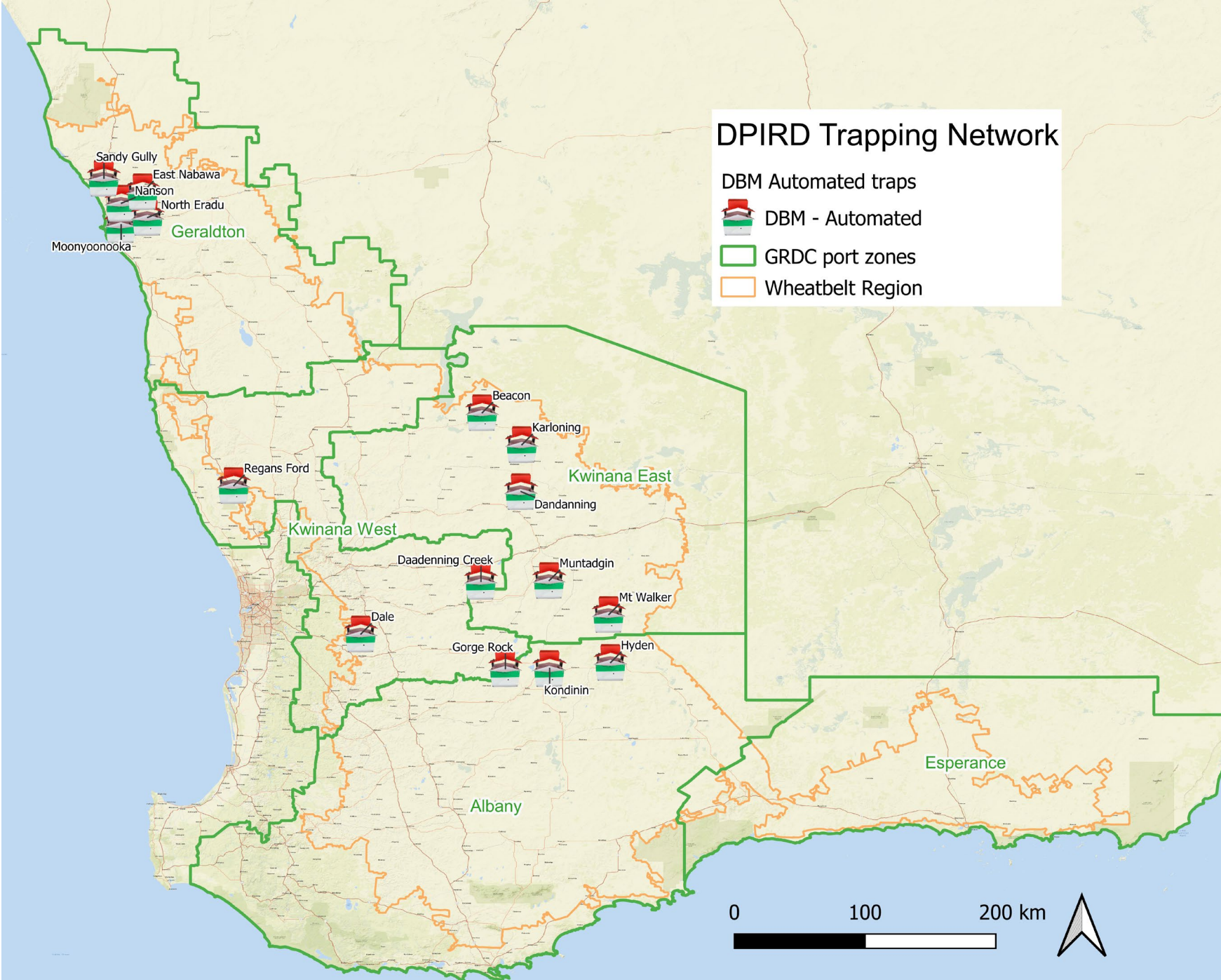
Diamondback moth surveillance








53 manual traps located in canola crops

Each crop monitored for DBM



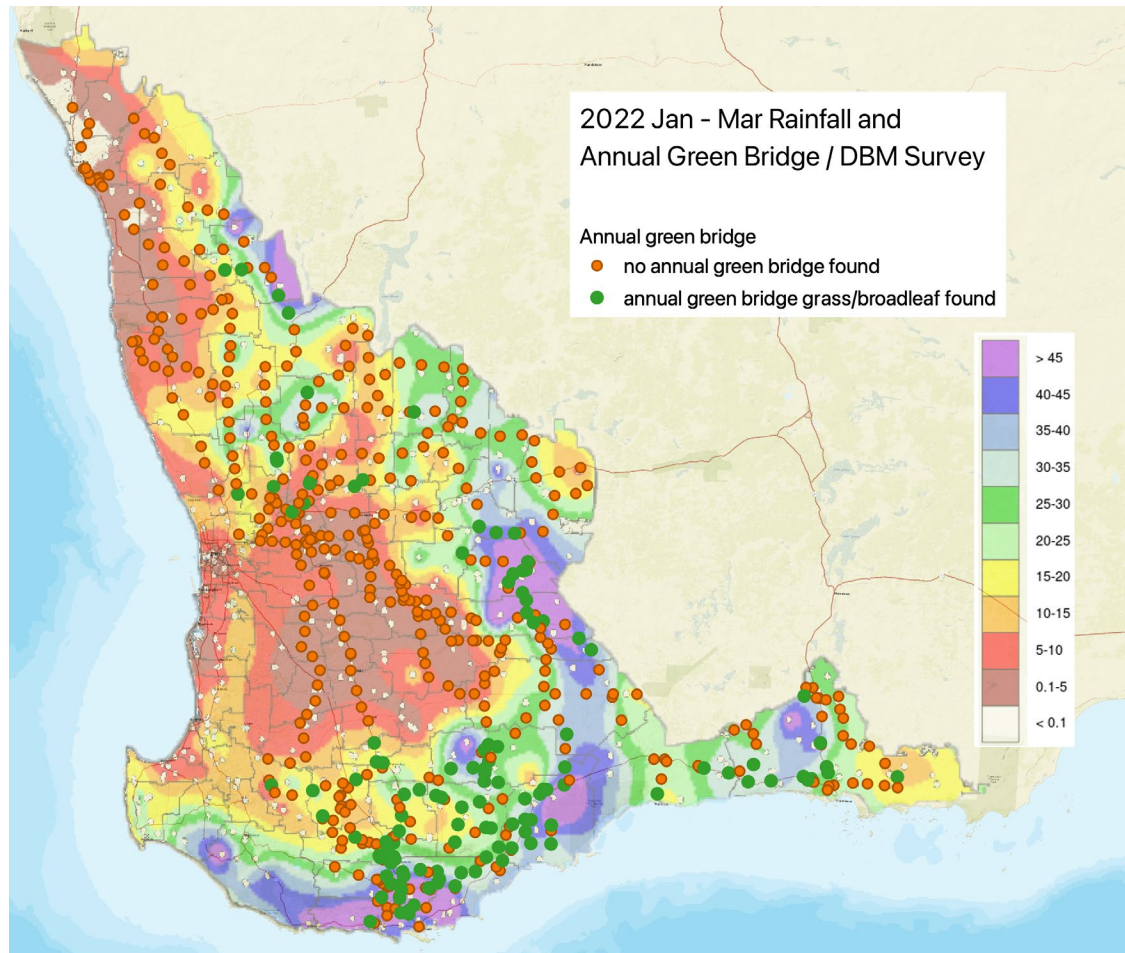
DPIRD Trapping Network

-  DBM - Automated
-  GRDC port zones
-  Wheatbelt Region

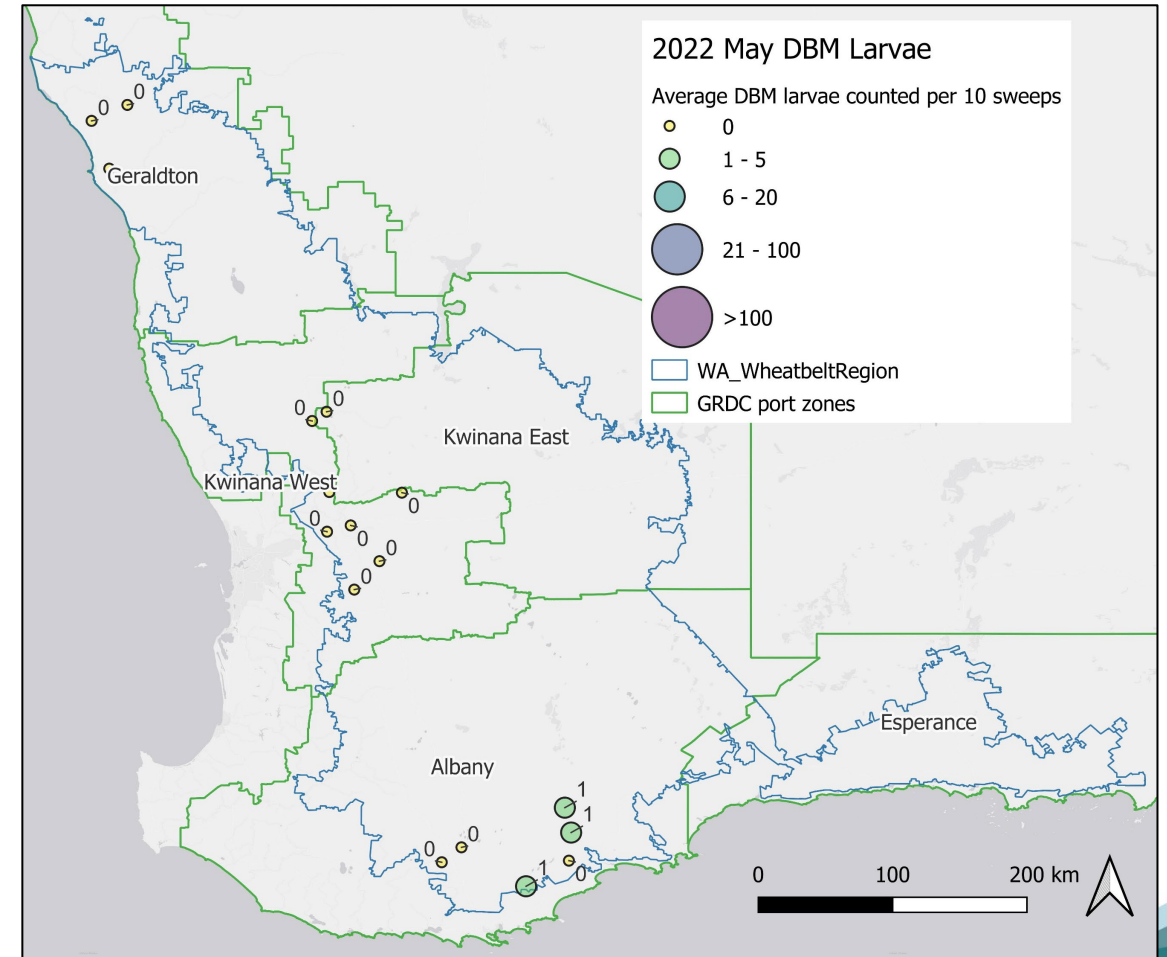


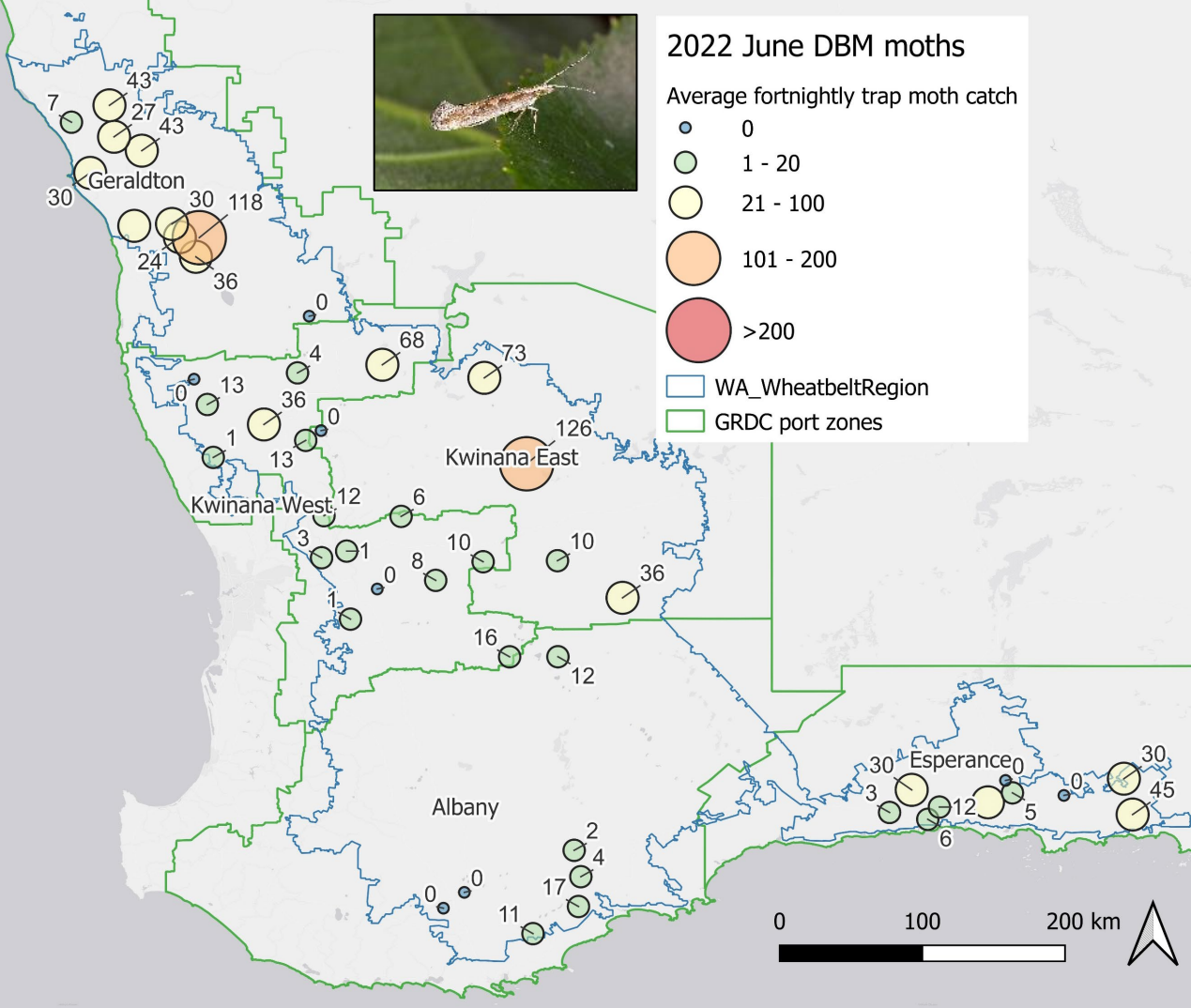
Green bridge sampling in 2022 for DBM

Green bridge surveillance

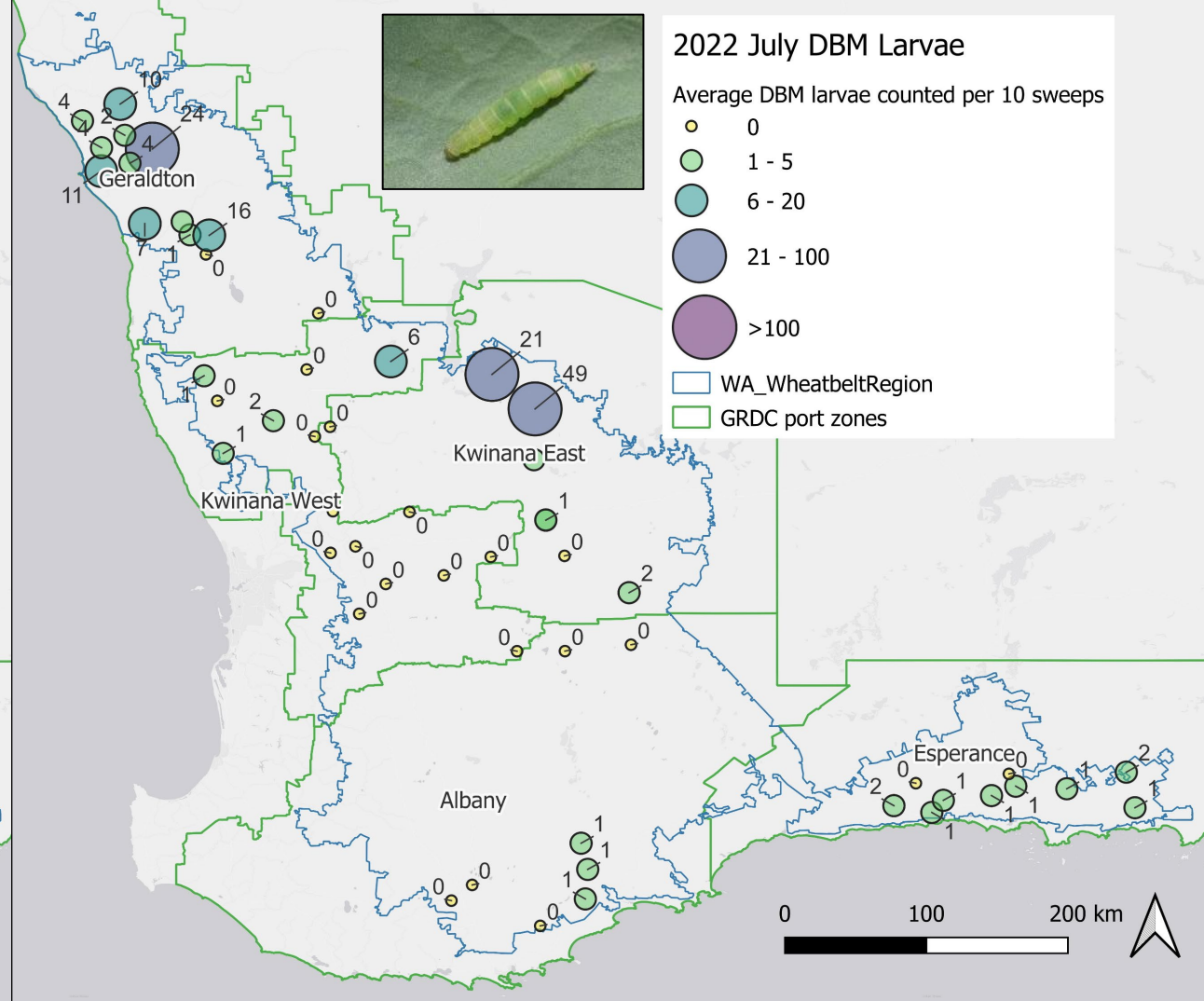


DBM larvae in May

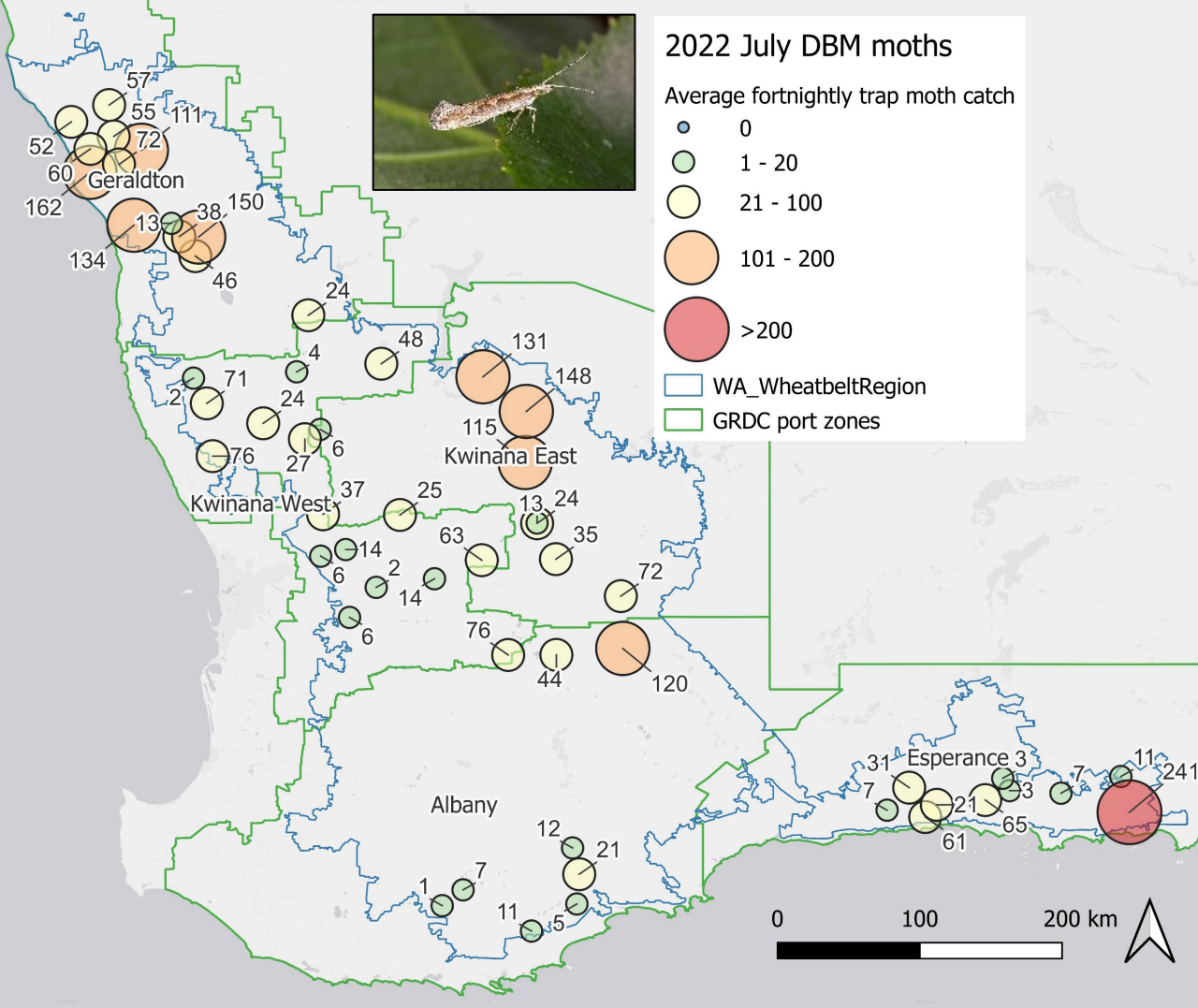




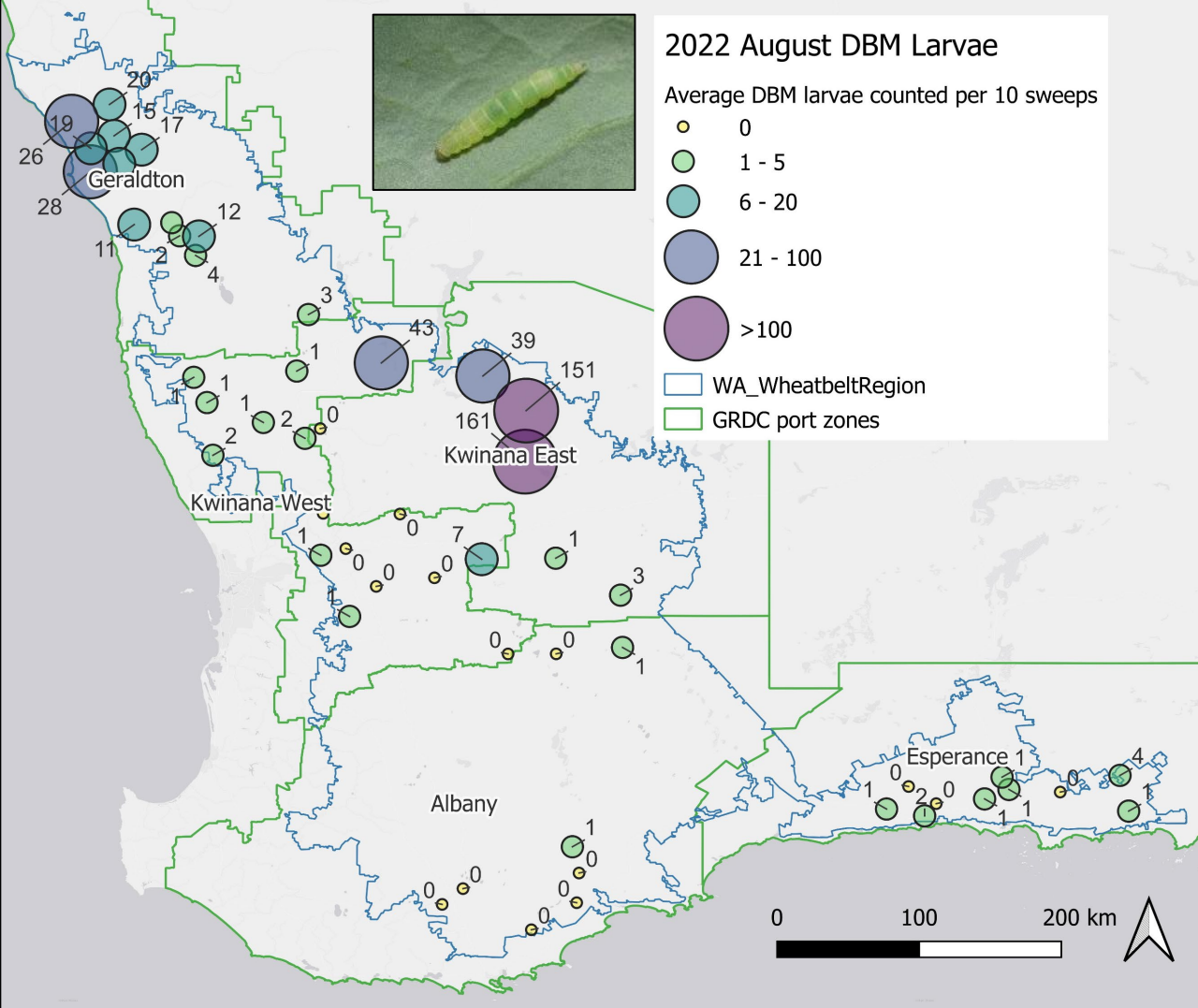
DBM Moths
June



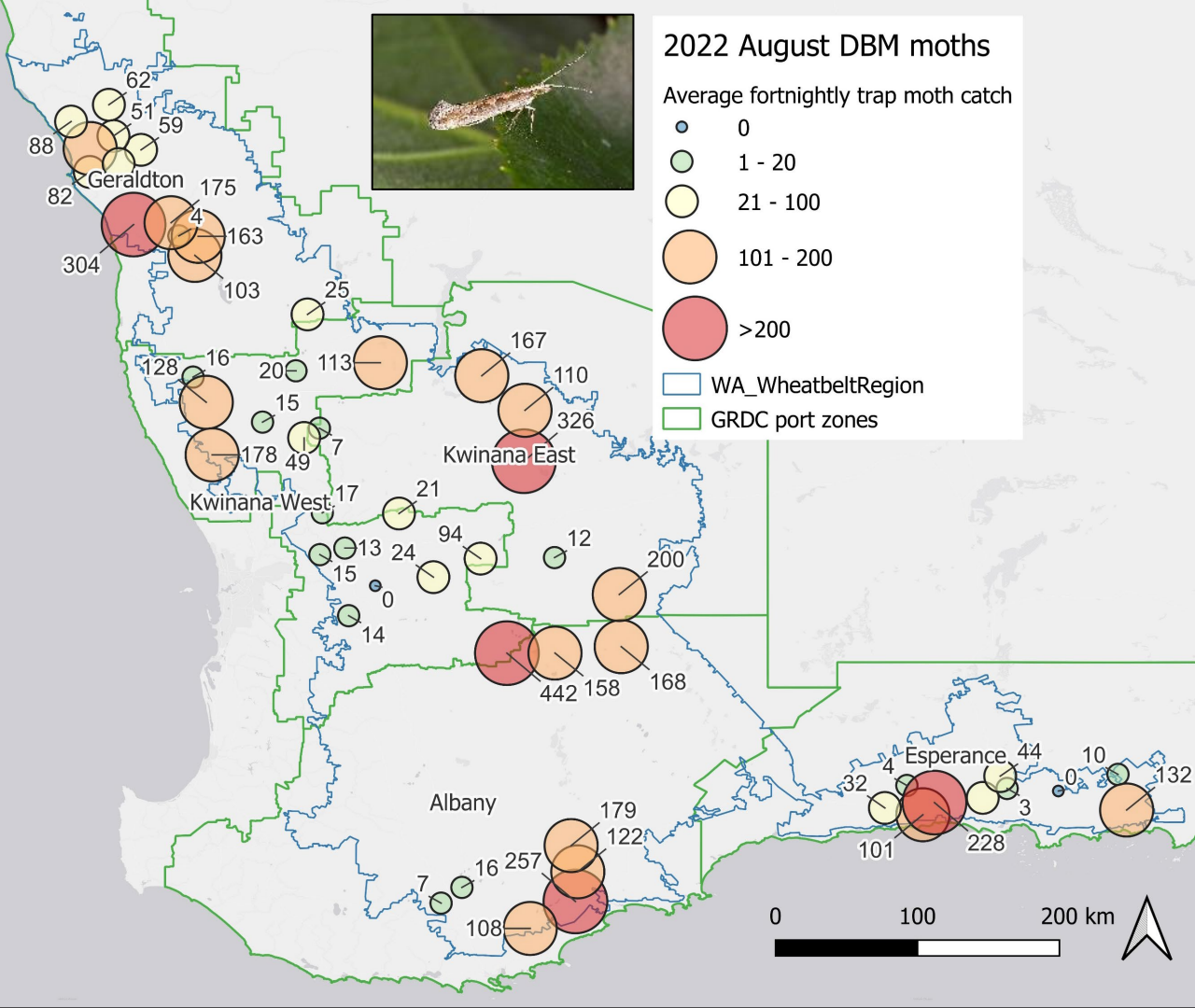
DBM Larvae
July



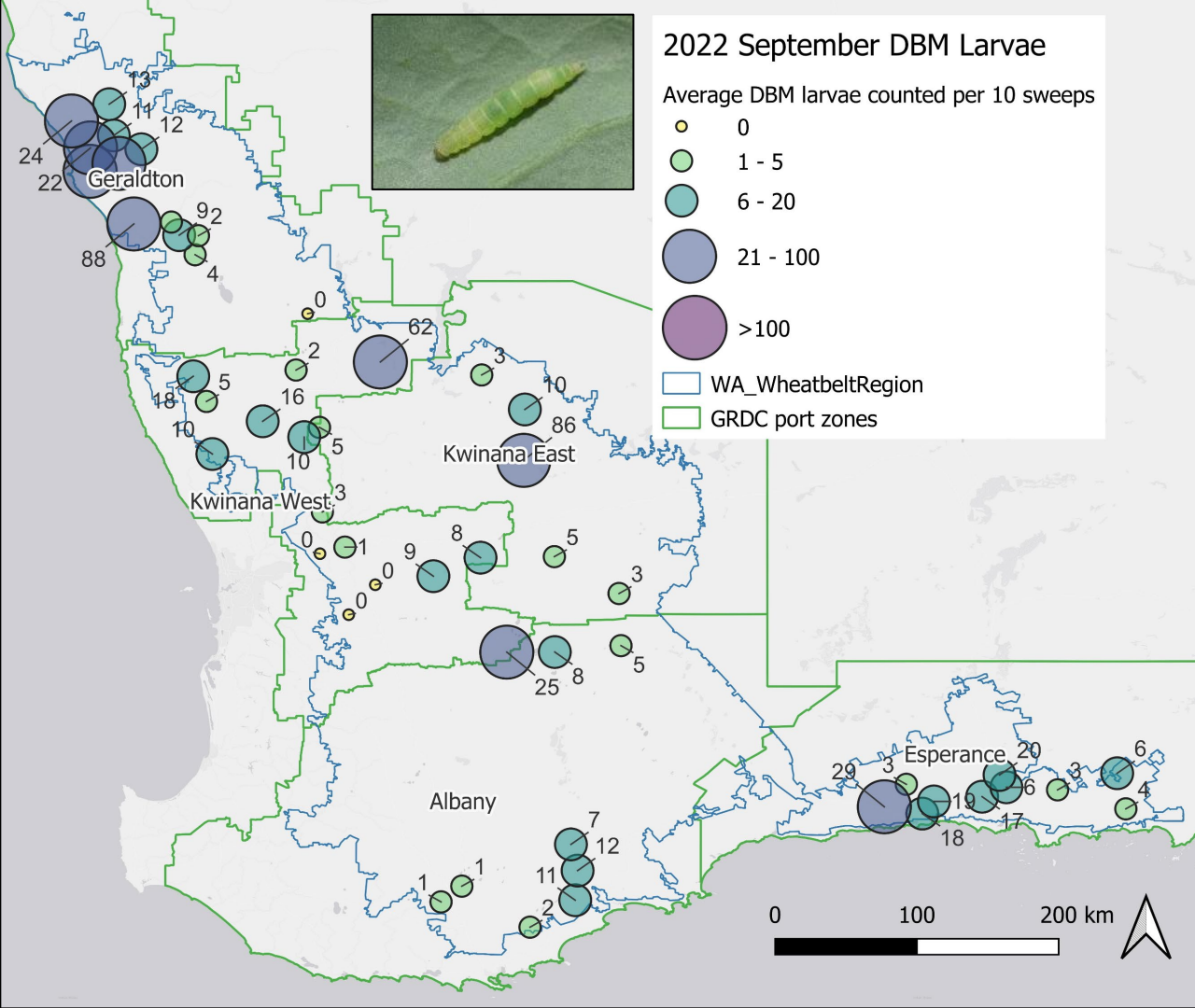
DBM Moths
July



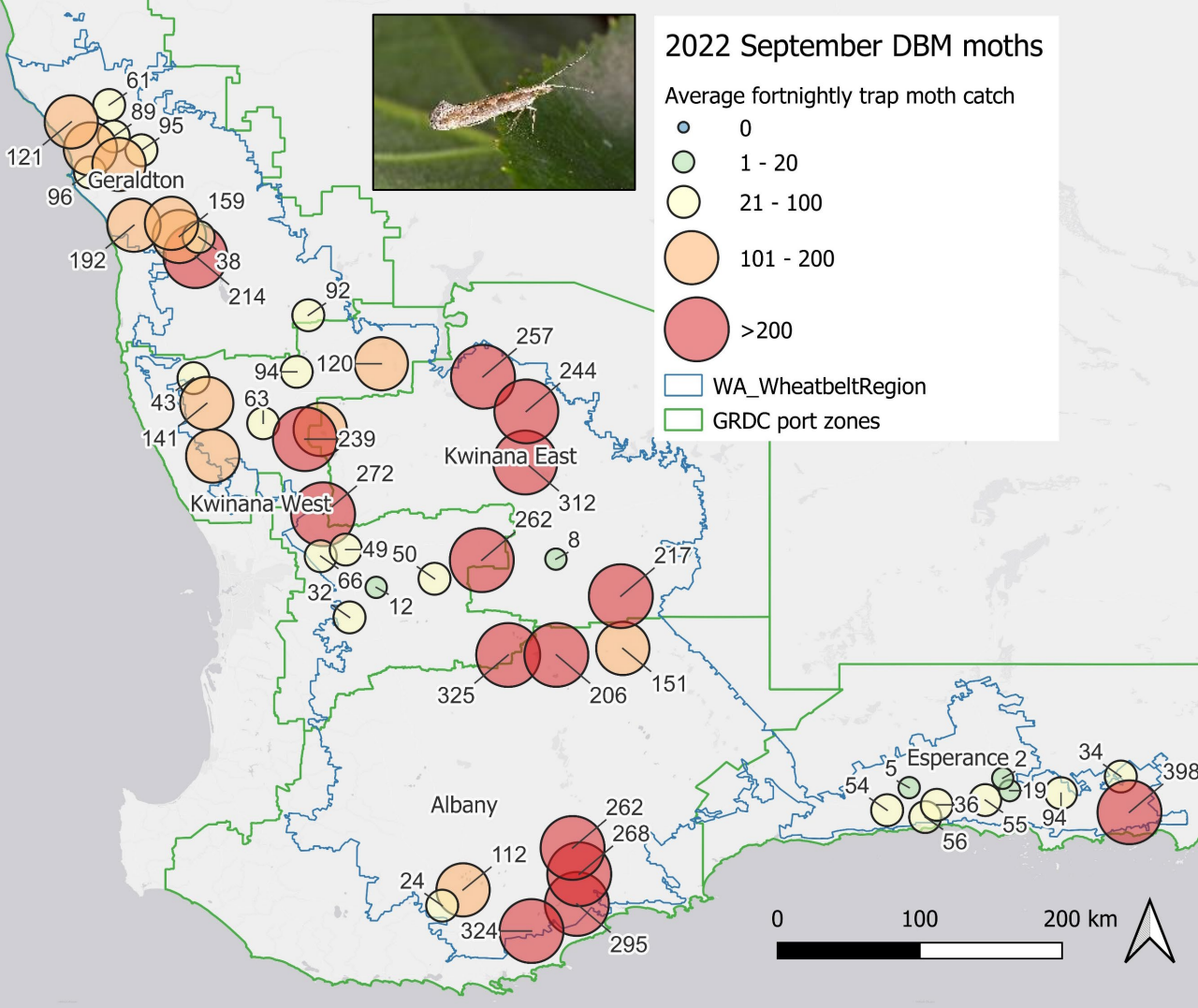
DBM Larvae
August



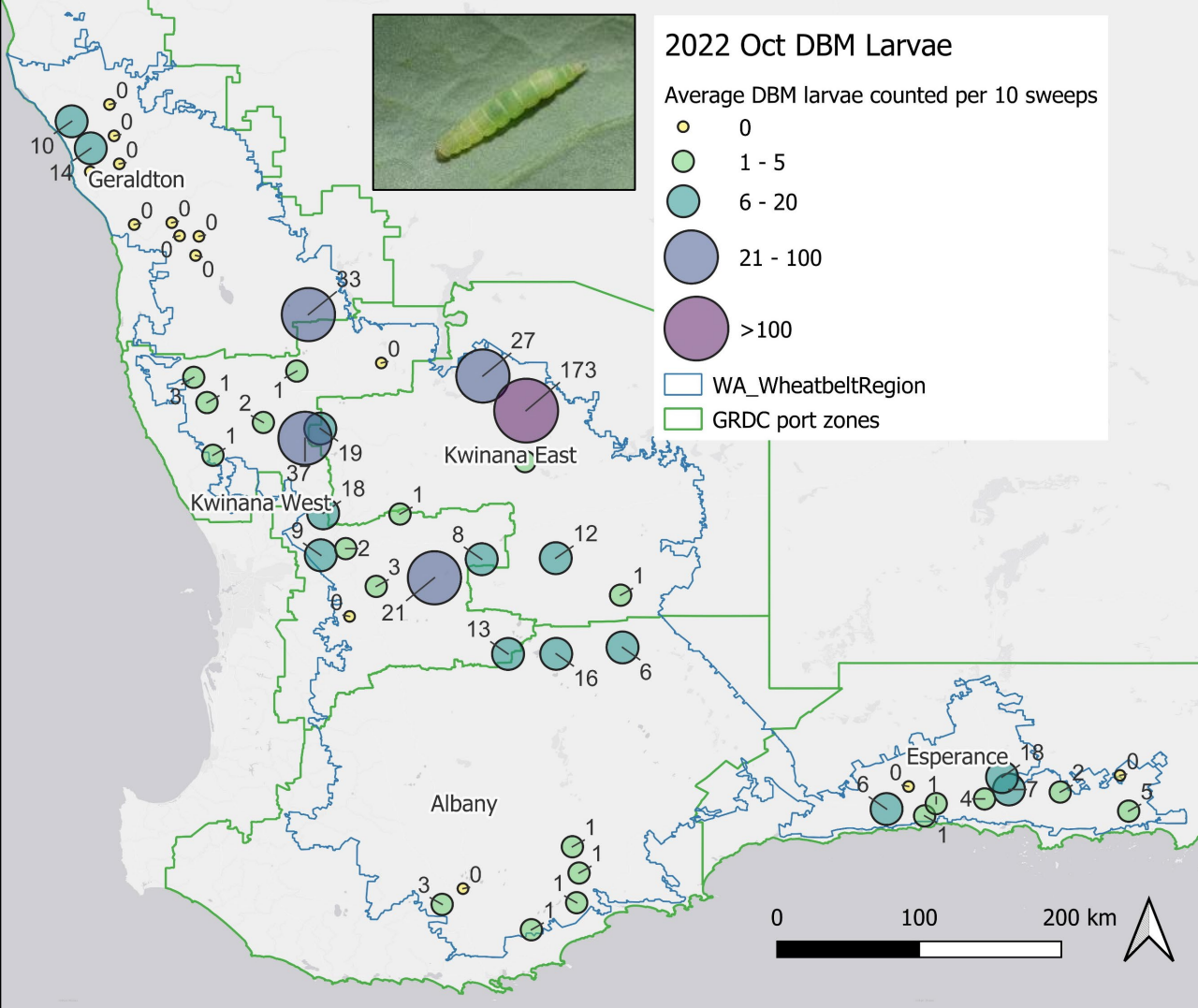
DBM Moths
August



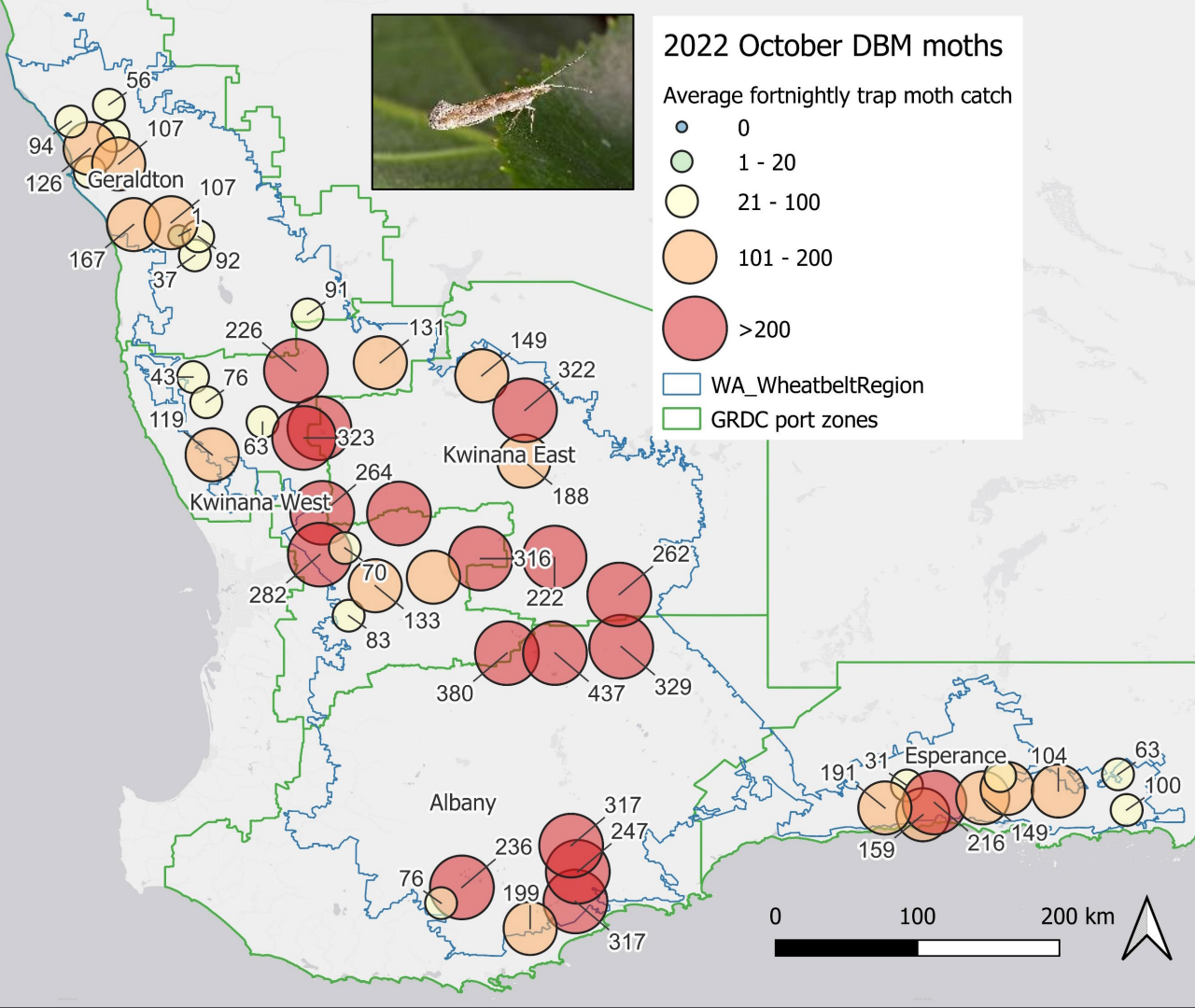
DBM Larvae
September



DBM Moths
September

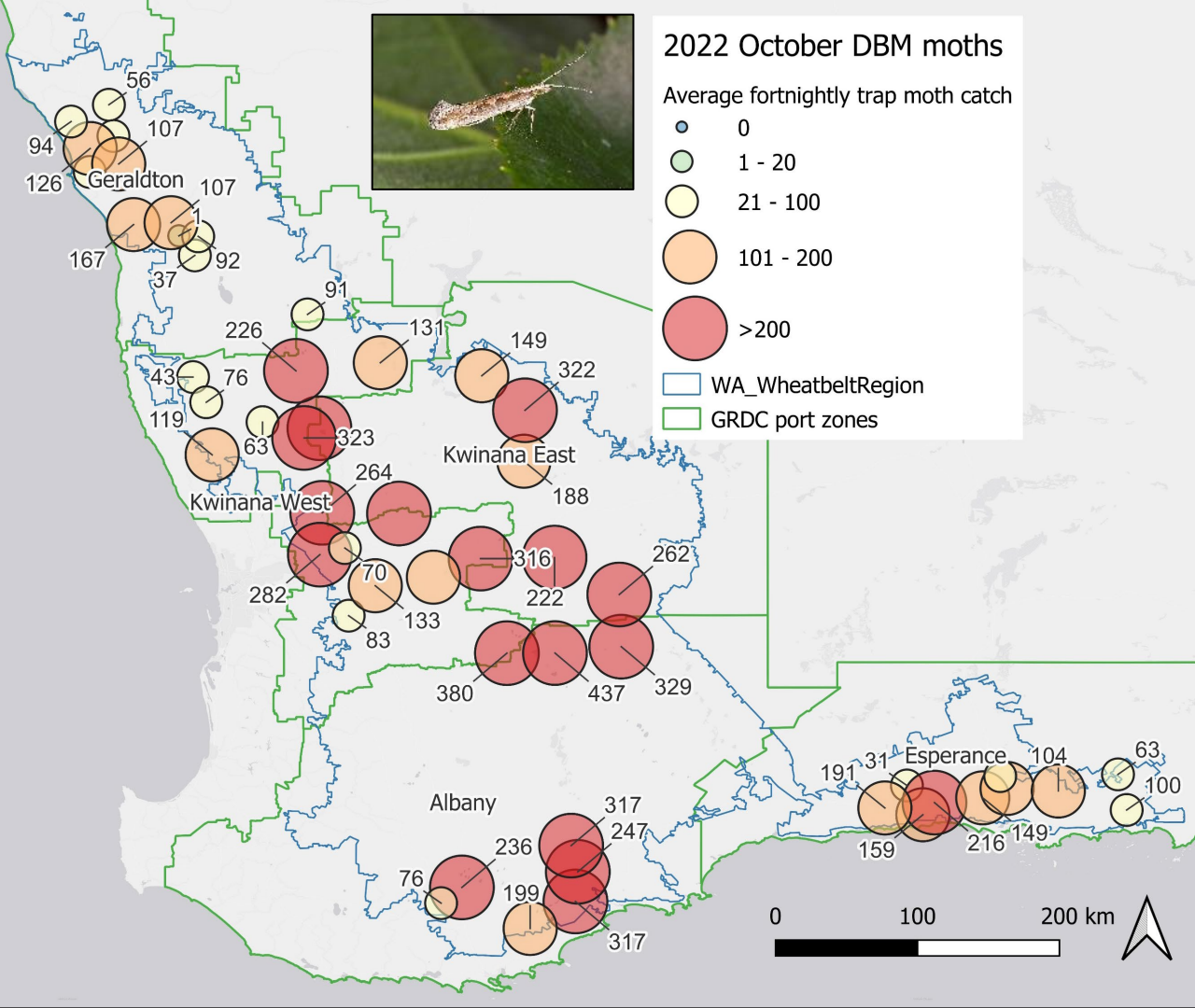


DBM Larvae
October

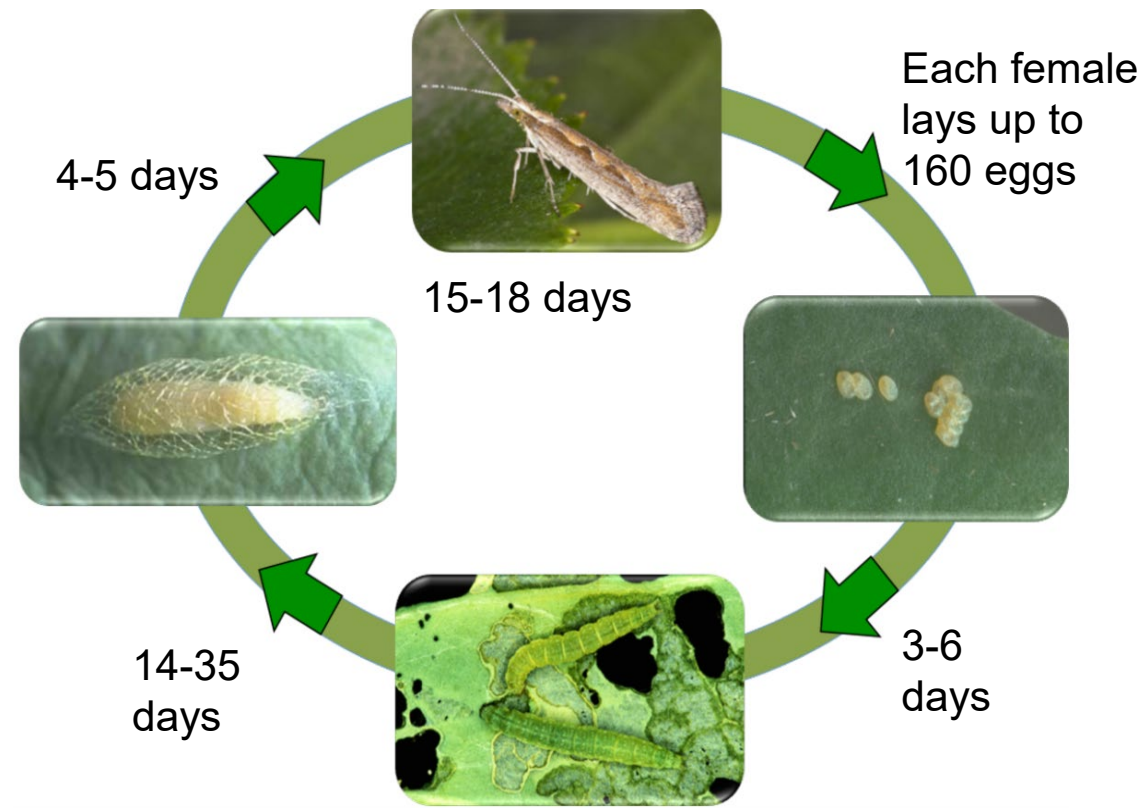


DBM Moths

October



DBM Moths
October



DBM life-cycle

Of the 53 paddocks monitored:

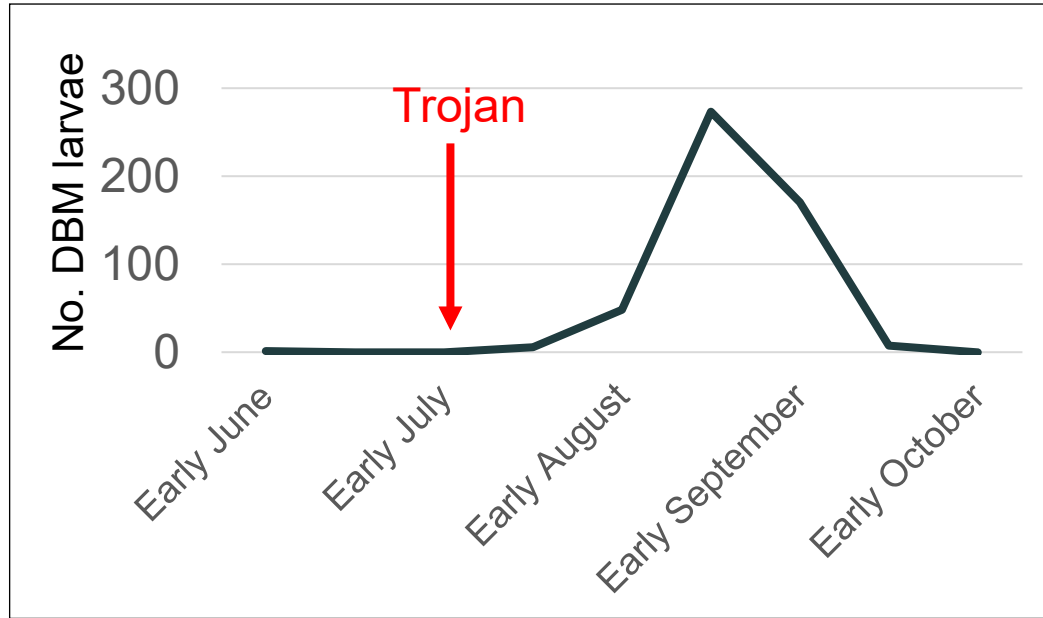
4 paddocks with
DBM > threshold

2 paddocks sprayed
with Affirm 150 mL/ha

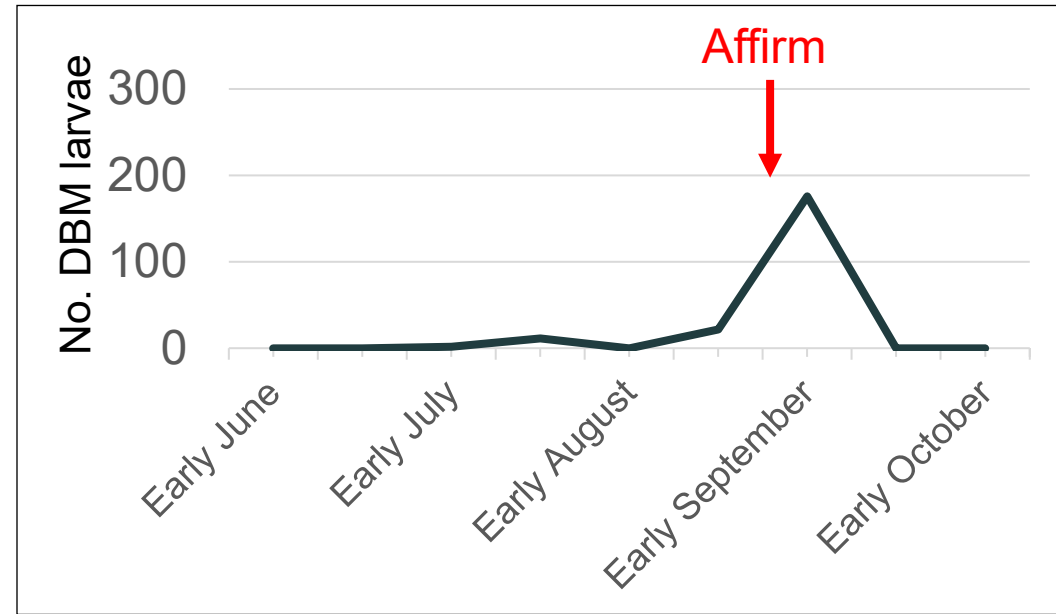


DBM, photo courtesy S. Meyer

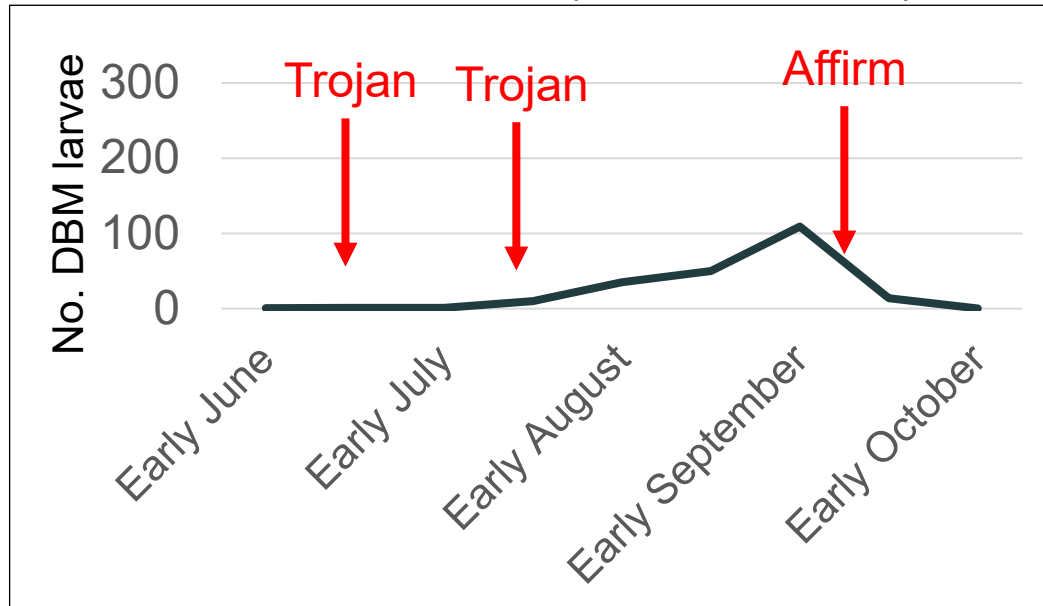
Kwinana East: south Mukinbudin



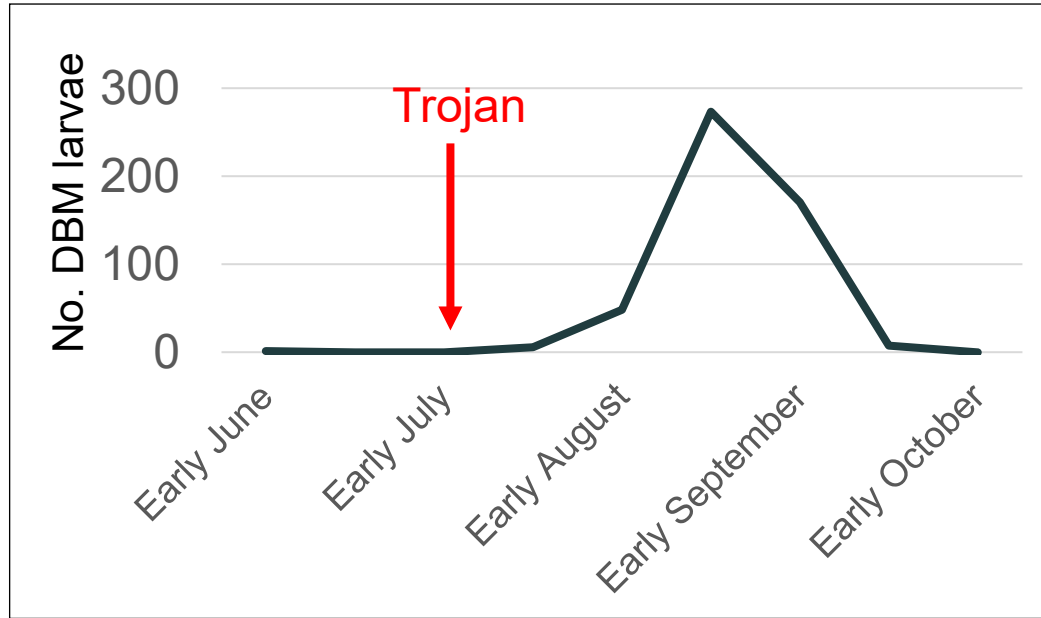
Geraldton: Mount Horner (north Irwin)



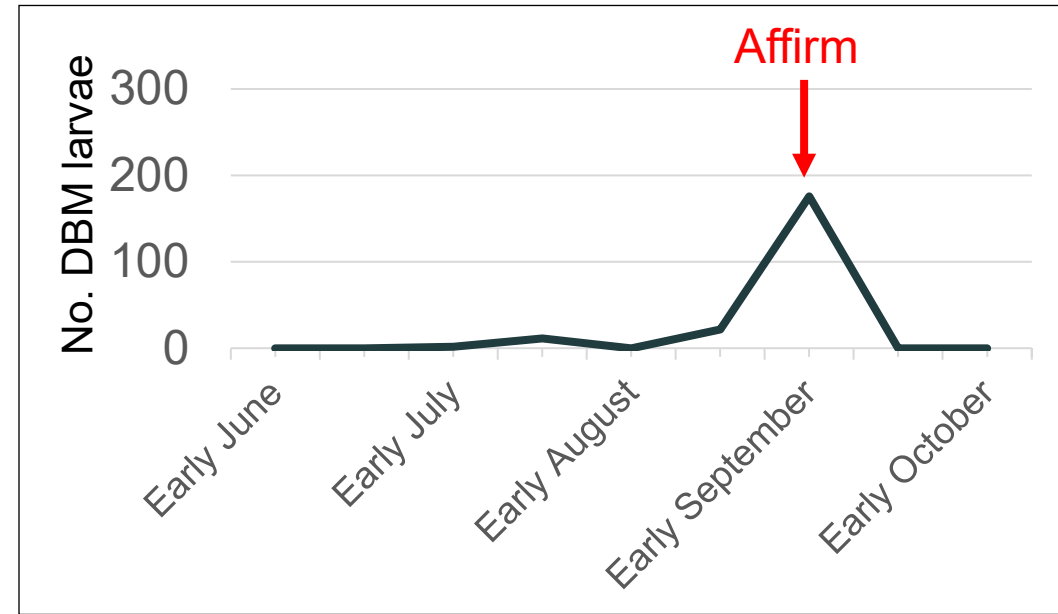
Kwinana West: Xantippee (east Dalwallinu)



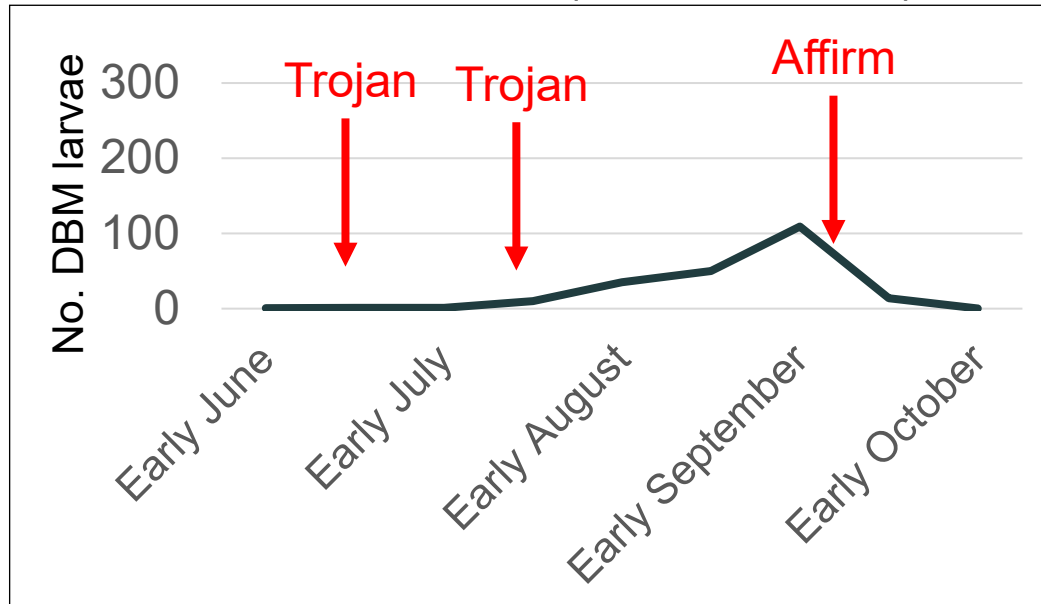
Kwinana East: south Mukinbudin



Geraldton: Mount Horner (north Irwin)



Kwinana West: Xantipée (east Dalwallinu)



At Mukinbudin:

- Heavy rain & wind on 6-18 Aug. and 3-5 Sept.

DBM surveillance

- Trap catches = moths *not* DBM larval numbers
- Growing season more of a factor for DBM than green-bridge in 2022
- Spraying SP's will not stop egg lay in DBM (or native budworm)

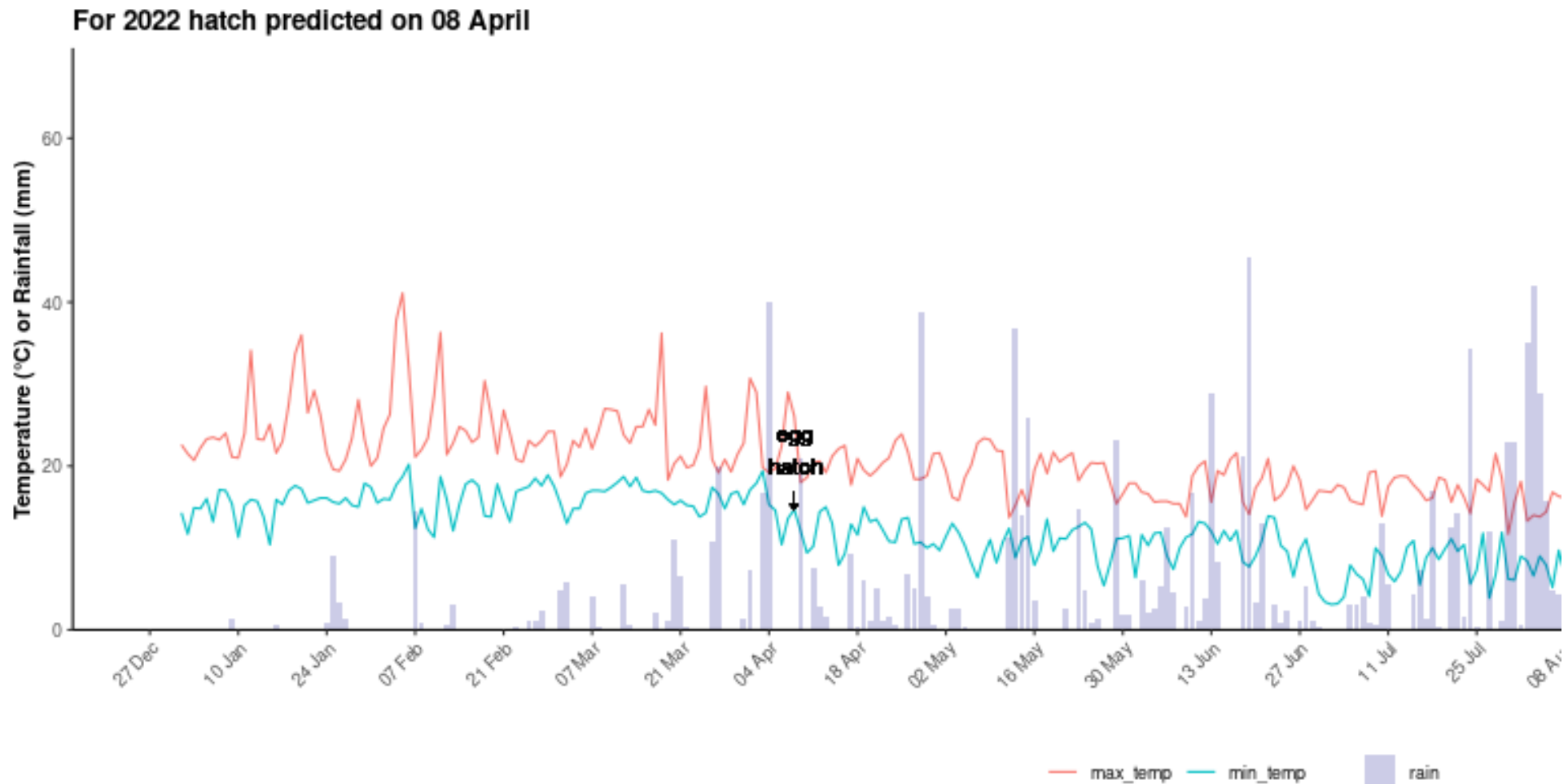


RLEM resistance testing & management update



RLEM hatch model

<https://cesaraustralia.shinyapps.io/RLEM-hatch/>

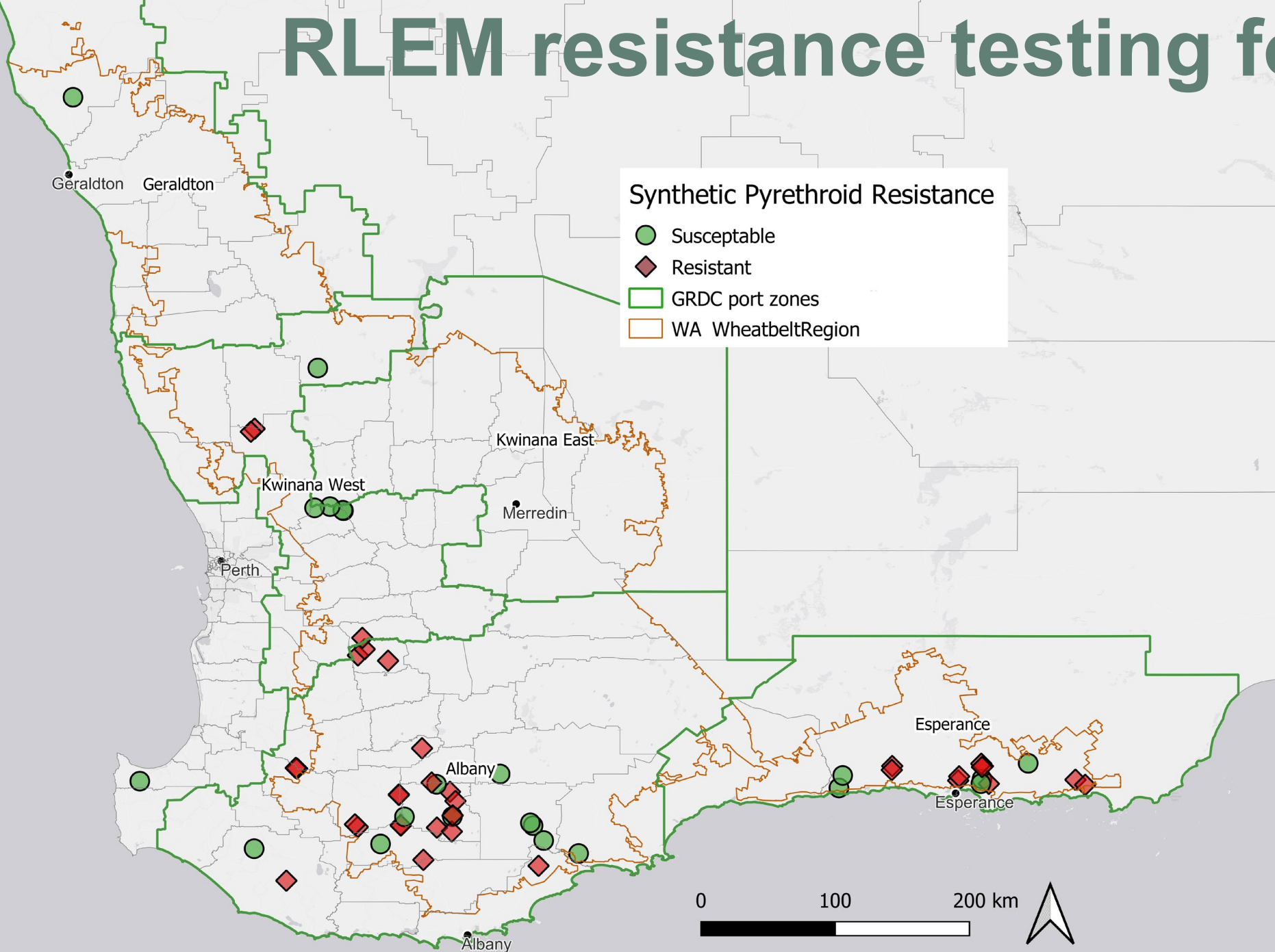


RLEM hatch model

<https://cesaraustralia.shinyapps.io/RLEM-hatch/>

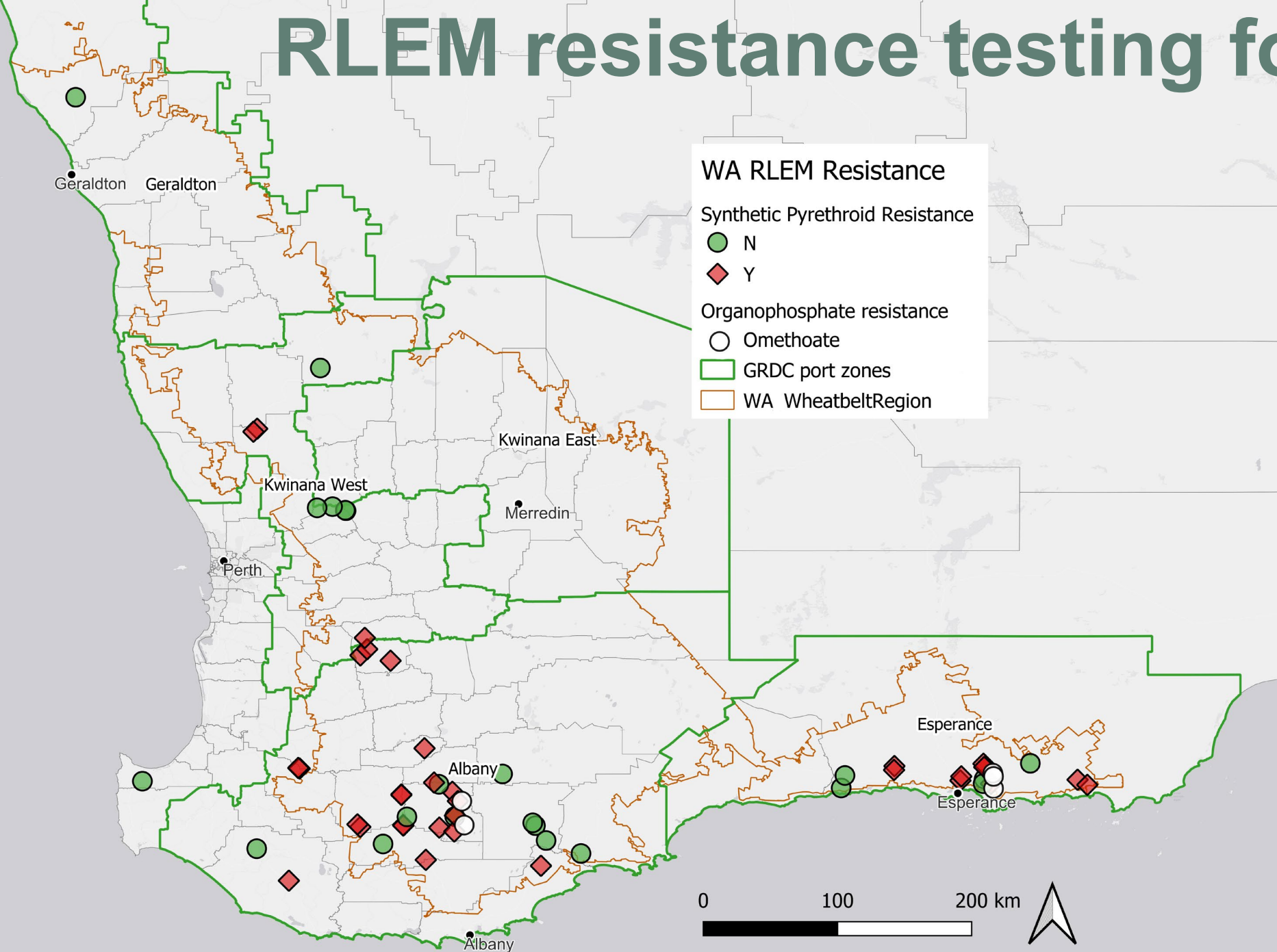
Location	Predicted hatch date 2022
Albany	8 April
Katanning	21 April
Boyup brook	23 April
Esperance	25 April

RLEM resistance testing for 2022



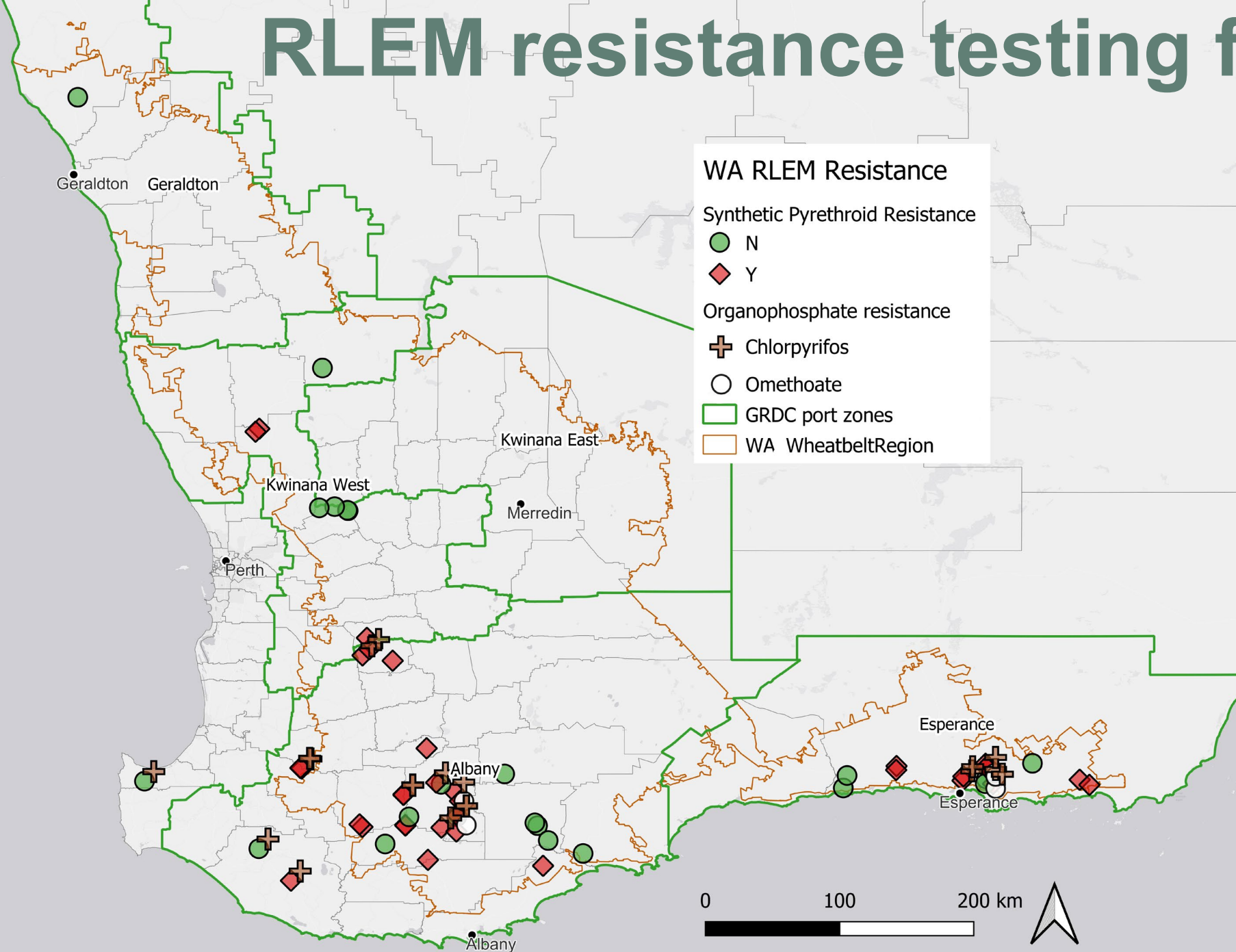
- 57 mite populations bioassayed
- 17 populations resistant to SP's

RLEM resistance testing for 2022



- 57 mite populations bioassayed
- 17 populations resistant to SP's only
- 3 populations resistant to OP's only

RLEM resistance testing for 2022



- 57 mite populations bioassayed
- 17 populations resistant to SP's only
- 3 populations resistant to OP's only
- 18 resistant to OP's + SP's

Background

- OP resistance- metabolic?
 - Can be heritable
 - Persistence?
- SP resistance- mutation on genome
 - Heritable
 - Persists- how long?



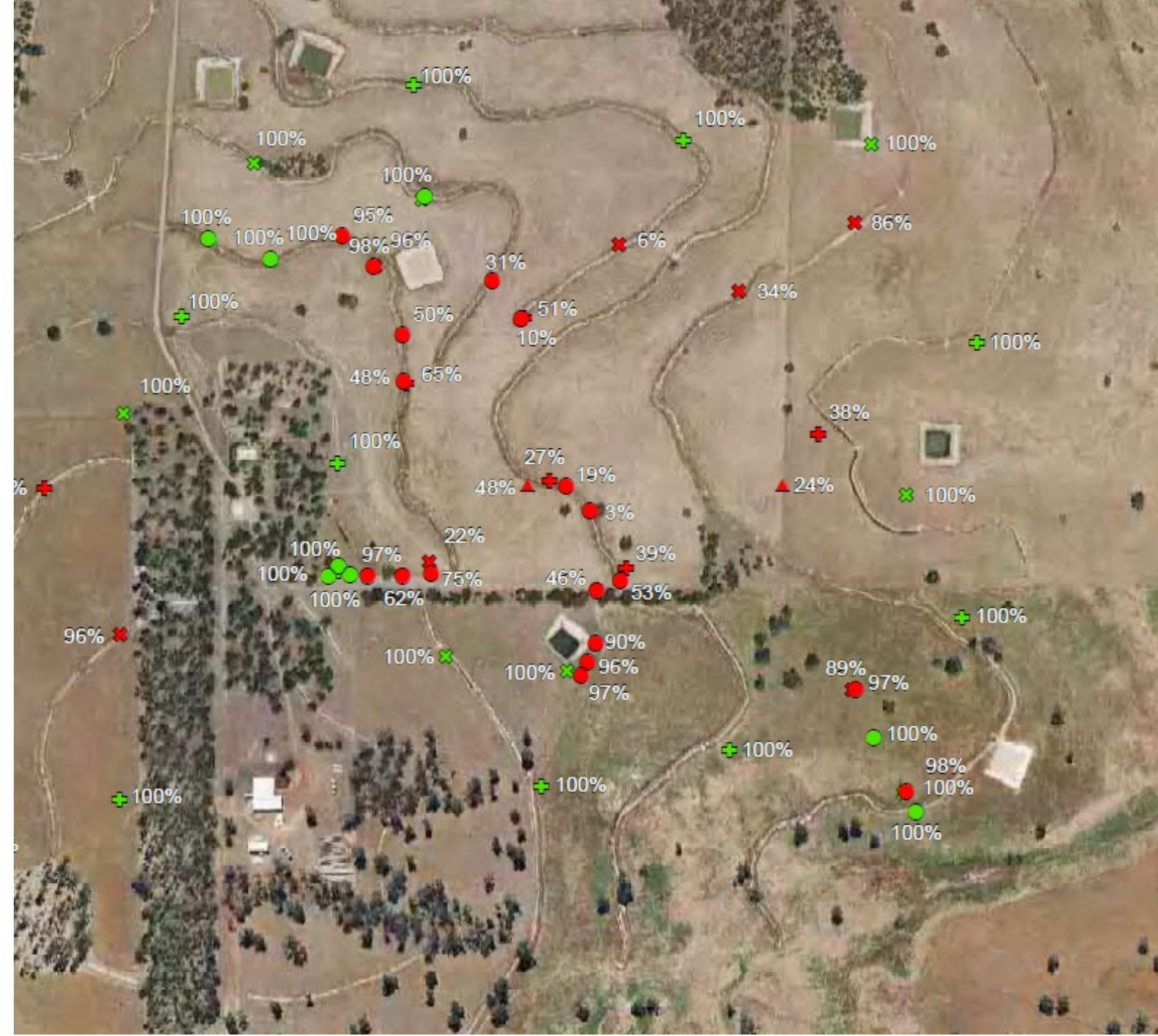
RLEM RESISTANCE MAP BOYUP BROOK REGION

2010 - 2013

Legend

- ▲ 2010, Resistant
- ✚ 2011, Resistant
- ✚ 2011, Susceptible
- ✘ 2012, Resistant
- ✚ 2012, Susceptible
- 2013, Resistant
- 2013, Susceptible

50% Percentage of Sample Susceptible
□ Cadastre



Management options

- Avoid OP and SP sprays unless necessary
- Have SP and OP resistance? Options are limited.

Management strategy at:
<https://grdc.com.au/FS-RLEM-Resistance-strategy>



Thank you

dpiird.wa.gov.au    

Important disclaimer

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